The Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea, and Contiguous Area (ACCOBAMS): Problems and Prospects

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ACCOBAMS

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Glossary

- 1MOP: First Meeting of the Parties to the Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea, and Contiguous Area
- 2MOP: Second Meeting of the Parties to the Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea, and Contiguous Area
- ACCOBAMS: Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea, and Contiguous Area
- AMAP: ACCOBAMS Monitoring and Assessment Program
- ASCOBANS: Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas
- BACI: Before/After/Control/Impact
- BSEP: Black Sea Environmental Program
- CAMP: Coastal Area Management Programme
- CBD: Convention on Biological Diversity
- CEN: European Committee for Standardization
- CFP: Common Fisheries Policy
- CIESM: International Commission for the Scientific Exploration of the Mediterranean Sea

- CITES: Convention on International Trade in Endangered Species of Wild Flora and Fauna
- CMS: Conservation of Migratory Species of Wild Animals
- COMBINE: Cooperative Monitoring in the Baltic Sea Environment
- DDE: dichlorodiphenyltrichloroethane
- DDT: dichlorodiphenyl trichloroethane,
- EcoQOs: Ecological Quality Objectives
- EEZs: Exclusive Economic Zones
- EMEP: Cooperative Programme for Monitoring and Evaluation of the Long-Range Transmission of Air Pollutants in Europe
- ENGOs: Environmental Non-Governmental Organizations
- EPDRB: Environmental Programme for the Danube River Basin
- EU: European Union
- FAO: Food and Agriculture Organization
- GCM: general circulation models
- GEF: Global Environment Facility
- GFCM: General Fisheries Commission for the Mediterranean
- HELCOM: Baltic Marine Environment Protection Commission
- ICCAT: International Convention for the Conservation of Atlantic Tunas
- ICRW: International Convention for the Regulation of Whaling
- ICC: Implementation and Compliance Committee
- ICRAM: Institute for Applied Marine Research
- IPCC: Intergovernmental Panel on Climate Change
- IUCN: International Union for the Conservation of Nature

- IWC: International Whaling Commission
- LCP: Ligurian-Corsican-Provençal
- LRTAP: Convention on Long-Range Transboundary Air Pollution
- MAP: Mediterranean Action Plan
- MAP Phase II: Protection of the Marine Environment and Sustainable Development of the Coastal Areas of the Mediterranean"
- MEAs: Multilateral Environmental Agreements
- MEDACES: Managing the Mediterranean Database of Cetacean Strandings
- MEDIFSIS: Mediterranean fishery statistics and information system
- MED POL: Assessment and Control of Pollution in the Mediterranean region
- MMAP: Management and Utilization of Marine Mammals
- MONAS: Monitoring and Assessment Group
- MOU: Memorandum of Understanding
- MSY: Maximum Sustainable Yield
- NASCO: North Atlantic Salmon Conservation Organization
- NGOs: Non-Governmental Organizations
- OECD: Organization of Economic Cooperation and Development
- OPR: Ocean Program for Regional Seas
- OSPAR Convention: Convention for the Protection of the Marine Environment of the North-East Atlantic
- PP10: Partnership for Principle 10
- PAH: Polyaromatic Hydrocarbons

Chapter
1

Introduction

1.1 Overview

In November of 1996, representatives of twenty States assembled in Monaco and adopted by consensus the Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area (ACCOBAMS).[1] With the ratification of the agreement by Malta, ACCOBAMS came into force on June 1, 2001[2] and currently has eighteen Parties.[3]

ACCOBAMS is the second regional cetacean agreement established under the Convention on the Conservation of Migratory Species of Wild Animals (CMS)[4] in what ultimately may become a set of worldwide interlocking regional agreements.[5] The purpose of this thesis is to assess the prospects for

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[1] 36 I.L.M. 777 (1997) (hereinafter ACCOBAMS).

[2] *ACCOBAMS Gains Momentum: Entry into Force 1 June 2001,* 13 CMS BULL. 13 (2001). By its terms, ACCOBAMS was to enter into force three months after at least seven coastal States or regional economic integration organizations in the region, including at least two from the subregion of the Black Sea and at least five from the Mediterranean, ratified, accepted or approved the Agreement. *Id.* at art. XIV.

[3] ACCOBAMS Secretariat, *Signatures, Ratification et adhésions,* <http://www.accobams.mc/Accob/Wacco.nsf/Fram1Gb!OpenFrameSet>, site visited on Feb. 4, 2005. The following States have submitted documents of ratification or accession: Albania, Bulgaria, Croatia, France, Georgia, Greece, Italy, Lebanon, Libya, Malta, Morocco, Monaco, Portugal, Romania, Spain, Syria, Tunisia, and Ukraine.

[4] 19 I.L.M. 15 (1980) (hereinafter, CMS). The first cetacean agreement established under the CMS was the Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas (ASCOBANS). ASCOBANS entered into force in 1994 and is reprinted in II THE MARINE MAMMAL COMMISSION COMPENDIUM OF SELECTED TREATIES, INTERNATIONAL AGREEMENTS, & OTHER RELEVANT DOCUMENTS ON MARINE RESOURCES, WILDLIFE AND THE ENVIRONMENT 1612 (1994).

[5] Margi Prideaux, *Discussion of a Regional Arrangement for Small Cetacean Conservation in the Indian Ocean,* 32 CAL. W. INT'L L.J. 211, 214 (2002); Hugo Nijkamp & Andre Nollkaemper, *The Protection of Small Cetaceans in the Face of Uncertainty: An Analysis of the ASCOBANS Agreement,* 9 GEO. INT'L ENVTL. L. REV. 281, 302 (1997).

ACCOBAMS to contribute to the protection of cetaceans in an area of the world fraught with perils for cetaceans and other marine species.

1.2 Analytical Framework

The overarching question that this thesis will seek to answer is whether, and how, the States in the Mediterranean and Black Sea regions that have either become members of ACCOBAMS, or may become members in the future, can establish a viable framework to conserve cetaceans. Implicit in this question is a broader inquiry that guides the study of international regimes, "how is co-operation possible between states claiming sovereignty but competing for power and influence in a situation of anarchy?"[6] Thus, in conducting my study of ACCOBAMS, I will employ the theoretical framework of international regimes analysis. I adopt Barry B. Hughes's definition of "international regimes" as "principles, norms, rules, and decision-making procedures that facilitate extensive reciprocity in a given issue area."[7] "Principles are beliefs of fact, causation, and rectitude." "Norms are standards of behavior in terms of rights and obligations. Rules are specific prescriptions or proscriptions for action. Decision-making procedures are prevailing practices for making and implementing collective choice."[8] "The definition demands attention both to cognitive studies of the beliefs which influence the creation and change of

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[6] Andrew Hurrell, *International Society and the Study of Regimes, in* REGIME THEORY & INTERNATIONAL RELATIONS 50 (Volker Rittberger ed., 1993).
[7] BARRY B. HUGHES, CONTINUITY & CHANGE IN WORLD POLITICS: THE CLASH OF PERSPECTIVES 264 (1991).
[8] STEPHEN D. KRASNER, INTERNATIONAL REGIMES 1-2 (1983).

internationally shared norms and principles and national interests, as well as to power-based studies of the distribution of international capabilities which shape the creation of rules and decision-making procedures."[9]

Regimes do not transcend the domain of nation-states in the international order; rather they are "arrangements motivated by self-interest" and "are components of an international system in which sovereignty remains the constitutive principle."[10] "Both theory and practice suggest that states will relinquish authority only to obtain a significant benefit beyond the reach of separate national action or to avoid bearing a major burden."[11] Over time, however, if States perceive that it is in their long-term interests to continue to participate in a regime, beliefs in the obligation and normativity of rules can develop, creating some distance from more immediate interests and preferences.[12] Moreover, institutionalization of regimes can help re-shape the perceived self-interests of States. As Hasenclever, Mayer and Rittberger observe:

> [T]he institutionalization of regimes can 1) change standard operating procedures for national bureaucracies; 2) present new coalition opportunities for subnational actors and improved access for third parties; 3) change participants' attitudes toward contacts within the framework of institutions; and 4) provide means to dissociate a particular issue from changes in the overall political relationship by regular, formal meetings.[13]

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[9] Peter M. Haas, *Epistemic Communities and the Dynamics of International Environmental Co-Operation in* Rittberger, *supra* note 6, at 171.
[10] Isaiah Wilson III, *Dueling Regimes: The Means-End Dilemma of Multilateral Intervention Policy,* 163(3) WORLD AFF. 99, 100 (2001).
[11] Jack Donnelly, *International Human Rights: A Regime Analysis,* 40(3) INT'L ORG. 599, 616 (1986).
[12] Hurrell, *supra* note 6, at 60.
[13] ANDREAS HASENCLEVER, PETER MAYER & VOLKER RITTBERGER, THEORIES OF INTERNATIONAL REGIMES 148 (1997); Krasner, *supra* note 8, at 367-68.

Regimes arise under the relatively rare circumstances where "actors (at least in part) conform their conduct to norms and procedures they accept as legitimate. Restricted to issue-areas where behavior is at least partially governed by regime norms and procedures, regimes become causal variables, at minimum, intervening variables between state behavior and deeper structural forces such as power or interest."[14]

Regimes help to facilitate this transcendence by bolstering government concern about issues, enhancing the contractual environment by resolving distributional, informational and enforcement issues, and helping to build national capacity to address the issues that impelled States to create the regime.[15] More specifically, regimes can help to foster the development of norms and principles that reduce the need for extensive management functions by altering payoffs, substantially reducing the costs of achieving common objectives.[16] Moreover, institutions associated with regimes can help to establish international agendas, act as catalysts for the formation of coalitions across national boundaries, including epistemic communities,[17] and reduce organizational costs associated with asymmetric information, uncertainty, and risk.[18]

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[14] Donnelly, *supra* 11, at 602. *See also* Svein Jentoft, *Institutions in Fisheries: What They Are, What They Do, and How They Change,* 28 MARINE POL'Y 137-149 (2004).
[15] Philippe G. Le Prestre, *Studying the Effectiveness of the CBD, in* GOVERNING GLOBAL BIODIVERSITY 79 (Philippe G. Le Prestre eds., 2002).
[16] Giulio M. Gallarotti, *The Limits of International Organization: Systematic Failure in the Management of International Relations, in* THE POLITICS OF GLOBAL GOVERNANCE 398 (Paul F. Diehl ed., 1997).
[17] Epistemic communities have defined by Peter Haas as "transnational networks of knowledge based communities that are both politically empowered through their claims to exercise authoritative knowledge and motivated by shared causal and principled beliefs." Peter M. Haas, *Obtaining International Environmental Protection Through Epistemic Consensus,* 19(3) MILLENIUM

A regimes approach allows us to "transcend black letter international law and formal organizations and to understand those underlying shared assumptions and rules that ma[ke] international cooperation possible."[19] As Ruggie in his seminal article on regimes avers:

> . . . until recently it has been virtually impossible to find conceptualizations and measuring schemes of international collectivities or of institutionalized collective behavior other than those implicitly or explicitly based upon the behavior of formal organizations.[20]

In assessing the prospects for ACCOBAMS, and suggesting means to improve its effectiveness, it is important to emphasize that "ACCOBAMS" must be analyzed as a regime, rather than merely a treaty instrument. While rules and decision-making procedures are primarily derived from treaty instruments, extra-legal factors related to norms, rules, and principles may evolve exogenously

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347, 349 (1990). In the context of environmental issues epistemic communities have been comprised primarily of ecological scientists. *Id.* at 351. As Bäckstrand contends, epistemic communities can play a critical role in environmental governance because they are capable of mobilizing a consensus on scientific issues to facilitate international policy coordination and agreement and can prevent the politicization of scientific expertise and uncertainties by "recalcitrant actors." Karin Bäckstrand, *Civic Science for Sustainability: Reframing the Role of Experts, Policy-Makers and Citizens in Environmental Governance,* 3(4) GLOBAL ENVTL POL. 24, 26 (2003). Epistemic communities assert power in regime formation and implementation primarily by insinuating themselves in the bureaucratic apparatus of States. Hasenclever, et al., *supra* note 13, at 151. Their influence stems from their ability to: 1. influence the framing of issues for debate, 2. communicate new ideas and policy innovations to their colleagues in other States; 3. provide integrative formulas during critical junctions of policy negotiation; and 4. defend regimes in the political arena, helping to ensure their continued viability. *Id.* at 151-52.

There is empirical evidence that epistemic communities played an influential role in pressing hesistant governments in the Mediterranean basin to support establishment of the primary pollution control regime in the Mediterranean, the Barcelona Convention (*see,* sec. 5.2, *infra*). ORAN YOUNG, INTERNATIONAL GOVERNANCE: PROTECTING THE ENVIRONMENT IN A STATELESS SOCIETY 104 (1994); PETER HAAS, SAVING THE MEDITERRANEAN: THE POLITICS OF INTERNATIONAL ENVIRONMENTAL PROTECTION (1990).

[18] *Id.* at 397.

[19] John Vogler, *Taking Institutions Seriously: How Regime Analysis can be Relevant to Multilevel Environmental Governance,* 3(2) GLOBAL ENVTL. POL. 25, 26 (2003).

[20] John C. Ruggie, *International Responses to Technology: Concepts and Trends,* 29(1) INT'L ORG. 557, 568-569 (1975).

through the deliberations of "mixed actors,"[21] which includes the participation of the treaty's Parties in fora such as the Meetings of the Parties, and subsidiary bodies such as the Scientific Committee and Bureau, as well as through the efforts of national and local governmental bodies, non-governmental organizations (NGOs), and private actors.[22]

This reflects what Van Tatenhove has termed the emergence of "late political modernisation," characterised by "an increasing encroachment and interference of state, civil society and markets, with rather vague demarcation lines between them."[23] This dense network of interactions that take place in a regime environment "fosters a convergence in value orientation and thereby create incentives for a further institutionalization of co-operation."[24] As Wendt observes:

> [T]he process by which egoists learn to co-operate is at the same time a process of reconstructing their interests in terms of shared commitments to social norms. Over time, this will tend to transform a positive interdependence of outcomes into a positive interdependence of utilities or collective interest organized around the norm in question.[25]

Donnelly suggests that there are six important types of regime decision-making procedures:

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[21] Peter Hough, *Poisons in the System: The Global Regulation of Hazardous Pesticides,* 3(2) GLOBAL ENVTL. POL. 11, 23 (2003).
[22] Donnelly, *supra* note 14, at 604; Ronald B. Mitchell, *International Environmental Agreements: A Survey of their Features, Formation, and Effects,* 28 ANN. REV. ENVTL. RESOURCES 435 (2003).
[23] Jan P.M. Van Tatenhove, *Environment and Participation in a Context of Political Modernisation,* 12 ENVTL. VALUES 155, 161 (2003).
[24] Anders Jägerskog, *The Jordan River Basin: Explaining Interastate Water Co-Operation Through Regime Theory,* Water Issues Study Group, School of Oriental & African Studies, University of London, Occasional Paper No. 31 (2001), at 2.
[25] Alexander Wendt, *Anarchy is What States Make of It: The Social Construction of Power Politics,* 46 INT'L ORG. 391, 417 (1992).

- **Authoritative international decision making**: institutionalized, binding decision making, including generally effective enforcement powers;
- **International monitoring:** formal international review of state practice but no authoritative enforcement procedures. Monitoring activities can be further categorized in terms of the powers allowed to monitors to carry out independent investigations and make judgments of compliance with international norms;
- **International policy coordination**: regular and expected use of an international forum to achieve greater coordination of national policies but no significant international review of state practice;
- **International information exchange**: obligatory or strongly expected use of international channels to inform other states or one's practice with respect to regime norms;
- **International promotion or assistance**: institutionalized international promotion of or assistance in the national implementation of international norms;
- **National decision making**: full state sovereignty in decision making for the issue-area.[26]

This analysis will include an assessment of the regime's development in the context of each of these procedures, and the ramifications for its long-term prospects.

In developing this treatment of ACCOBAMS, I will 1) examine the perils facing cetaceans in the area encompassed by the Agreement; 2) outline the negotiating history of ACCOBAMS and its key provisions; 3) discuss the developments at the First Meeting of the Parties (1MOP) and assess progress made in implementing the treaty; 4) outline the relationship of ACCOBAMS to other global and regional instruments and organizations germane to conservation and management of cetaceans; and 5) assess the treaty's long-term prospects and suggest means of enhancing the potential for it to meet its objectives.

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[26] Donnelly, *supra* note 14, at 604.

2.1 The Mediterranean Region

2.1.1. The Mediterranean Sea: Overview

The Mediterranean Sea is the remnant of an older ocean, the Tethys, which was tens of millions of years older and several times wider.[27] The Sea covers an area of approximately 2,512,000 square kilometers,[28] encompassing portions of North Africa, southwestern Asia and southern Europe.[29] The Sea's volume is 3.75 million km^3, with a maximum depth of 5,120 meters and an average depth of 1,538 meters.[30] The Sea connects to the Atlantic through the Strait of Gibraltar, a 15-kilometer wide and 290-meter deep sill.[31] It connects to the Black Sea through the Strait of Çanakkale (Dardanelles), with a maximum width of only 7 kilometers and an average depth of 55 meters, and with the Red Sea through the Suez Canal.[32] (*See* Figures 1 & 2). It is divided into two basins, the eastern and western, separated by the Sicilian Channel, which is about 150 kilometers wide, with a maximum water depth of 400 meters.[33] 22 States border

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[27] European Environment Agency/UNEP, *State and Pressures of the Marine and Coastal Mediterranean Environment* (1999), <http://org.eea.eu.int/documents/pdf.html>, site visited on May 1, 2002 (hereinafter EEA/UNEP).
[28] Università degli Studi di Pavia, Centro Interdisciplinare di Bioacustica e Ricerche Ambientali, *The Mediterranean Sea,* <http://www.unipv.it/webcib/edu_Mediterraneo_uk.html>, site visited on Dec. 15, 2001.
[29] DIMITRIS K. XENAKIS & DIMITRIS N. CHRYSSOCHOOU, EUROPE IN CHANGE 25 (2001).
[30] G.P. Gabrielides, *Pollution of the Mediterranean Sea,* 32(9-10) WATER SCI. & TECH. 1, 1 (1995).
[31] Università degli Studi di Pavia, *supra* note 28.
[32] Encyclopedia.Com, *Mediterranean Sea: Geography,* <http://www.encyclopedia.com/articles/08281Geography.html>, site visited on Dec. 15, 2001.
[33] EUROPEAN ENVIRONMENT AGENCY, EUTROPHICATION IN EUROPE'S COASTAL WATERS 16 (2001), Topic Rep. 7/2001.

the 46,000 kilometers of Mediterranean coast:[34] Albania, Algeria, Bosnia & Herzegovina, Croatia, Cyprus, Egypt, Federal Republic of Yugoslavia,[35] France, Greece, Israel, Italy, Lebanon, Libya, Malta, Monaco, Morocco, Slovenia, Spain, Syria, Tunisia, Turkey, and the United Kingdom (Gibraltar and the two Sovereign Base Areas of Akrotiri and Dhekelia in the island of Cyprus). There are over 46,000 kilometers of coasts in the region.

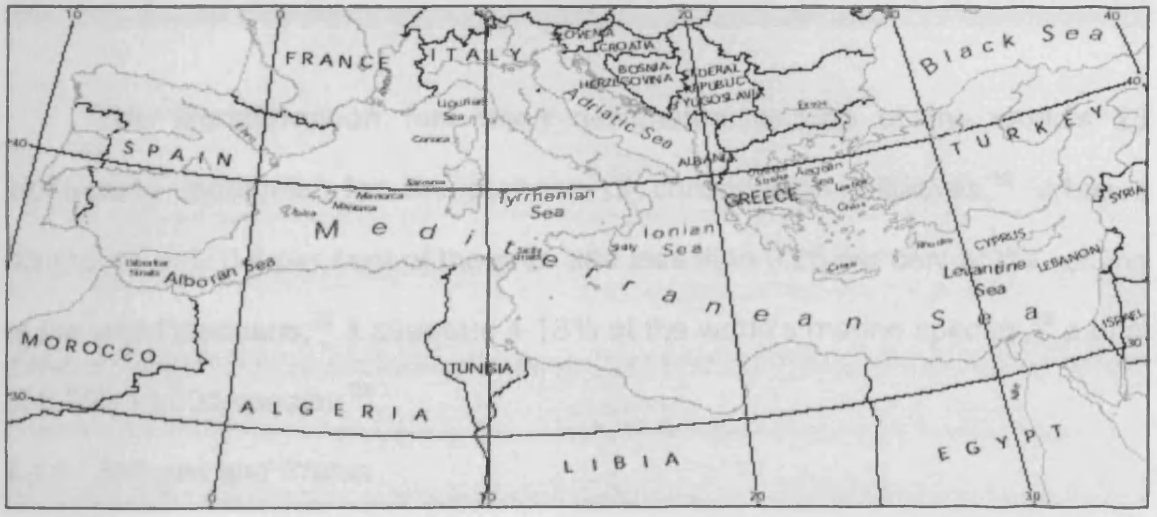

Figure 1
Mediterranean Sea Region

[34] WWF, *Mediterranean Environmental Crisis Points* 4 (2000).
[35] Yugoslavia has recently changed its name to Union of Serbia and Montenegro. However, given the fact that the State's name may change again soon, I have employed its old name throughout the thesis.

Figure 2
Mediterranean Sea Basins

The Mediterranean has been designated as one of the world's 25 biodiversity "hotspots" for the purpose of conservation initiatives.[36] While it comprises only 0.8 per cent of the area and less than 0.25 per cent of the volume of the world's oceans,[37] it supports 4-18% of the world's marine species,[38] a total of 8,000-10,000 species.[39]

2.1.1 Species and Status

Of the 116 currently recognized species of marine mammals, 75 belong to the Order of Cetacea, comprised of whales, dolphins and porpoises.[40] The order

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[36] Silvano Bonotto, *Aspects of Pollution on the Coastal Ecosystems of the Mediterranean Sea,* 11(4) AQUATIC CONSERVATION: MARINE & FRESHWATER ECOSYSTEMS 319, 319 (2001).
[37] EEA/UNEP, *supra* note 27, at 42.
[38] M.A. Massoud, M.D. Scrimshaw & J.N. Lester, *Qualitative Assessment of the Effectiveness of the Mediterranean Action Plan: Wastewater Management in the Mediterranean Region,* 46 OCEAN & COASTAL MGMT. 875, 876 (2003); Robinson Shaw, *Mediterranean Tourism Takes its Toll,* ENVTL. NEWS NETWORK, Mar. 13, 2000, <http://www.enn.com/enn-news-archive/2000/03/03132000/medtourist_10789.asp>, site visited on Mar. 20, 2001.
[39] EEA/UNEP, *supra* note 27, at 43.
[40] Cynthia E. Carlson, *The International Regulation of Small Cetaceans,* 21 S.D. L. REV. 577, 580 (1984).

is further divided into two suborders, the Mysticetes, or baleen whales,[41] and the Odontocetes, or toothed whales, dolphins and porpoises.[42]

The Mediterranean Sea is an area of high cetacean diversity,[43] although little is known about the status and geographical distribution of species in the region, especially in the eastern Mediterranean.[44] A primary reason for this is that most of the research that has been published in this context is comprised of "grey literature," spread across an array of unpublished reports, academic theses and dissertations, and conference proceedings. Thus, "it is difficult to evaluate what is known for even many of the areas where focused research . . . has been carried out."[45] As a consequence, the assessments outlined in this section must be viewed with extreme caution.

Nineteen species of cetaceans can be encountered in the Sea,[46] with eight species of cetaceans commonly found in the region, including seven

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[41] "Baleen" is a sieve-like device, consisting of a series of stiff, flexible material that hangs from the upper jaw of Mysticete species. It is used to filter food, such as krill, copepods and plankton. Mysticete species have between 160-350 pairs of baleen plates, Zoom Whales, *Whale Anatomy and Behavior,* <http://www.enchantedlearning.com/subjects/whales/anatomy/Baleen.shtml>, site visited on Jan. 17, 2004.

[42] Whale & Dolphin Conservation Society, *Odontocetes (Toothed Whales, Dolphins and Porpoises),* <http://www.wdcs.org/dan/publishing.nsf/allweb/0FA59830072550DD802568F8004BDD88>, site visited on Jan. 16, 2004.

[43] ATELIER CIESM SUR L'ENVIRONNEMENT LITTORAL 10 (1997). "More than 20 different [cetacean] species have been recorded ..." L. Venizelos & M. Smith, *The Impact of 'Small Garbage' on the Marine Environment, With Emphasis on the Mediterranean Marine Turtle Population,* 4(4) TESTUDO 41, 45 (1998).

[44] Giovanni Bearzi, *Ecology, Status and Conservation of Short-Beaked Common Dolphins Delphinus delphis in the Mediterranean Sea,* 33(3) MAMMAL REV. 224, 227 (2003); K. Pirounakis, et al., *Cetaceans in the Eastern Ionian Sea: Results of an Observer's Program,* 1 CONTRIBUTIONS TO THE ZOOGEOGRAPHY & ECOLOGY OF THE EASTERN MEDITERRANEAN REGION 429, 429 (1999); M. Pulcini & D.S. Pace, *Behaviour and Ecology of the Delphinus Delphis Around the Ionian Islands of Greece,* 12 EUR. RES. CETACEANS 170 (1999).

[45] Giovanni Bearzi, *Towards a Conservation Plan for Common Bottlenose Dolphins in the Mediterranean,* Second Meeting of the Scientific Committee of ACCOBAMS, 20-22 Nov. 2003, at 1.

[46] Università degli Studi di Pavia, *supra* note 28.

Odontocete species: striped dolphin (*Stenella coeruleoalba*), short-beaked common dolphin (*Delphinus delphis*), bottlenose dolphin (*Tursiops truncatus*), Risso's dolphin (Grampus griseus), Cuvier's Beaked Whale (*Ziphius cavirostris)* sperm whales (*Physeter catodon*) and the Long-Finned Pilot Whale (*Globicephala melas*), and one Mysticete species, the fin whale (*Balaenoptera physalus*).[47] Five other species are occasionally sighted in the region, the minke whale (*Balaenoptera acutorostrata*), Killer whale (*Orcinus orca*), False Killer whale (*Pseudorca crassidens*), the Rough toothed dolphin (*Steno bredanesis*) and the humpback whale (*Megaptera novaeangliae*).[48]

By far the most abundant cetacean species in the Mediterranean is the striped dolphin, with an estimated population of 225,000 in the western Mediterranean.[49] While primarily considered an oceanic species, striped dolphins are distributed from the edge of the continental shelf, at least 15 miles from the coast, to the open sea, with a marked preference for water depths of greater than 800 meters.[50] Its distribution in the Mediterranean is heterogeneous and is

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[47] A. Gannier & V. Drout, *Distribution and Relative Abundance of the Sperm Whale in the Central and Western Mediterranean,* 13 EUR. RES. CETACEANS 227, 227 (1999).
[48] Università degli Studi di Pavia, *supra* note 28; Alexandros Frantzis, et al., *Humpback Whale (Megaptera Novaeangliae) Occurrence in the Mediterranean Sea,* 6(1) J. CETACEAN RES. & MGMT. 25, 25 (2004).
[49] William F. Perrin, Carrie E. Wilson & Frederick I. Archer III, *Striped Dolphin, Stenella coeruleoalba (Meyen, 1833), in* 6 HANDBOOK OF MARINE MAMMALS 141 (Sam H. Ridgway & Richardson Harrison eds., 1999). Striped dolphins were also the most abundant species found in recent surveys conducted in the central Mediterranean, comprising 43.5 per cent of all cetacean species found in the region. The species is also believed to be abundant in the eastern Mediterranean, Alex Aguilar & J. Antonio Raga, *The Striped Dolphin Epizootic in the Mediterranean Sea,* 22 AMBIO 524, 524 (Dec. 1993); however, no abundance estimates are yet available. Alex Aguilar, *Population Biology, Conservation Threats and Status of Mediterranean Striped Dolphins (Stenella Coeruleoalba),* 2(1) J. CETACEAN RES. & MGMT. 17, 18 (2000).
[50] I. Mardikis, V. Podiadis & G. Verriopoulous, *High Sighting Frequency of the Pelagic Species Striped Dolphin Stenella Coeruleoalba in a Closed Sea Area,* 13 EUR. RES. CETACEANS 244, 244

strongly affected by factors such as topography and water temperature.[51] It is most frequently found in the northwest Mediterranean in the High Tyrrhenian Sea of the Ligurian basin and Provenzal Basin.[52] The striped dolphin is a generalist eater,[53] with a diet consisting primarily of fish (*Diaphus, Erythocles, Micromesistius, Trisopterus, Gadinculus, Merluccius, Merlangius, Trachurus, Atherina, Chauliodus, Engraulis*), ocean cephalopod species (*Ommastrephidae, Chiroteuthidae, Loliginidae, Histioteuthidae*), *and* decapods.[54] The species is classified by the International Union for the Conservation of Nature (IUCN) in its Red List of Threatened Species[55] as *Lower Risk – Conservation Dependent.*[56] This category is reserved for species that do not satisfy the IUCN's criteria for

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(1999); Alexandre Gannier, *Diel Variations of the Striped Dolphin Distribution off the French Riviera (Northwestern Mediterranean Sea,* 25(3) AQUATIC MAMMALS 123, 123-24 (1999).

[51] J. Forcada, *Striped Dolphin Habitats in the Northwestern Mediterranean,* 8 EUR. RES. CETACEANS 95, 95 (1994).

[52] Sergi Tudela, *Ecosystem Effects of Fishing in the Mediterranean: An Analysis of the Major Threats of Fishing Gear and Practices to Biodiversity and Marine Habitats,* General Fisheries Commission for the Mediterranean, Studies and Reviews, No. 74 (2004), at 14; R. Trucchi, *A Comparison Between the Fourth and the Fifth WWF's Research Campaign in the Ligurian Sea,* 13 EUR. RES. CETACEANS 271, 271 (1999).

[53] M. Pulcini, R. Carlini & M. Wurtz, *Stomach Contents of Striped Dolphins, Stenella Coeruleoalba, (Meyen, 1933) from the South-Central Tyrrhenian Coast,* 6 EUR. RES. CETACEANS 194, 194 (1992).

[54] I. Mardikis, V. Podiadis & G. Verriopoulos, *High Sighting Frequency of the Pelagic Species Striped Dolphin Stenella Coeruleoalba in a Closed Sea Area,* 14 EUR. RES. CETACEANS 375, 375 (2000); N. Cardellicchio, *Persistent Contaminants in Dolphins: An Indication of Chemical Pollution in the Mediterranean Sea,* 32(9-10) WATER SCI. & TECH. 331, 338 (1995); C. Blanco, F.J. Aznar & J.A. Raga, *Food Habitats of Stenella Coeruleoalba in the Western Mediterranean During the 1990 Die-Off, With Special Reference to Squids,* 8 EUR. RES. CETACEANS 196, 197 (1994).

[55] IUCN, 2003 IUCN RED LIST OF THREATENED SPECIES, <http://www.redlist.org>, site visited on Jan. 17, 2004. The IUCN Red List System is a hierarchical classification system developed to assess and highlight species of animals and plants facing a higher risk of extinction. First conceived in 1963 and originally used by the IUCN's Species Survival Commission (SSC), the IUCN Red List System has set a global standard for species listing and conservation assessment efforts. Barry Baker, et al., *Report on the Implications of the IUCN Listing Criteria for CMS,* Report Prepared for the Secretariat of the Convention on the Conservation of Migratory Species of Wild Animals, UNEP/SC.11/Doc.6 Rev 2 (2002), at 3.

Consultants to the CMS have recently recommended that the Scientific Council to the CMS should use the IUCN Red List categories as a decision support tool in its assessment of Appendix listings. *Id.* at 7.

[56] *Id.,* at <http://www.redlist.org/search/details.php?species=20731>, site visited on Jan. 17, 2004.

classification as a Critically Endangered, Endangered or Vulnerable species, but which could ultimately be moved to one of these categories should conservation programs to protect these species cease to operate.[57] Citing research by its Cetacean Specialist Group, the IUCN in the latest edition of the Red List noted that while the striped dolphin was generally abundant globally, some sub-populations are in "serious trouble," "the most important of these . . . in the western North Pacific and the Mediterranean Sea."[58]

The short-beaked common dolphin is the second most abundant toothed cetacean in the region, spanning coastal to pelagic waters.[59] There is a good case to be made that the common dolphin in the Mediterranean is a distinct subpopulation isolated from Atlantic and Black Sea stocks of common dolphin.[60] Recent line-transect surveys have estimated that there are approximately 15,000 common dolphins in the southwestern Alboran Sea; however, abundance estimates have not been made for the rest of the western Mediterranean because of a low number of sightings.[61] Key areas of distribution include the Alboran, Balearic, and Adriatic Seas, the Tunisian and Malta Plateaux, the

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[57] *Id.* at <http://www.redlist.org/info/categories_criteria.html#categories>, site visited on Jan. 17, 2004.
[58] *Id.* at <http://www.redlist.org/search/details.php?species=20731>, site visited on Jan. 17, 2004.
[59] E. Politi, S. Airoldi & G. Notarbartolo di Sciara, *A Preliminary Study of the Ecology of Cetaceans in the Waters Adjacent to Greek Ionian Islands,* 8 EUR. RES. CETACEANS 111, 112 (1994); E. Politi, et al., *Distribution and Frequency of Cetaceans in the Waters Adjacent to the Greek Ionian Islands,* 6 EUR. RES. CETACEANS 75, 75 (1992).
[60] IUCN, *2004 IUCN Red List of Threatened Species*, Delphinus delphis (Mediterranean subpopulation) <http://www.redlist.org/search/details.php?species=41762>, site visited on Apr. 15, 2005.
[61] G. Bearzi, *Conservation Plan for Shortbeaked Common Dolphins in the Mediterranean Sea*, ACCOBAMS (2004), at 8; ACCOBAMS Secretariat, Proceedings of the First Session of the Meeting of the Parties of the Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area, Monaco, 28 Feb.-02 March 2002, at 58 (hereinafter 1MOP).

Aegean Sea, the Turkish Straits system and other areas of the continental shelf, including Algerian coastal waters and possibly Middle-East Mediterranean waters.[62] There is some evidence of autumnal migration through the Strait of Gibraltar to the Atlantic,[63] but information on geographic distribution remains highly limited.[64] Common dolphins are no longer found in the northern Adriatic Sea, the Balearic Sea, and the Ligurian-Corsican-Provençal basin.[65]

Common dolphin numbers have declined dramatically in the past two decades in the Mediterranean, especially in the northern and western parts of the basin,[66] and the species is classified by the IUCN in its Red List of Threatened Species as *Endangered.*[67] This category is reserved for species "considered to be facing a very high risk of extinction in the wild."[68] As Hoyt

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[62] Giuseppe Notarbartolo di Sciara, *Cetacean Species Occurring in the Mediterranean and Black Seas,* in CETACEANS OF THE MEDITERRANEAN AND BLACK SEAS, a report to the Interim Secretariat of ACCOBAMS (Giuseppe Notarbartolo di Sciara ed., 2002), at 10; A. Cănada, et al., *Preliminary Results of Genetic Analysis of Mediterranean Common Dolphins (Delphinus Delphis),* 13 EUR. RES. CETACEANS 359, 359 (1999); P.C. BEAUBRUN, ATLAS PRELIMINAIRE DE DISTRIBUTION DES CETACES DE MEDITERRANEE, CIESM 39 (1995).

[63] D. Hasmi, *Cetacean Movements Through the Strait of Gibraltar,* 12 EUR. RES. CETACEANS 75, 75 (1998).

[64] Pulcini & Pace, *supra* note 44, at 170.

[65] ACCOBAMS Secretariat, *supra* note 61, at 58.

[66] L. Silvani, M. Gazo, & A. Aguilar, *Spanish Driftnet Fishing and Incidental Catches in the Western Mediterranean,* 90 BIO. CONSERVATION 79, 84 (1999); Jaume Forcada, *Abundance of Common and Striped Dolphins in the Southwestern Mediterranean,* 9 EUR. RES. CETACEANS 153, 153 (1996); Franceso Maria Angelici & Luca Marini, *Sightings of Delphinus Delphis (Cetacea, Odontoceti) in the Otranto Channel (Southern Adriatic Sea and Northern Ionian Sea),* 4(3) HYSTRIX 91-92 (1992). For example, the common dolphin has "disappeared" in the past few decades in the northern Adriatic Sea where it was once commonly found. Giovanni Bearzi, Elena Politi & Giuseppe Notarbartolo di Sciara, *Diurnal Behavior of Free-Ranging Bottlenose Dolphins in the Kvarnerić (Northern Adriatic Sea),* 15(4) MARINE MAMMAL SCI. 1065, 1093 (1999). However, at least one author has argued that purported changes in population density between striped and common dolphins may be more of a function of misidentification in the past. Ragnar Kinzelbach, *A Record of Striped Dolphin Stenella coeruleoalba (Meyen, 1833) from the Turkish Mediterranean Sea Coast,* 15 ZOOLOGY MIDDLE EAST 15, 15 (1997).

[67] IUCN, *supra* note 60.

[68] IUCN, *2001 Categories & Criteria,* <http://www.redlist.org/info/categories_criteria2001.html#categories>, site visited on Apr. 15, 2005.

observed recently, the species now appears to face a "high risk of extinction in most Mediterranean areas in the near future."[69]

The fin whale is the only baleen whale species regularly sighted in the region,[70] and may well have always been the most common of the great whales found in the Mediterranean.[71] While the total number of fin whales in the region remains unknown,[72] it has been estimated that 3,000-4,000 inhabit the western Mediterranean.[73] The largest concentration of the species is found in the Liguro-Provençal basin;[74] areas of intermediate concentrations include the Western, Tyrrhenian, Adriatic and Ionian/Central basins,[75] while fin whales are rarely found in the Aegean and Levantine basins.[76] Fin whales in the region are pelagic, and almost always found in deep waters (400-2,500 meters depth), offshore of the continental shelf edge, as well as in slope and shelf waters.[77]

The primary habitat for fin whales in the summer is the highly productive waters of the northwestern basin.[78] Some researchers believe that

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[69] ERICH HOYT, MARINE PROTECTED AREAS FOR WHALES, DOLPHINS, & PORPOISES 142 (2005).
[70] J. Forcada & A. Aguilar, *Distribution and Abundance of Fin Whales (Balaenoptera physalus) in the Western Mediterranean Sea During the Summer,* 238 J. ZOOLOGY, London 23, 24 (1996); D. Marchessaux, *A Review of the Current Knowledge of the Cetaceans in the Eastern Mediterranean Sea,* 2 VIE MARINE 59, 62 (1980).
[71] Giuseppe Notarbartolo di Sciara, et al., *The Fin Whale Balaenoptera Physalus (L. 1758) in the Mediterranean Sea,* 33 MAMMAL REV. 105, 106 (2003).
[72] *Id.* at 118.
[73] Notarbartolo di Sciara, *supra* note 71, at 119; Tethys Research Institute, <http://www.tethys.org/resactiv.htm> (1998); Forcada & Aguilar, *supra* note 70, at 24.
[74] Giovanna Pesante, Margherita Zanardelli & Simone Panigada, *Evidence of Man-Made Injuries on Mediterranean Fin Whales,* 14th Meeting of the European Cetacean Society, <http://www.tethys.org/papers/cork-pesante.pdf> (2000).
[75] Notarbartolo di Sciara, *supra* note 71, at 111.
[76] *Id.;* Alexandre Gannier & Odile Gannier, *The Winter Presence of the Fin Whale in the Liguro-Provençal Basin: Preliminary Study,* 7 EUR. RES. CETACEANS 131, 131 (1993).
[77] Notarbartolo di Sciara, *supra* note 62, at 8.
[78] Forcada & Aguilar, *supra* note 70, at 24.

Mediterranean fin whales migrate to southern waters for reproductive activities,[79] while others have speculated that they traverse the Strait of Gibraltar to spend the breeding season somewhere in the Atlantic Ocean. [80]

The Mediterranean fin whale forms a small population that is genetically and geographically isolated from ocean populations, increasing the urgency for the stock's protection.[81] Knowledge of the species' feeding habits remains highly uncertain due to the limited analysis to date of stomach contents, with all samples obtained from the Ligurian-Corsican-Provençal area.[82] However, some researchers believe that fin whales in the region feed almost exclusively on zooplankton, such as euphausiids, particularly the macroplankton species *Meganyctiphanes norvegica.*[83] While fin whales in other regions have been observed to feed on a variety of fish species and copepods,[84] it is unclear if any of these are prey species for Mediterranean fin whales.[85]

The IUCN classifies the fin whale as *Endangered.*[86] In the case of the fin whale, these criteria are "[a]n observed, estimated, inferred or suspected reduction of at least 50 per cent over the last 10 years or three generations, whichever is the longer, based on . . . direct observation . . . an index of

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[79] *Id.*
[80] Luca Marini, Germana Villetti & Carlo Consiglio, *Winter Areas of Fin Whales (Balaenoptera Physalus in the Mediterranean Sea: A Preliminary Survey,* 9 EUR. RES. CETACEANS 126, 127 (1996), D. Viale, *Ecologie des Cétacés de la Mediterranée Occidentale,* Thése d'état, Université de Paris 6 (1977).
[81] Letizia Marsili, et al., *Polycyclic Aromatic Hydrocarbons (PAHs) in Subcutaneous Biopsies of Mediterranean Cetaceans,* 44 CHEMOSPHERE 147, 152 (2001).
[82] Notarbartolo di Sciara, *supra* note 71, at 120.
[83] *Id.* at 151.
[84] *Id.* at 119.
[85] *Id.* at 120.
[86] IUCN, *supra* note 55, at <http://www.redlist.org/search/details.php?species=2478>, site visited on Jan. 17, 2004.

a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status."[95]

While it was once widely distributed throughout the European, Asian and African continental shelves, from Gibraltar to the Black Sea, the bottlenose dolphin now survives in just a fraction of its former Mediterranean range.[96] Moreover, "the distribution of coastal groups is increasingly scattered and fragmented into small isolated units."[97]

The bottlenose dolphin is found in the northern and central Adriatic Seas, where it is virtually the only cetacean species in the region,[98] as well as in the Ligurian Sea[99] and Ionian Sea.[100] Unlike in other parts of the world, Mediterranean stocks of bottlenose dolphins are restricted to coastal areas, with no migratory movements reported in the region.[101] Its prey consists primarily of coastal reef fish, including *Sparidae, Sciaenidae,* and *Centracanthidae.*[102] The

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[95] *Id.* at <http://www.redlist.org/info/categories_criteria.html#categories>.
[96] Giovanni Bearzi, Giuseppe Notarbartolo-Di-Sciara & Elena Politi, *Social Ecology of Bottlenose Dolphins in the Kvarnerić (Northern Adriatic Sea),* 13(4) MARINE MAMMAL SCI. 650, 650 (1997).
[97] Giovanni Bearzi, et al., *Occurrence and Present Status of Coastal Dolphins (Delphinus Delphis and Tursiops Truncatus) in the Eastern Ionian Sea,* 15 AQUATIC CONSERVATION: MARINE & FRESHWATER ECOSYSTEMS 243, 244 (2005).
[98] Massimo Azzali, Lino Casini & Claudia Virno Lamberti, *Relationships Between Dolphins, Type of Prey Aggregation, and Their Geographical Distribution,* 8 EUR. RES. CETACEANS 183, 184 (1994); Melita Peharda & Giovanni Bearzi, *Surfacing Patterns of Bottle-Nosed Dolphins in the Cres-Losinj Area (Northern Adriatic Sea),* 7 EUR. RES. CETACEANS 73, 73 (1993).
[99] L. Orsi Relini, M. Cappello & R. Poggi, *The Stomach Content of Some Bottlenose Dolphins (Tursiops Truncatus) from the Ligurian Sea,* 8 EUR. RES. CETACEANS 192, 192 (1994).
[100] Bearzi, *supra* note 97, at 244.
[101] Instituto Centrale per la Ricerca Applicata al Mare, *Report of the Workshop on Interactions Between Dolphins and Fisheries in the Mediterranean: Evaluation of Mitigation Alternatives* 7 (Randall R. Reeves, Andrew J. Read, Giuseppi Notarbartolo di Sciara eds., 2001) (hereinafter ICRAM).
[102] *Id.* at 193.

IUCN has classified the bottlenose dolphin as *Data Deficient.*[103] However, there is clear recent evidence of declines in the Ionian Sea.[104]

Cuvier's beaked whale is a deep diving, pelagic species particularly abundant in the East Ionian Sea.[105] In the Mediterranean, it has a particular preference for waters overlaying submarine canyons.[106] The Cuvier's beaked whale is "an elusive species that can rarely be observed in the sea," with "very little known regarding any aspect of its biology."[107] As a consequence, the IUCN currently classifies the species as *Data Deficient.*[108]

The sperm whale, the world's largest odontocete species, has been sighted throughout the Mediterranean, occurring primarily in deep offshore waters of the Alboran, Ligurian-Corsican-Provençal, Tyrrhenian, Ionian, Aegean and Levantine Seas.[109] There is circumstantial evidence of demographic isolation from sperm whales found in the North Atlantic.[110]

Very little is known about abundance, feeding habits, distribution, social structure and migration patterns of this species in either the western or eastern

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[103] IUCN, *supra* note 55, at <http://www.redlist.org/search/details.php?species=22563>, site visited on Jan. 17, 2004.
[104] Bearzi, *supra* note 97, at 250-52.
[105] A. Frantzis & D. Cebrian, *A Rare, Atypical Mass Stranding of Cuvier's Beaked Whales: Cause and Implications for the Species' Biology,* 12 EUR. RES. CETACEANS 332, 332 (1998); Luca Marini, et al., *Cetaceans in the Central Tyrrhenian Sea: Third (and Last?) Year of Sightings: Preliminary Results,* 7 EUR. RES. CETACEANS 148, 148 (1993).
[106] Notarbartolo di Sciara, *supra* note 62, at 17.
[107] ACCOBAMS, First Meeting of the Scientific Committee, Alexandros Frantzis, *Scientific Publications of Data on Cetaceans of the (Eastern) Mediterranean,* Doc. CS1/Doc. 18 (2002).
[108] IUCN, *supra* note 55, at <http://www.redlist.org/search/details.php?species=23211>, site visited on Jan. 17, 2004.
[109] ACCOBAMS Secretariat, *supra* note 61; IUCN, *supra* note 55
[110] ACCOBAMS Secretariat, *supra* note 61, at 59.

basins.[111] However, encounter rates for sperm whales have been very low in recent years, in contrast to localized accounts of much higher abundance in the past.[112] The species is classified by the IUCN as *Vulnerable,*[113] reserved for species that are "not Critically Endangered or Endangered but are facing a high risk of extinction in the wild in the medium-term future" under a set of criteria developed by the IUCN.[114] In the context of sperm whales, the indicia of vulnerability are an observed, estimated, inferred or suspected reduction of at least 20 per cent over the last 10 years or three generations, whichever is the longer, based on . . . an index of abundance appropriate for the taxon ... [and] actual or potential levels of exploitation.[115] There is particularly strong evidence of a decline of the species in the northwestern portion of the Mediterranean Sea.[116]

2.1.2 Anthropogenic Threats to Mediterranean Cetaceans

2.1.2.1 Direct Exploitation

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[111] Stephen Roberts, *Examination of the Stomach Contents From a Mediterranean Sperm Whale Found South of Crete, Greece,* 83 J. MARINE BIOLOGY ASS'N U.K. 667, 667 (2003); Alexandre Gannier, Violaine Drouot, & John C. Goold, *Distribution and Relative Abundance of Sperm Whales in the Mediterranean Sea,* 243 MARINE ECO. PROGRESS SERIES 281, 281 (2002); A. Cañadas, et al., *Sperm Whales (Physeter Macrocephalus) at the Gates of the Mediterranean Sea,* 14 EUR. RES. CETACEANS 320, 320-321 (2000). A. Frantzis, et al., *Sperm Whale Presence Off South-West Crete, Greece, Eastern Mediterranean,* 13 EUR. RES. CETACEANS 433 (1999). I. Franco & J. Mas, *Distribution and Evaluation of Cetaceans in the Alboran Sea (S.E. Mediterranean),* 8 EUR. RES. CETACEANS 103, 103 (1994).

[112] ACCOBAMS Secretariat, *supra* note 61, at 60.

[113] IUCN, *supra* note 55, at <http://www.redlist.org/search/details.php?species=41755>, site visited on Jan. 17, 2004.

[114] *Id.,* at <http://www.redlist.org/info/categories_criteria.html#categories>. "There are probably only a few hundred sperm whales in Mediterranean." Tudela, *supra* note 52, at 15.

[115] *Id.*

[116] Giuseppe Notarbartolo di Sciara, et al., *High Mortality of Sperm Whales in the North-Western Mediterranean, 1971-2003,* International Whaling Commission, Scientific Committee, SC/56/BC10 (2004), at 1, <http://www.disciara.net/>, site visited on July 3, 2005.

Cetaceans in the Mediterranean have never been the object of commercial whaling operations, presumably because they were deemed too rare to warrant the effort.[117] One caveat is that whaling activities carried out in the Strait of Gibraltar, which began in 1921, may have included the westernmost portion of the Alboran Sea.[118] A short-lived whaling industry in the Strait area killed over 4,100 fin whales in six years, resulting in the population's collapse.[119] Pirate whalers also exploited the remnant of the fin whale populations until the late 1970s, including off the coast of the Iberian Peninsula.[120]

Occasional killings also occurred during the 19th Century and the first part of the 20th for museum collections and research, in target practice by the military, and by fishermen who pursued fin and sperm whales for products such as oil.[121] In the past few decades, killings of cetaceans by fishers who perceive them as interfering with fishing operations has become a serious threat to certain species. For example, in the Italian seas, 10 per cent of the confirmed causes of deaths among stranded cetaceans have been related to direct killings, most probably attributable to targeting by fishers who shoot dolphins or attempt to feed them fish containing needles or poison.[122]

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[117] Giuseppe Notarbartolo di Sciara & Giovanni Bearzi, *Direct Killing and Live Capture,* in Notarbartolo di Sciara, *supra* note 62, at 27.
[118] *Id.*
[119] P.J. Clapham & L.T. Hatch, *Determining Spatial and Temporal Scales for Population Management Units: Lessons from Whaling,* International Whaling Commission, Scientific Committee, SC/52/ID2 (2000).
[120] P.B. Best, *Catches of Fin Whales in the North Atlantic by the M.V. Sierra (and associated vessels),* 42 REP. INT'L WHALING COMMISSION 697-700 (1992).
[121] Notarbartolo di Sciara & Bearzi, *supra* note 117, at 27.
[122] ICRAM, *supra* note 101, at 8; Notarbartolo di Sciara & Bearzi, *supra* note 117, at 27.

In most cases, striped and common dolphins have been killed.[123] Increased common dolphin mortality has also been recorded in the Aegean Sea as a consequence of intentional killing of dolphins competing with local gill and trammel net fisheries.[124] In many cases, these killings have been encouraged by States in the region, including the promotion of such killings by bounties.[125] The killing of dolphins bottlenose dolphins doing damage to trammel nets and gillnets in the Balearic Islands area may also prove to be unsustainable given the reduced population in the region.[126]

2.1.2.2 Habitat Degradation/Loss

Many Mediterranean cetacean species are threatened by pollution. Land-based pollution generated by the 450 million inhabitants of the 22 States in and around the Mediterranean Sea, an area characterized by high levels of population growth over the past century,[127] accounts for 80-90 per cent of the contamination.[128] 80 per cent of the load is currently attributable to France, Italy, Spain, and Greece.[129] Land-based effluents may substantially increase in this century given projected population growth of approximately 150 million over the

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[123] *Id.*
[124] *Id.*
[125] Giovanni Bearzi, Drasko Holcer & Giuseppe Notarbartolo di Sciara, *The Role of Historical Dolphin Takes and Habitat Degradation in Shaping the Present Status of Northern Adriatic Cetaceans,* 14 AQUATIC CONSERVATION: MAR. & FRESHWATER ECOSYSTEMS 363, 369-71 (2004).
[126] Tudela, *supra* note 52, at 18.
[127] Bonotto, *supra* note 36, at 319.
[128] European Environment Agency/UNEP, *supra* note 27.
[129] *Id.*; Francoise Kadri, *Blueprint is Approved to Fight Mediterranean Pollution,* AGENCE FRANCE PRESSE, Mar. 8, 1996. The Rhone River, which flows through industrialized areas of southern France, and the Ebro River, which flows through agricultural areas of eastern Spain, also contribute substantially to the Mediterranean's pollution burden. Cristina Maldanado, et al., *Trialkylamines and Coprostanol as Tracers of Urban Pollution in Waters from Enclosed Seas: The Mediterranean and Black Sea,* 33 ENVTL. SCI. & TECH. 3290, 3291 (1999).

next five decades,[130] as well as anticipated the further build up of coastal infrastructure and increased habitation in coastal areas throughout this century.[131] An average of 57 people per square kilometer live on the Mediterranean and Black Sea coasts, rising to 113 during the influx of summer tourists, making this marine region one of the world's most heavily populated.[132]

Semi-enclosed seas such as the Mediterranean Sea are particularly threatened by land and ocean-introduced pollutants because they are characterized by limited deep-water exchange, resulting in extremely slow removal rates of such chemicals.[133] The waters of the Mediterranean are renewed only every 80-90 years from the Atlantic surface water through the Gibraltar Strait.[134] Moreover, micropollutants remain extremely stable in semi-enclosed seas.[135] Pollution threats from coastal areas have also been exacerbated by rapid population increases in the Mediterranean Basin during the last century, growing from 136 million in 1936 to 355 million currently.[136]

Some of the most lethal ingredients in the Mediterranean's toxic stew are organochlorine chemicals, which are generated primarily by industrial processes

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[130] Notarbartolo di Sciara, *supra* note 62, at 25; Jon Birger Skjærseth, *The 20th Anniversary of the Mediterranean Action Plan: Reason to Celebrate?,* 1996 GREEN GLOBE Y.B. 47, 47. The population of Mediterranean coastal states may reach 700 million by the end of this century. Mark Simmonds & Laetitia Nunny, *Habitat Loss and Degradation, Mediterranean Sea,* in Notarbartolo di Sciara, *supra* note 62, at 39.

[131] Notarbartolo di Sciara, *supra* note 62, at 25; EEA/UNEP, *supra* note 27, at 83.

[132] Giuseppe Notarbartolo di Sciara, *Establishing Marine Protected Areas for Cetaceans in the ACCOBAMS Area,* Second Meeting of the ACCOBAMS Scientific Committee, *supra* note 45, at Annex IX.

[133] Bommana G. Loganathan & Kurunthachalam Kannan, *Global Organochlorine Contamination Trends: An Overview,* 23 AMBIO 187, 189 (Oct. 1994).

[134] Gabrielides, *supra* note 30, at 1.

[135] Claude R. Joiris, et al., *Total and Organic Mercury in the Black Sea Harbour Porpoise Phocoena Phocoena Relicta,* 42(10) MARINE POLLUTION BULL. 905, 905 (2001).

[136] Bonotto, *supra* note 36, at 319.

and agricultural activities.[137] These include dichlorodiphenyl trichloroethane (DDT), polychlorinated biphenyl compounds (PCBs), polybrominated diphenyl ethers, heptachlor, hexachlorobenzene, hexachlorohexane, the pesticides aldrin, dieldrin and endrin, and dioxins.[138] Tissue analysis has demonstrated that dolphins in the Mediterranean have some of the highest levels of PCBs and DDT in the world.[139] Although recent surveys record declining levels as a consequence of a ban on the substance 25 years ago,[140] only 1 per cent of the 2 million tons of the PCBs produced to date have reached the ocean; thus, it is anticipated that slow dispersal will continue and levels will peak between now and 2030.[141] Moreover, while DDT levels have also declined in recent years in the region, they remain above the threshold above which adverse effects on marine mammals have been demonstrated.[142]

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[137] *Id.* at 7.

[138] A. Pettersson, et al., *Polybrominated Diphenylethers and Methoxylated Tetrabromodiphenylethers in Cetaceans from the Mediterranean Sea,* 47 ARCHIVES ENVT'L CONTAMINATION & TOXICOLOGY 542-550 (2004).
F. Hernández, et al., *Persistent Organochlorines and Organophosphorus Compounds and Heavy Elements in Common Whale (Balaenoptera physalus) from the Western Mediterranean Sea,* 40(5) MARINE POLLUTION BULL. 426, 427 (2000); Loganathan & Kannan, *supra* note 133, at 189; Simmonds & Nunny, *supra* note 130, at 41.

[139] F. Hernández, et al., *supra* note 138, at 431; M.M. Storelli & G.O. Marcotrigiano, *Persistent Organochlorine Residues in Risso's Dolphins (Grampus griseus) from the Mediterranean Sea (Italy),* 40(6) MARINE POLLUTION BULL. 555, 555 (2000). DDT and PCB levels of dolphins from the Mediterranean and western coast of the United States are the highest ever recorded. Alex Aguilar & Asunción Borrell, *Organochlorine Pollution in the Western Mediterranean Declines, But Still is a Significant Threat to Cetaceans,* 2(1) FINS 11 (2005), <http://www.accobams.org/download/newsletter/FINS_2_1.pdf>. site visited on July 3, 2005.

[140] Aguilar, *supra* note 49, at 20. Regulations on the use of PCBs has resulted in substantial reductions in the concentrations of PCBs in many coastal areas of the Mediterranean in the past few decades, though concentrations remain high in remote areas, such as the Alboran Sea in the southwestern Mediterranean, due to the stability of these compounds. Jordi Dachs, *Vertical Fluxes of Polycyclic Aromatic Hydrocarbons and Organochlorine Compounds in the Western Alboran Sea (southwestern Mediterranean),* 52 MARINE CHEM. 75, 80 (1996).

[141] Assumpción Borrell & Peter J.H. Reijnders, *Summary of Temporal Trends in Pollutant Levels Observed in Marine Mammals,* J. CETACEAN RES. & MGMT. (Special Issue 1) 149, 152 (1999). *See also Report of the Scientific Committee, supra* note 40, at 61.

[142] Aguilar & Borrell, *supra* note 139, at

Cetaceans are particularly susceptible to poisoning by such substances because they have less capability than most other species to metabolize persistent organochlorine chemicals.[143] Odontocetes are especially imperiled by PCBs because they occupy the top level of the marine food web,[144] and most odontocete species lack PCB metabolizing enzymes, substantially increasing the potential for accumulation.[145] Moreover, organochlorines bioaccumulate in cetaceans due to their lipophilic properties and persistence. These substances also dissolve easily in their large fat stores, waiting to be released when they call upon their blubber reserves.[146] Moreover, there is substantial fetal transfer of

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[143] Margaret M. Krahn, et al., *Organochlorine Contaminant Concentrations and Lipid Profiles in Eastern North Pacific Gray Whales (Eschrichtius robustus),* 3(1) J. CETACEAN RES. & MGMT. 19, 19 (2001); G.M. Troisi, et al., *Methyl Sulphone Metabolites of Polychlorinated Biphenyls (PCBs) in Cetaceans from the Irish and the Aegean Seas,* 35(1) ARCHIVES ENVTL. CONTAMINATION & TOXICOLOGY 121, 121 (1998); Letizia Marsili & Silvano Focardi, *Organochlorine Levels in Subcutaneous Blubber Biopsies of Fin Whales (Balaenoptera physalus) and Striped Dolphins (Stenella coeruleoalba) from the Mediterranean Sea,* 92 ENVTL. POLLUTION 1 (1995).

[144] T. Endo, et al., *Mercury Contamination in the Red Meat of Whales and Dolphins Marketed for Human Consumption in Japan,* 37(2) ENVTL. SCI. & TECH. 2681, 2681 (2003). Odontocetes occupy the top niche in the food chain because they feed mainly on fish and squid and are long-lived. By contrast, mysticete species generally feed on plankton, which is a lower trophic level with less biomagnification of pollutants, or have a mixed diet of plankton and fish. *Id.*

[145] Begoña Jimenez & Maria Jose Gonzalez, *Evaluation of 2,37,8 Specific Congener and Toxic Potency of Persistent Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenozofurans in Cetaceans from the Mediterranean Sea, Italy,* 34 ENVTL. SCI & TECH. 756, 756 (2000). *See also* M.M. Storelli & G.O. Marcotriagiano, *Persistent Organochlorine Residues and Toxic Evaluation of Polychlorinated Biphenyls in Sharks from the Mediterranean Sea (Italy),* 42(12) MARINE POLLUTION BULL. 1323, 1328 (2001); Alex Aguilar & Lluis Jover, *DDT and PCB Residues in the Fin Whale, Balaenoptera physalus, of the North Atlantic,* 32 REP. INT'L WHALING COMMISSION 299, 299 (1982).

[146] F. Taddei, et al., *Genotoxic Hazard of Pollutants in Cetaceans: DNA Damage and Repair Evaluated in the Bottlenose Dolphin (Tursiops truncatus) by the Comet Assay,* 42(4) MARINE POLLUTION BULL. 324, 326 (2001); Vassilis Goutner, et al., *PCBs and Organochlorine Residues in Eggs of Audouin's Gull (Laros audouinii) in the North-Eastern Mediterranean,* 42(5) MARINE POLLUTION BULL. 377, 377 (2001); Allison Motluk, *Deadlier Than the Harpoon,* NEW SCI., July 1, 1995, at 12. "Bioaccumulation consists of the net retention of a substance (e.g. a contaminant) over time." Peter M. Chapman, *Is Bioaccumulation Useful for Predicting Impacts?,* 34 MARINE POLLUTION BULL. 282, 282 (1997). The bioaccumulation factor of heavy metals and chlorinated hydrocarbons in cetacean species has been found to be from seven to eight orders of magnitude higher than in water. Silvano Focardi, et al., *Organochlorines and Trace Elements in Skin Biopsies of Fin Whale Balaenoptera physalus and Striped Dolphin, Stenella coeruleoalba,* 6 EUR. RES. CETACEANS 230, 231 (1992). *See also* Marsili & Focardi, *supra* note 143, at 1 ("Due to

organochlorine compounds (up to 90 per cent),[147] which can result in reduced birth weight, behavioral anomalies, and memory recognition problems in calves.[148]

Between 1990-1992, thousands of striped dolphins died in an epizootic[149] in the Mediterranean.[150] Although the ultimate cause of death was identified as dolphin morbillivirus[151] that produced infections similar to distemper in

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properties such as high fat solubility, high chemical stability and low volatility, [organochlorine] compounds are subject to biomagnification in the marine food chain"). In dolphins, the blubber contains 86-97 per cent of the organochlorine compound load. Cardellicchio, *supra* note 54, at 337.

[147] L. Marsili, et al. *Relationship Between Organochlorine Contaminants and Mixed Function Oxidase Activity in Skin Biopsy Specimens of Mediterranean Fin Whales (Balaenoptera physalus),* 37(8) CHEMOSPHERE 1501, 1502 (1998); Marsili & Focardi, *supra* note 143, at 4; S. Kawai & M. Fukushima, *Relation Between the Lipid Composition and the Concentrations of Organochlorine Compounds in the Various Organs of Striped Dolphins (Stenella coeruleoalba), in* STUDIES ON THE LEVELS OF ORGANOCHLORINE COMPOUNDS AND HEAVY METALS IN THE MARINE ORGANISMS 85-96 (T. Fujiyama ed., 1981).

[148] ASCOBANS, 6th Advisory Committee Meeting, *Extract of the 1998 Report of the ICES Advisory Committee on the Marine Environment, Annex 10* (1999), at 326.

[149] Epizootics are "outbreaks of disease or mortality, caused by an infectious agent, which is transmissible from one individual to one or several others, thus having an effect on a whole population." I.K.G. Visser & A.D.M.E. Osterhaus, *Virus Infections of Marine Mammals: An Overview,* 6 EUR. RES. CETACEANS 72, 72 (1992).

[150] N. Calzada, et al., *Reproductive Biology of Female Striped Dolphin (Stenella coeruleoalba) from the Western Mediterranean,* 240 J. ZOOL. LONDON 581, 581 (1996); Fred Pearce, *Dead in the Water,* NEW SCI., Feb. 4, 1995, at 27. The first records of deaths from the virus came from the coasts of Valencia, Spain in June of 1990. The center of the epizootic was considered to be between the Balearic Islands and Valencian coasts of Spain, but high levels of mortality were also recorded off the coasts of Italy, France and Greece. Daniel Cebrian, *The Striped Dolphin Stenella coeruleoalba Epizootic in Greece, 1991-1992,* 74 BIO. CONSERVATION 143, 143 (1995); Jaume Forcada, et al., *Population Abundance of Striped Dolphins Inhabiting the Western Mediterranean Sea,* 6 EUR. RES. CETACEANS 105, 105 (1992). The die-off may have also extended to the north African coast, with casual reports of diseased dolphins entering the harbors of Morocco and Algeria. A. Aguilar & A.J. Raga, *The Striped Dolphin Die-Off in Spanish Mediterranean Waters,* 6 EUR. RES. CETACEANS 79, 79 (1992); B. Özturk & A.A. Özturk, *Cetacean Strandings in the Aegean and Mediterranean Coasts of Turkey,* 35 RAPP. COMMISSION INT'L MER MÉDIT. 476, 476 (1998).

[151] Dolphin and porpoise morbillivirus are strains of the genus *Morbillivirus* (family *Paramyxoviridae*). Other morbilliviruses include the measles virus in humans, rinderpest virus and peste des petits ruminants virus in artiodactyls, and canine and phocine distemper viruses in carnivores. Marie-Françoise Van Bressem, et al., *An Insight into the Epidemiology of Dolphin Morbillivirus Worldwide,* 81 VETERINARY MICROBIOLOGY 287, 287 (2001).

carnivores,[152] many researchers believe that extremely high loads of organochlorine compounds, including PCBs,[153] hexachlorobenzene, and dichlorodiphenyltrichloroethane (DDE)[154] carried by the victims may have compromised their immune systems, making them more vulnerable to the disease.[155] Research by Lahvis, et al.,[156] although based on a small sample size,

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[152] Nuria Calzada & Christina H. Lockyer, *Age and Sex Composition of the Striped Dolphin Die-Off in the Western Mediterranean,* 10 MARINE MAMMAL SCI. 299, 300 (1994); Alex Aguilar & J. Antonio Raga, *The Striped Dolphin Epizootic in the Mediterranean Sea,* 22 AMBIO 524, 526 (Dec. 1993). "The DMV infection caused encephalitis, bronchiolo-interstitial pneumonia with formation of multinucleate syncytia, and a severe depletion of lymph nodes . . ." Mariano Domingo, et al., *Evidence for Chronic Morbillivirus Infection in the Mediterranean Striped Dolphin (Stenella coeruleoalba),* 44 VETERINARY MED. 229, 230 (1995). *See also* J. Garcia-Martinez, et al., *Mitochondrial DNA Variability of Striped Dolphins (Stenella Coeruleoalba in the Spanish Mediterranean Waters,* 11(2) MARINE MAMMAL SCI. 183, 183-184 (1995).

[153] "PCB concentration in striped dolphins from the Mediterranean Sea have been determined to be greater than 1000 ppm, which is the highest level ever recorded in a marine mammal . . ." Loganathan & Kannan, *supra* note 133, at 189. *See also* Paul A. Johnston, et al., *Cetaceans and Environmental Pollution: The Global Commons,* in THE CONSERVATION OF WHALES & DOLPHINS 235 (Mark P. Simmonds & Judith D. Hutchinson eds., 1996). The mean concentration of PCBs in stranded Mediterranean striped dolphins examined in 1990 was 778 ppm lipid basis, compared to only 276 ppm in healthy free-ranging animals. High levels of PCBs and DDE have also been found in stranded white dolphins and pilot whales off the coast of Newfoundland, Canada and in stranded beluga whales of the St. Lawrence Estuary. *Id.*

[154] Marsili, et al., *supra* note 147, at 1502. DDE is a metabolite of DDT and is very poorly metabolized in marine mammal tissue. Cardellicchio, *supra* note 54, at 337.

[155] M.M. Storelli & G.O. Marcotrigiano, *Levels and Congener Pattern of Polychlorinated Biphenyls in the Blubber of the Mediterranean Bottlenose Dolphins Tursiops Truncatus,* 28 ENV'T INT'L 559, 564 (2003). Surveys of stranded dolphins inflicted with dolphin morbillivirus have been found to suffer from lymphoid depletion in their lymphatic organs. Such lesions can lead to immunosuppression. Organochlorines such as DDT and PCBs, as well as heavy metals such as lead, mercury, and cadmium can induce a decreased immune response to foreign antigens, reduce circulating immunoglobulins, and leading to atrophy of lymphoid tissues. E. Cornaglia, et al. *Histopathological and Immunohistochemical Studies on Cetaceans Found Stranded on the Coast of Italy Between 1990 and 1997,* 47 J. VETERINARY MED., SERIES A 129, 141 (2000). *See also* M.M. Storelli & G.O. Marcotrigiano, *Levels and Congener Pattern of Polychlorinated Biphenyls in the Blubber of the Mediterranean Bottlenose Dolphins Tursiops Truncatus,* 28 ENV'T INT'L 559, 564 (2002) ("The presence of elevated concentrations of PCBs in the corpses of diseased marine mammals in previous stranding from Mediterranean [sic] implicated these pollutants as a cause of immune depression"); R. Guitart, et al., *Organochlorine Residues in Tissues of Striped Dolphins Affected by the 1990 Mediterranean Epizootic: Relationships with the Fatty Acid Composition,* 30 ARCHIVES ENVTL. CONTAMINATION & TOXICOLOGY 79, 82 (1996); J. Hatzianestis, E. Georgakopoulou-Gregoriadou, A. Frantzis, *Organochlorine Levels in Cuvier's Goosebeaked Whales From Ionian Sea, Hellas,* 7 FRESNIUS ENVTL. BULL. 345, 348 (1998); Nathalie Di-Méglio, Rebecca Romero-Alvarez & Anne Collet, *Growth Comparisons in Striped Dolphins, Stenella coeruleoalba, from the Atlantic and Mediterranean Coasts of France,* 22(1) AQUATIC MAMMALS 11, 16 (1996). *But see* Seamus Kennedy, *Infectious Diseases of Cetacean*

provides support for this hypothesis. In the study, the researchers sought to assess the impacts of polyhalogenated environmental chemical contaminants on dolphin immune systems by studying lymphocyte proliferation responses of five bottlenose dolphins to PCBs and DDT in an *in vitro* environment.[157] It was concluded that the dolphins exhibited a reduced immune response with increasing levels of the contaminants in peripheral blood, consistent with other controlled animal studies that have demonstrated suppressed immune responses in a range of species, including mice, rats, guinea pigs, ducks, monkeys and harbor seals.[158] Research on bottlenose dolphins off the U.S. Atlantic coast has

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Populations, in Simmonds & Hutchinson, *supra* note 153, at 344; Thijs Kuiken, *et al., Is There a Link Between PCB Levels and Cause of Death in Harbour Porpoises (Phocoena phocoena)?*, 7 EUR. RES. CETACEANS 195, 196 (1993). Harbor seals fed fish contaminated with organochlorines have also experienced declines in plasma retinol (Vitamin A). "Retinol is important in maintaining the integrity of epithelial surfaces and, hence, resistance to virus invasion." Additionally, feeding organochlorine-contaminated fish to harbor seals has been found to depress natural killer-cell activity and mitogen-induced proliferative T-cells responses, both of which play an important role in effective host responses to morbillivirus infections. Mark P. Simmonds & Susan J. Mayer, *An Evaluation of Environmental and Other Factors in Some Recent Marine Mammal Mortalities in Europe: Implications for Conservation and Management,* 5 ENVTL. REV. 89, 91 (1997). Striped dolphins in the Mediterranean that died during the epizootic during the early 90s were found to have, on average, higher levels of organochlorine pollutants that those that survived, further supporting the link between organochlorine levels and immunosuppression. *Id.* at 90. Finally, unusual cystic structures were present in the ovaries of several morbillivirus-infected dolphins found with high levels of PCB. These luteinized cysts, which occur when ovulation is impeded, may have been a function of the infection or induced by PCBs, which can affect ovarian responsiveness. Simmonds & Nunny, *supra* note 130, at 52. On the link between immunosuppression and susceptibility to disease in dolphins, *see generally* A.R. Resendes, et al., *Disseminated Toxoplasmosis in a Mediterranean Pregnant Risso's Dolphin (Grampus griseus) with Transplacental Fetal Infection,* 88(5) J. PARASITOLOGY 1029-1032 (2002); A.R. Resendes, et al., *Hepatic Sarcocystosis in a Striped Dolphin (Stenella coeruleoalba) from the Spanish Mediterranean Coast,* 88(1) J. PARASITOLOGY 206-209 (2002).

[156] Garet Lahvis, et al., *Decreased Lymphocyte Responses in Free Ranging Bottlenose Dolphins (Tursiops truncatus) are Associated with Increased Concentrations of PCBs and DDT in Peripheral Blood,* 103 ENVTL. HEALTH PERSPECTIVES, Suppl. (1995), <http://ehpnet1.niehs.nih.gov/docs/1995/Suppl-4/lahvis-abs.html>, site visited on Jan. 17, 2004.

[157] *Id.*

[158] *Id.*

demonstrated that such responses can occur in the presence of even relatively low levels of PCBs and DDTs.[159]

High levels of PCBs, DDT, and DDE have also been linked to several other maladies in marine mammals, including sterility,[160] premature parturition,[161] depression of reproductive rates,[162] cancer,[163] alteration of growth and bone development,[164] disruption of endocrine systems,[165] and neuro-toxic effects that can lead to disorientation, resulting in beaching.[166] Organochlorines, in particular DDT, can also kill by direct action on mammalian nervous systems.[167] In recent years, concerns have arisen about a range of other chemical compounds that have not traditionally been the subject of analysis in cetacean tissues. This

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[159] Randall S. Wells & Michael D. Scott, *Bottlenose Dolphin. Tursiops truncatus (Montagu, 1821) in* 6 HANDBOOK OF MARINE MAMMALS 165 (Sam H. Ridgway & Richardson Harrison eds., 1999).
[160] Simonetta Corsolini, et al., *Congener Profile and Toxicity Assessment of Polychlorinated Biphenyls in Dolphins, Sharks and Tuna Collected from Italian Coastal Waters,* 40(1) MARINE ENVTL. RES. 33, 40 (1995).
[161] *Id.*
[162] G.M. Troisi, *Bioaccumulation of Polychlorinated Biphenyls (PCBs) and Dichlorodiphenylethane (DDE) Methyl Sulfones in Tissues of Seal and Dolphin Morbillivirus Epizootic Victims,* 62(1) J. TOXICOLOGY & ENVTL. HEALTH 1, 6 (2001); Bonotto, *supra* note 36, at 319; Sabine Reich, et al., *Congener Specific Determination and Enantiomeric Rations of Chiral Polychlorinated Biphenyls in Striped Dolphins (Stenella coeruleoalba) from the Mediterranean Sea,* 33 ENVTL. SCI & TECH. 1787, 1787 (1999); Joseph E. Cummins, *Extinction: The PCB Threat to Marine Mammals,* 18 ECOLOGIST 19 (1988); D.E. GASKIN, THE ECOLOGY OF WHALES & DOLPHINS 427 (1982). Organochlorines can cause endocrine disruption that can affect reproductive success. For example, PCBs and PCB metabolites can bind estrogen and progesterone receptors, reducing steroid binding and altering intra-uterine biological response, ultimately interfering with reproduction. G.M. Troisi, *Organochlorine-Mediated Endocrine Disruption in Marine Mammals: Toxic Mechanisms and Biomonitoring,* 12 EUR. RES. CETACEANS 400, 400 (1998).
[163] M. García Hartmann, *Pathology of Marine Mammals,* in MARINE MAMMALS, SEABIRDS & POLLUTION OF MARINE SYSTEMS 141 (Thierry Jauniaux, et al. eds., 1997); Joseph E. Cummins, *PCBs A Global Tragedy* 2, (1994) (unpublished manuscript supplied to the author).
[164] A. Borrell, et al., *Organochlorine Compounds in Common Dolphins (Delphinus delphis) from the Atlantic and Mediterranean Waters of Spain,* 114 ENVTL. POLLUTION 265, 266 (2001);
[165] M. Cristina Fossi, et al., *The Use of Non-Lethal Tools for Evaluating the Toxicological Hazard of Organochlorine Contaminants in Mediterranean Cetaceans: New Data 10 Years After the First Paper Published in MPB,* 46 MARINE POLLUTION BULL. 972-982 (2003).
[166] *Id.*
[167] E.C.M. Parsons, H.M. Chan & R. Kinoshita, *A Summary of Indo-Pacific Hump-Backed Dolphin Mortality in Hong Kong: Implications for the Conservation of the Population,* 12 EUR. RES. CETACEANS 18, 20 (1998).

includes polybrominated compounds, which are chemically similar to PCBs and organotins, such as tributyltin, an antifoulant used in boat paints.[168] Recent research has revealed higher levels of organotins in Mediterranean striped dolphins than elsewhere in the world. These substances may result in immunosuppression, though the link has not yet been well established.[169]

"Eutrophication . . . is the process of enrichment of waters with nutrients, especially nitrogen and phosphorous; this enrichment stimulates aquatic primary production and may lead, particularly when subsidiary energies are low, to algal blooms, red tides and 'marine snow' or 'sea jelly' phenomena."[170] Phytoplankton blooms reduce the penetration of light and monopolize available oxygen resources, leading to a hypoxic environment that kills off macroalgae critical for filtering contaminants and oxygenating the marine environment,[171] as well as faunal species, including fish.[172] "Red tide" is the common name for a phenomenon whereby phytoplankton species containing reddish pigments proliferate or "bloom" and gives the water a reddish tint. A small number of these species produce potent neurotoxins that can be transferred through the food web and kill high order species, including marine mammals.[173] Semi-enclosed marine

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[168] Simmonds & Nunny, *supra* note 130, at 44.
[169] S. Focardi, et al., *Accumulation of Butyltin Compounds in Dolphins Stranded along the Mediterranean Coasts,* 14 APPLIED ORGANOMETALLIC CHEMISTRY 48-56 (2000).
[170] Anna Marson, *Dealing with the Problem of Eutrophication in the Adriatic Basin: The Institutional Framework and Policies,* 30(2-3) OCEAN & COASTAL MGMT. 259, 260 (1996).
[171] H. Ellen Hey & Laurence D. Mee, *The Ministerial Declaration: An Important Step,* 23 ENVTL. POL'Y & L. 215, 216 (1993).
[172] YU ZAITSEV & V. MAMAEV, MARINE BIOLOGICAL DIVERSITY IN THE BLACK SEA 54 (1997).
[173] National Office for Marine Biotoxins and Harmful Algal Blooms, Woods Hole Oceanographic Institution, *What Are Harmful Algal Blooms?,* <http://www.redtide.whoi.edu/hab/whathabs/whathabs.html>, site visited on Feb. 9, 2002.

areas, such as the Mediterranean, are particularly vulnerable to eutrophication.[174] (*See also* Figure 3)

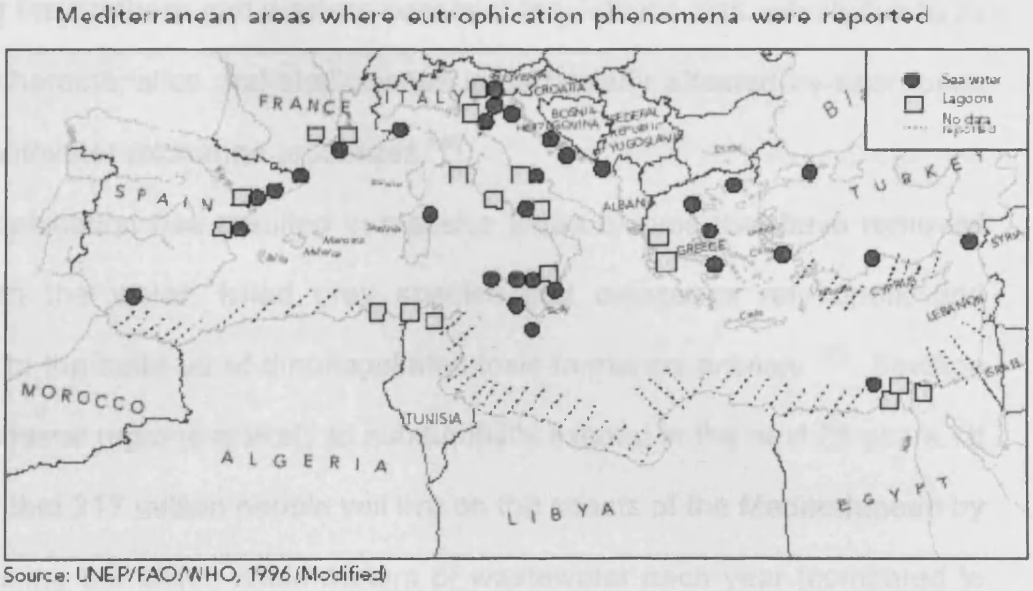

Figure 3: Eutrophication "hotspots" in the Mediterranean.[175]

Phosphorous and nitrogen contained in sewage, 60-80 per cent of which is discharged into the Mediterranean in untreated form,[176] as well as runoff of

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[174] *Id.*

[175] UNEP, Thirteenth Ordinary Meeting of the Contracting Parties to the Convention for the Protection of the Mediterranean Sea Against Pollution and Its Protocols, *Draft Strategic Action Plan for the Conservation of Biological Diversity (SAP BIO) in the Mediterranean Region,* UNEP(DEC)/MED IG.15/9 (2003), at 11, <http://62.68.74.75/acrobatfiles/03IG15_09_eng.pdf>, site visited on Jan. 18, 2004.

[176] European Environment Agency, *supra* note 33, at 40; Worldwide Fund for Nature, *The Mediterranean: 4 Thorny Issues* 8 (2000). *See also* V. Axiak, et al., *Re-assessing the Extent of Impact of Malta's (Central Mediterranean) Major Sewage Outfall Using ERS SAR,* 40 MARINE POLLUTION BULL. 734, 734 (2000). Overall, more than three billion meters^3 of untreated water enters the Mediterranean sea annually. *The Big Polluters: Industry, Urban Centres and Agriculture,* 52 MEDWAVES 10 (2004).

detergents, shampoo, those associated with agricultural processes,[177] and nitrogen loads associated with aquaculture[178] has resulted in eutrophication throughout the Mediterranean.[179] The highest incidence of eutrophication is found along the northern and western coasts of the Adriatic Sea, which due to its circulation characteristics and shallowness is particularly affected by river loads and sediment/water exchange processes.[180]

Eutrophication has resulted in massive algae blooms that have removed oxygen from the water, killed prey species that cetaceans rely upon, and contributed to the build-up of dinoflagellates toxic to marine animals.[181] Sewage effluent in coastal regions is likely to substantially expand in the next 25 years. It is projected that 217 million people will live on the coasts of the Mediterranean by 2025, producing 5.9 billion cubic meters of wastewater each year (compared to 3.8 billion cubic meters currently), while the number of tourists will rise to 350 million, producing 6.5 million cubic meters of wastewater (compared to 2.5 million cubic meters currently).[182] Sewage outflow in the region may also increase the exposure of cetaceans in coastal areas to infectious diseases, including

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[177] This includes flood irrigation and excessive use of fertilizers. E. Soler Torres & J.G. del Río, *Spatial Variations of Phytoplankton Community Structure in a Highly Eutrophicated Coast of the Western Mediterranean Sea,* 32(9-10) WATER SCI. & TECH. 313, 313 (1995).
[178] European Environment Agency, *supra* note 33, at 35.
[179] Pearce, *supra* note 150, at 28.
[180] EEA/UNEP, *supra* note 27, at 79.
[181] *Id.* at 28. Recent analysis of phosphate and nitrate data in the western Mediterranean indicates that anthropogenic inputs are increasing by about 3 per cent annually in the region. J.P. Bethoux, et al., *The Mediterranean Sea: A Miniature Ocean for Climatic and Environmental Studies and a Key for the Climatic Functioning of the North Atlantic,* 44(1-3) PROGRESS OCEANOGRAPHY 131, 138 (1999).
[182] WWF, *supra* note 34, at 5. Moreover, pollution is concentrated in the 40% of the costal regions where human populations are concentrated. *The Mediterranean: A (Vital) Drop in the Oceans,* 52 MEDWAVES 8 (2004).

parasites, such as nematodes, "pox" infection and other viral and bacterial infections.[183]

While only comprising 0.8 per cent of the world's ocean surface, 30 per cent of the world's ship-transported oil makes transit through the Mediterranean each year.[184] The annual inputs of petroleum hydrocarbons in the Mediterranean are of the order of 750,000 tons per year,[185] of which approximately half is from tanker spills, loading, unloading and flushing of tanks.[186] While research on the ecotoxicological impacts of hydrocarbons on Mediterranean species remains limited,[187] a recent study by Marsili, et al. concluded that hydrocarbon concentrations found in the Mediterranean are "toxicologically stressful for cetaceans living in our basin."[188]

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[183] Simmonds & Nunny, *supra* note 130, at 41.
[184] Randall Reeves, et al., *Dolphins, Whales and Porpoises. 2002-2010 Conservation Action Plan for the World's Cetaceans* 90 (2003), <http://www.iucn.org/themes/ssc/actionplans/cetaceans/cetaceans.pdf>, site visited on July 18, 2003.
[185] Afifa Louati, et al., *Hydrocarbon Contamination of Coastal Sediments from the Sfax Area (Tunisia), Mediterranean Sea,* 42(6) MARINE POLLUTION BULL. 445, 445 (2001).
[186] Marsili, et al., *supra* note 81, at 147. *See also* Worldwide Fund for Nature, *Mediterranean States Commit to Stop Sea Pollution,* <http://www.panda.org/news/press/news.cfm?id=2595> (2001), site visited on July 20, 2001; C. Giammatteo, *The Mediterranean: Four Thorny Issues,* 3(2) MONACHUS GUARDIAN (2000), <http://www.monachus.org/mguard05/06covsto.htm>, site visited on July 14, 2001.
[187] EEA/UNEP, *supra* note 27, at 92.
[188] Marsili, et al., *supra* note 81 , at 152. *See also* Bernd Würsig, *Cetaceans and Oil: Ecologic Perspectives,* in SEA MAMMALS & OIL 129-165 (Joseph R. Geraci & David J. St. Aubin eds., 1990); MICHAEL J. KENNISH, POLLUTION IMPACTS ON MARINE BIOTIC COMMUNITIES 29-30 (1997).

Substantial amounts of toxic heavy metals such as lead,[189] cadmium[190] and mercury[191] are introduced by humans into the Mediterranean. These are generated from a wide variety of sources, including atmospheric deposition[192] and riverine discharges.[193] Heavy metals may bioaccumulate in marine mammals through the ingestion of food items.[194] These substances have been linked in several studies to a wide range of maladies in cetaceans and other animals, including toxic effects on reproductive systems, anorexia and weight loss, and

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[189] Aguilar, *supra* note 49, at 20; F. Ruiz, *Trace Metals in Estuarine Sediments from the Southwestern Spanish Coast,* 42(6) MARINE POLLUTION BULL. 482, 489 (2001). Lead concentrations, which have declined in recent years, may rise during the first part of this century. Ru Cheng Tian & Diana Ruiz-Pino, *Simulation and Prediction of Anthropogenic Lead Perturbation in the Mediterranean Sea,* 164 SCI. TOTAL ENV'T 135, 135 (1995). *Contra,* N. Pirrone, P. Costa & J.M. Pacyna, *Past, Current and Projected Atmospheric Emissions of Trace Elements in the Mediterranean Region,* 39(12) WATER SCI. & TECH. 1, 4-5 (1999) (projecting that lead emissions in region will decline from 12,249 tons/yr^{-1} in 1998 to 7,658 tons/yr^{-1} in 2015. The major anthropogenic source of lead emissions in the region is the transportation sector. *Id.* at 2. Syria is the major emitter of lead in the region, accounting for over 23 per cent of emissions. *Id.* at 3.

[190] J.P. Frodello, D. Viale, & B. Marchand, *Metal Levels in a Cuvier's Beaked Whale (Ziphius cavirostris) Found Stranded on a Mediterranean Coast, Corsica,* 69 BULL. ENVTL. CONTAMINATION & TOXICOLOGY 662, 664 (2002); Pirrone, et al., *supra* note 189, at 1.

[191] Frodello, *supra* note 190; M.I. Dassenakis, et al., *The Influence of Long Existing Pollution on Trace Metal Levels in a Small Tidal Mediterranean Bay,* 32 MARINE POLLUTION BULL. 275, 275 (1996). Very high concentrations of mercury have been found in the livers of striped dolphin in the Mediterranean, though the major source (60 per cent) is natural deposits in the Mediterranean basin. N. Pirrone, G.J. Keeler & J.O. Nriagu, *Regional Differences in Worldwide Emissions of Mercury to the Atmosphere,* 30 ATMOSPHERE ENV'T 2981-2987 (1996). *See also* S. Takahasi, et al., *Accumulation of Butyltin Compounds and Total Tin in Marine Mammals,* 42(7-8) WATER SCI. & TECH. 97, 105 (2000).

[192] Françoise Elbaz-Poulichet, Cécile Guieu, & Nicholas H. Morley, *A Reassessment of Trace Metal Budgets in the Western Mediterranean Sea,* 42(8) MARINE POLLUTION BULL. 623, 625 (2001). Christopher Migon, Bernard Gentili & Blandine Journel, *Statistical Analysis of the Concentrations of Twelve Metals in the Ligurian Atmospheric Aerosol,* 23(1) OCEANOLOGICA ACTA 37, 37 (2000); Valérie Sandroni & Christophe Migon, *Significance of Trace Metal Medium-Range Transport in the Western Mediterranean,* 196 SCI. TOTAL ENV'T 83, 83 (1997). "[A]tmospheric input of 40 trace elements released to the Mediterranean basin by atmospheric deposition and wet scavenging by precipitation is primarily due to industrial emissions and resuspended Saharan dust." N. Pirrone, et al., *supra* note 189, at 2.

[193] *Id.* at 2.

[194] Cassiano Monteiro-Neto, et al., *Concentration of Heavy Metals in Sotalia Fluviatilis (Cetacea: Delphinidae) Off the Coast of Ceará,* 123 ENVTL. POLLUTION 319, 319 (2003). "Cd [cadmium] has a 10-30 year biological half-life, meaning that even sporadic ingestion of small amounts may result in significant accumulation in older animals. At the same time, Hg [mercury] has a longer persistence and high mobility in coastal marine environments, being subjected to a strong bioaccumulation process by marine organisms." *Id.* at 323.

immunosuppression.[195] However, monitoring data for heavy metals are sparse in most regions of the world, especially in the Mediterranean.[196] Moreover, very few studies have measured trace metal levels in cetaceans,[197] and many researchers contend that such impacts remain speculative, highlighting the need for additional research.[198]

Increased coastal building, including construction of tourism infrastructure and dredging for building materials and to keep ship-ways clear, may degrade marine habitats, threatening benthic organisms and resulting in heightened noise levels that may imperil cetaceans.[199] Damming along many rivers that drain into the Mediterranean has reduced sediment supply to the continental margin during

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[195] A.J. García-Fernández, et al., *Lead and Cadmium in Internal Tissues of Common Dolphins (Delphinus Delphis) Stranded on the Coast of Andalusia (SW Mediterranean): Influence of Biological Factors,* 13 EUR. RES. CETACEANS 421, 422-23 (1999). "The tolerance limit of mercury in mammalian liver has been estimated at 100-400 μg g^{-1} wet wt ..." Cardellicchio, *supra* note 54, at 334. In a study of 16 beached striped dolphins off the Italian coast, Cardellicchio found average liver concentrations of mercury were 179.50 μg g^{-1} wet wt. *Id.* Mercury constitutes a particular threat to smaller toothed dolphin species because of their high daily energy demand and relative food intake. L. Holsbeek, et al., *Spatial Interspecies Variability of Mercury Accumulation in Small Cetaceans,* 14 EUR. RES. CETACEANS 179 (2000). High mercury levels have also been linked to liver abnormalities in Atlantic bottlenose dolphins. A.J. Rawson, et al., *Liver Abnormalities Associated with Chronic Mercury Accumulation in Stranded Atlantic Bottlenose Dolphins,* 25 ECOTOXICOLOGY & ENVTL. SAFETY 41-47 (1993).

[196] L. Manfra & A. Accornero, *Trace Metal Contaminations in Coastal Marine Waters of the Central Mediterranean,* 50(6) MARINE POLLUTION BULL. 686, 687 (2004).

[197] L. Méndez, et al., *Trace Metals in Tissues in Gray Whales (Eschrichtius Robustus) Carcasses from the Northern Pacific Mexican Coast,* 44(3) MARINE POLLUTION BULL. 217, 217 (2002).

[198] Efrat Shoham-Frider, et al., *Risso's dolphin (Grampus griseus) Stranding on the Coast of Israel (eastern Mediterranean). Autopsy Results and Trace Metal Concentrations,* 295 SCI. TOTAL ENV'T. 157, 164 (2002); Cardellicchio, et al., *Accumulation and Tissue Distribution of Mercury and Selenium in Striped Dolphins (Stenella coeruleoalba) from the Mediterranean Sea (southern Italy),* 116 ENVTL. POLLUTION 265, 270 (2002); J.L. Zhou, et al., *Heavy Metals in the Tissues of Common Dolphins (Delphinus delphis) Stranded on the Portuguese Coast,* 273 SCI. TOTAL ENV'T 61, 74 (2001).

[199] Simmonds & Nunny, *supra* note 130, at 40.

the past few decades. This can result in delta erosion and salt-water intrusion into coastal areas, threatening habitat and species in these areas.[200]

As a semi-enclosed sea, the Mediterranean suffers from higher levels of marine litter than open-sea regions.[201] This litter includes plastics,[202] wood, metal, glass, Styrofoam, fishing gear, construction materials, rubber, paper, textiles, cardboard and food.[203] 30-50 per cent of the municipal solid waste may reach the Mediterranean from illegal dumping sites.[204]

Plastic debris poses particularly serious threats to cetaceans in the region. Entanglement can impede movement, cause drowning and lead to starvation. Ingestion of plastics can cause death or debilitation by blocking the digestive tract.[205] Plastic resin pellets also accumulate PCBs and DDE, making them a potentially important source of toxins for marine mammals that may ingest them.[206]

It is likely that the pressures on the Mediterranean's already imperiled ecosystems will increase throughout this century, thus magnifying the threats to

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[200] *Id.* at 49-50. "At present, in the Mediterranean basin there are at least 500 big dams, with combined storage capacity of 230 km^3." Lucia De Stefano, *Freshwater and Tourism in the Mediterranean* 6 (2004), <http://www.panda.org/downloads/europe/medpotoruismreportfina_ofnc.pdf>, site visited on Aug. 1, 2004.

[201] *Id.* at 42.

[202] "In the Mediterranean, plastic alone accounts for 75% of the waste on the sea surface and the seabed." *Trashing the Mediterranean: Over 250 Kilos of Garbage Per Person Per Years,* 52 MEDWAVES 12 (2004).

[203] Giuseppe Notarbartolo di Sciara, *Action Plan for the Conservation of Cetaceans in Maltese Water,* Contract No. 41/02 under the SAP/BIO Framework (2002), at 4; UNEP, *State of the Marine and Coastal Environment in the Mediterranean* 78, MAP Technical Report Series No. 100 (1996).

[204] *Trashing the Mediterranean: Over 250 Kilos of Garbage Per Person Per Year,* 52 MEDWAVES 12 (2004).

[205] Simmonds and Nunny, *supra* note 130, at 42.

[206] Y. Mato, et al., *Plastic Resin Pellets as a Transport Medium for Toxic Chemicals in the Marine Environment,* 35(2) ENVTL. SCI. & TECH. 318-324 (2001).

cetaceans and other marine species. As the United Nations Environmental Program recently concluded:

> The prognosis is not rosy and resembles a recipe for the creation of more pollution hot spots. Population increases will only put further stress on already burdened natural resources, such as fresh and marine waters and energy, and compete for the ecological space of flora and fauna and thus the maintenance of biological diversity. This will further burden overstrained labour and housing markets and associated public services (water supply, roads, sanitation and transport) and result in more waste.[207]

2.1.2.3 Fisheries Bycatch

In the past forty years, incidental catches of cetaceans in fishing operations have become a serious threat to many species throughout the world.[208] A recent study concluded that over 307,000 cetaceans are killed annually from entanglement in fishing nets, making this phenomenon the leading

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[207] United Nations Environment Program, *The Mediterranean Action Plan* (2000), at 26. *See also* Program of the Mediterranean NGOs for sustainable development, V Mediterranean Environmental Forum, Barcelona, November 19-20, 1998, *The Barcelona Declaration of the Mediterranean NGOs for Sustainable Development,* <http://www.medforum.org/informacio/monografics/declaracion/declara_en.htm>, site visited on Jan. 25, 2004.

[208] *Dolphin Population Declining Alarmingly,* ASSAM TRIBUNE, Apr. 21, 2002, <http://www.assamtribune.com/apr2202/at05.html>, site visited on Aug. 14, 2002; *Warning Over Dolphin 'Extinction,'* BBC News, July 16, 2002, <http://news.bbc.co.uk/hi/english/uk/scotland/newsid_2130000/2130499.stmInternational>, site visited on July 22, 2002; Whaling Commission, *Resolution on the Incident Capture of Cetaceans,* Resolution 2001-4 (2001); International Whaling Commission, *Resolution on the Conservation of Freshwater Cetaceans,* IWC Resolution 2000-9 (2000); Krystal A. Tolley, et al., *Genetic Population Structure of Harbour Porpoises,* 1(3) J. CETACEAN RES. & MGMT. 265, 265 (1999).

global threat to whales, dolphins and porpoises.[209] In some areas bycatch "[has] brought cetacean species or populations close to extinction."[210]

The Mediterranean has more than 140,000 vessels engaged in fishing operations.[211] A recent study in the Italian seas concluded that 83 per cent of the stranding events between 1986-1990 for which a cause of death could be determined were attributable to incidental capture in fishing gear.[212] Cetaceans in the region are primarily threatened by the use of driftnets, but are also ensnared in an array of other fishing gear, including bottom gillnets, and purse seines.[213]

2.1.2.3.1 Driftnets

Driftnets are gillnets set with floats at or below the surface that "act as passive filters that entangle a wide range of wildlife organisms, both target and non-target."[214] Pelagic driftnets are used in the Mediterranean by the drift gillnet fishery for small pelagic fish and for swordfish and albacore.[215] The nets used by the swordfish and albacore fishing industries are particularly threatening to cetaceans in the region. Multifilament nylon nets used by the swordfish industry have 36-52 centimeters mesh, are 2-40 kilometers long, and are typically 12-15

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[209] Andrew J. Read & Phebe Drinker, *By-Catches of Marine Mammals in U.S. Fisheries and a First Attempt to Estimate the Magnitude of Global Marine Mammal By-Catch,* International Whaling Commission, Scientific Committee, SC/55/BC5 (2003), at 4. The study's global projections of bycatch, based on extrapolations from U.S. bycatch estimates, may be biased downwards given the fact the U.S. fleet may have higher catch per unit effort of landed catch than many other countries and the failure of many countries to report on their fleets. *Id.* at 4-5.
[210] Giovanni Bearzi, *Interactions Between Cetaceans and Fisheries, Mediterranean Sea, in* CETACEANS OF THE MEDITERRANEAN AND BLACK SEAS, *supra* note 62, at 80.
[211] UNEP, *supra* note 175, at 12.
[212] *Id.*
[213] Instituto Centrale per la Ricerca Applicata al Mare, *supra* note 101, at 8.
[214] Silvani, Gazo & Aguilar, *supra* note 66, at 79.
[215] *Report of the Workshop on Mortality of Cetaceans in Passive Fishing Nets and Traps,* 15 REP. INT'L WHALING COMMISSION, Special Issue 6-57 (W.F. Perrin, G.P. Donovan, J. Barlow eds., 1994).

kilometers in length.[216] The albacore fishing industry generally uses nets with a mesh size of 16-20 centimeters and a total length of 9-15 kilometers.[217]

Several Mediterranean nations deployed driftnet fleets over the past few decades, including Algeria, Morocco, Spain, France, Italy, Malta, Greece and Turkey.[218] Ultimately, the number of vessels increased to over 1,000 in 1990, carrying nets up to 22.5 kilometers long.[219] The Italian driftnet fleet comprised 70 per cent of these vessels.[220]

Driftnets are believed to induce the highest number of incidental captures of cetaceans of all forms of fishing gear deployed in the Mediterranean.[221] In the mid-90s, the International Whaling Commission concluded that the bycatch of striped dolphins in Mediterranean fishing operations, resulting in the death of approximately 5,000 dolphins per year,[222] might be unsustainable in the long term.[223] In including the common dolphin in a list of cetacean populations at risk, the International Union for the Conservation of Nature cited the impact of fishing

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[216] Bearzi, *supra* note 210, at 80.
[217] *Id.*
[218] L. Silvani, M. Gazo, & A. Aguilar, *supra* note 66, at 84; A. Di Natale & G. Notarbartolo di Sciara, *A Review of the Passive Fishing Nets and Trap Fisheries in the Mediterranean Sea and of Cetacean Bycatch,* 15 REP. INT'L WHALING COMMISSION, Special Issue 189-202 (1994).
[219] Bearzi, *supra* note 210, at 80.
[220] *Id.*
[221] Giuseppe Notarbartolo di Sciara, *The Scientific Committee of ACCOBAMS,* 1(1) FINS 5, 5 (2004).
[222] G. Cognetti, *Conservation Strategies in the Mediterranean,* 9 AQUATIC CONSERVATION: MARINE & FRESHWATER ECOSYSTEMS 509, 510 (1999).
[223] International Whaling Commission, *Report of the Sub-Committee on Small Cetaceans,* Annex G, 45 REP. INT'L WHALING COMMISSION 165, 177 (1995); International Whaling Commission, *Report of the Workshop on Mortality of Cetaceans in Passive Fishing Nets and Traps,* 15 REP. INT'L WHALING COMMISSION 1-71 (1994).

as one of the principal threats to the species.[224] At the peak of driftnet fisheries, perhaps as many as 10,000 cetaceans were being killed annually.[225]

The incidental catch of cetaceans by Italian swordfish and tuna fishers utilizing driftnets poses a serious ongoing threat to certain species. Recent studies reveal that only 18 per cent of the catch in these nets are swordfish.[226] Among the other 74 species caught and usually discarded in such operations each year[227] are thousands of dolphins and whales.[228] The most impacted species are sperm whales and striped dolphins; other bycaught species include Cuvier's beaked whales, long-finned pilot whales, common dolphins, and perhaps fin whales.[229]

Italian fishing practices are in direct defiance of the decisions made by regional organizations, treaty regimes and the Parties to the Mediterranean Action Plan. In 1992, the European Union (EU) banned the use by member States of large-scale driftnets (which has been construed as those longer than 2.5 kilometers in length).[230] This regulation was subsequently amended in 1998

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[224] W.F. Perrin, *Dolphins, Porpoises and Whales. An Action Plan for the Conservation of Biological Diversity: 1988-1992* (1989).
[225] Bearzi, *supra* note 210, at 81.
[226] *U.S. Government Faced With Tough Decision on Italian Fishing Case,* DEUTSCHE PRESSE-AGENTUR, Mar. 14, 1996.
[227] European Commission, *The Necessary European Ban on Driftnets,* <http://europa.eu.int/comm/fisheries/news_corner/doss_inf/info34_en.htm>, site visited on Nov. 26, 2001.
[228] Pearce, *supra* note 150, at 28. *See also* Marlise Simons, *Boats Plunder Mediterranean with Outlawed Nets,* N.Y. TIMES, June 4, 1998, at A3; S. Mazzola, et al. *Preliminary Study on Census Data About the Interaction Between Dolphins and Fishing Activity in the Sicilian Fisheries,* 9 EUR. RES. CETACEANS 256, 257 (E.C.M. Parsons & H. Nice eds., 1996).
[229] Bearzi, *supra* note 210, at 81; IWC, 56th Meeting of the Parties, Report of the Scientific Committee, Annex J, *Estimation of Bycatch and other Human-Induced Mortality,* IWC/56/Rep 1 (2004), at 4.
[230] *Council Regulation (EEC) No 345/92 of 27 January 1992 amending for the eleventh time Regulation (EEC) No 3094/86 laying down certain technical measures for the conservation of*

after protracted negotiations[231] to ban all use of driftnets for harvesting a range of fish, including swordfish, by January 1, 2002.[232] In 1996 the EU made a commitment to encourage Italian fishers to phase out their use of such nets by providing funding to convert the nation's fleet to more selective measures.

In 1997, the General Fisheries Commission for the Mediterranean (GFCM), in one the few binding decisions ever issued by the body, also banned the use of driftnets of more than 2.5 kilometers in length.[233] In 2005, the GFCM imposed a total ban on the use of driftnets to catch large pelagic species in Mediterrean waters by endorsing a binding Recommendation to this effect by the International Commission for the Conservation of Atlantic Tunas (ICCAT).[234] In 1991 the Parties to the Mediterranean Action Plan[235] also called on each Party to adopt national legislation to ban possession or use of driftnets more than 2.5 kilometers in length.[236]

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fishery resources, 1992 OJ L. 42, at art. 9a. The European Union's decision implements a 1989 resolution by the United Nations, which called for a moratorium on the use of driftnets of lengths greater than 2.5 kilometers on the high seas. United Nations General Assembly, *Resolution on Large-Scale Pelagic Driftnet Fishing and Its Impact on Living Marine Resources of the World's Oceans and Seas*, 44/225, adopted Dec. 22, 1989, 29 I.L.M. 1555 (1990).

[231] RONÁN J. LONG & PETER A. CURRAN, ENFORCING THE COMMON FISHERIES POLICY 299 (2000).

[232] *Council Regulation (EC) No 1239/98 of 8 June 1998 amending Regulation (EC) No 894/97 laying down certain technical measures for the conservation of fishery resources,* Official J.L. 171 , 17/06/1998 p. 0001 – 0004, art. 11(a)(1). The amended provision provides that "from January 2002, no vessel may keep on board, or use for fishing, one or more drift-nets intended for the capture of species listed in Annex VIII." *Id.* It also instructs national authorities to take measures against its nationals who violate the Regulation's provision. *Id.* at 11(b)(6).

[233] General Fisheries Council of the Mediterranean, Resolution 97/1 (1997), <http://www.fao.org/DOCREP/MEETING/007/W7854E/W7854E00.HTM#APPG>, site visited on July 2, 2005. For general information on the Commission (formerly called the General Council for the Mediterranean), *see* sec. 5.7, *infra.*

[234] Sergi Tudela & Paolo Guglielmi, *A Challenge to Regional Fisheries Governance and a Major Threat to Marine Ecosystems and Vulnerable Species,* 2(1) FINS 2 (2005), <http://www.accobams.org/download/newsletter/FINS_2_1.pdf>, site visited on July 3, 2005.

[235] *See infra* note 794 and accompanying text.

[236] Action Plan for the Conservation of Cetaceans in the Mediterranean Sea, adopted by the Mediterranean Action Plan Parties at the Seventh Ordinary Meeting of the Parties (1991),

However, very little progress has been made in the ensuing years to comply with these provisions.[237] In fact, more recently, both the Italian and French fishing fleets have been deploying driftnets in the Mediterranean, including in marine protected areas, but have sought to skirt the EU driftnet ban by seeking to reclassify their equipment.[238] The European Commission recently commenced proceedings for non-compliance against Italy, France and Spain for alleged infringements of the ban on driftnet fishing.[239]

In the Alboran Sea, the Spanish fleet ceased using driftnets to catch swordfish in 1994;[240] however, the Moroccan fleet has expanded from 200 to 370-400 vessels.[241] The Moroccan vessels are using nets of up to 100 meters in

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available at: <http://eelink.net/~asilwildlife/mapcet.html>, site visited on Aug. 19, 2001. The General Fisheries Commission for the Mediterranean in 1997 also adopted a recommendation endorsing the EU's mandate, GFCM, Resolution 97/1.

[237] *Plans to Ban Driftnets Face French and Italian Opposition*, EUR. REP., Feb, 28, 1998. There are also recent reports that Italian fishers are applying for fishing licenses in Albania and Croatia to facilitate the continued use of driftnets. *See* Simons, *supra* note 228, at A3. The United Nations General Assembly concluded that "while there has been a marked decrease in the reporting of large-scale pelagic drift-net fishing activities in most region's (sic) of the world's oceans and seas, large-scale pelagic drift-net fishing remains a threat to marine living resources in some areas." UN General Assembly, Resolution 55/8, Oct. 30, 2000.

[238] Barbara Mussi, Angelo Miragliuolo, & Daniel Silvia Pace, *Nets and Loopholes: The Continued Use of Driftnets by the Italian Fleet,* 2(1) FINS 5 (2005), <http://www.accobams.org/download/newsletter/FINS_2_1.pdf>, site visited on July 3, 2005. For example, the Italian government in 2003 endorsed the use of "ferretarra," a "small" driftnet of 2 kilometers in length, as well as anchored gillnets up to 5 kilometers in length. *Id.* In 2005, the Italian government issued a decree that permits the use of nets with certain characteristics, including that they not exceed 5 kilometers in length and are anchored. However, while the decree's anchoring requirement would appear to preclude the use of driftnets, this is by no means certain. Tullio Scovazzi, *A Doubtful Italian Decree,* 2(1) FINS 7 (2005), <http://www.accobams.org/download/newsletter/FINS_2_1.pdf>, site visited on July 3, 2005.

[239] European Commission, *Common Fisheries Policy Compliance Scoreboard,* <http://europa.eu.int/comm/fisheries/scoreboard/control_en.htm>, site visited on Mar. 18, 2005.

[240] Sergi Tudela , et al., *Driftnet Fishing and Biodiversity Conservation: The Case Study of the Large-Scale Moroccan Driftnet Fleet Operating in the Alboran Sea (SW Mediterranean),* 121(1) BIO. CONSERVATION 65, 66 (2005).

[241] Sergi Tudela & Paolo Guglielmi, *Biodiversity Impact of the Moroccan Driftnet Fleet Operating in the Alboran Sea (SW Mediterranean),* WWF Mediterranean Programme (Oct. 2003), 3, <http://www.panda.org/downloads/europe/wwfreportmoroccandriftnetbycatch1of3.pdf>, site visited on Nov. 20, 2003; Commission of the European Communities, Scientific, Technical, and

length, and the fleet is logging more than 5,500 fishing days annually.[242] A recent study by the World Wide Fund for Nature concluded that Morocco's illegal fishing operations in the Alboran may be resulting in a bycatch rate of higher than 10 per cent for short-beaked common dolphins and striped dolphins,[243] translating into the bycatch of more than 3,100-4100 of these two species annually.[244] An additional 11,000-15,000 dolphins may be killed around the Straits of Gibraltar from the use of drifnets, assuming the same catch rates for the Moroccan fleet based in Tangiers.[245] This figure is startling in the face of research by the International Whaling Commission indicating that a bycatch rate of even 2 per cent will result in a decline of the stocks of these species.[246] It is also a potential tragedy, because the only hope for reversing the decline of short-beaked common dolphins in the Mediterranean that has occurred in the past few decades may lie with the conservation of the Alboran population, which has the healtiest population of the species in the Mediterranean.[247] Moroccan authorities have recently announced plans to phase out the driftnet fleet, though some question the feasibility of this plan absent infusions of substantial amounts of

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Economic Committee for Fisheries, Subgroup on Fishery and Environment, *Incidental Catches of Small Cetaceans,* SEC(2002) 376 (2002), at 51. It was estimated that the Spanish swordfish fleet had been incidentally catching 145-165 common dolphins per year in the Alboran Sea, a bycatch rate of 1.2 per cent. *Id.,* and 145-201 striped dolphins, a bycatch rate of 1.2 per cent. *Id.* at 52.

[242] Tudela & Guglielmi, *supra* note 241, at 2.

[243] *Id.* at 16. A recent field assessment verified bycatch of either short-beaked common dolphins or striped dolphins in 38.9% of all fishing sets monitored in the Moroccan driftnet fishery in the Alboran Sea. The projected aggregate dolphin by-catch by the fleet is 11,590-15,127 individuals. Tudela, et al., *supra* note 240, at 72-3.

[244] Tudela & Guglielmi, *supra* note 234, at 3; Tudela, *supra* note 52, at 16.

[245] Tudela & Guglielmi, *supra* note 234, at 3.

[246] Tudela, *supra* note 52, at 16.

[247] *Id.;* Tudela, *supra* note 240, at 66.

international financial assistance.[248] Cetacean species in the region may also be threatened by other, albeit smaller, driftnet fleets from Turkey and Tunisia.[249]

A recent study by Mediterranean Dolphin Conservation around the Italian Island of Ischia in the Tyrrhenian Sea, a feeding site for fin whales, a feeding and breeding ground for striped and Risso's dolphins, and a transitioning area for social units of sperm whales,[250] recorded a total of 22 Italian-registered boats equipped with driftnets.[251] These boats were observed fishing for swordfish in an area classified by the IUCN as critical habitat for common dolphins.[252] Another study recently recorded 38 driftnet boats in the region, equipped with driftnets ranging from 8-84 kilometers.[253] Fatal bycatch events involving common dolphins, bottlenose dolphins and fin whales have been documented in the region since 1996, including in areas that are critical habitat for common dolphins.[254]

Moreover, a driftnet fishery for swordfish has also developed recently in the north Aegean Sea, with approximately 20 boats using nets 1,000-1,500 meters in length on average and with a depth of four meters.[255] A recent study by Özturk, et al. concluded that dolphin bycatch in the fishery is a serious threat to dolphin species in the region, especially striped, bottlenose, and Risso's

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[248] Tudela & Guglielmi, *supra* note 234, at 3.
[249] *Id.* at 23.
[250] Mussi, Miragliuolo, & Pace, *supra* note 238, at 5.
[251] Mediterranean Dolphin Conservation, *Illegal Driftnetting off the Island of Ischia (Southern Tyrrhenian Sea, Italy),* <http://www.delphismdc.org/ing/progetti/driftnetting.htm>, site visited on July 18, 2003.
[252] *Driftnetting off the Island of Ischia, supra* note 251; Reeves, *supra* note 184, at 90.
[253] Mussi, Miragliuolo, & Pace, *supra* note 238, at 5.
[254] *Id.* at 6.
[255] Bayram Özturk, Ayaka Amaha Özturk & Ayhan Dede, *Dolphin Bycatch in the Swordfish Driftnet Fishery in the Aegean Sea,* 36 RAPP. COMMISSION INT'L MER MÉDIT. 308, 308 (2001).

dolphin.[256] A suspected decline in Mediterranean sperm whales may be partially attributable to pelagic drift-netting operations in the Strait of Gibraltar region.[257] There is also concern that fishery bycatch is substantially underreported by fishers in the region due to fear of legal consequences.[258]

2.1.2.3.2 Bottom Gillnets

Bottom-set gillnets are panels of nets anchored to the bottom of the ocean using weights and made taut on their upper edge by buoys (*See* Figure 4).[259] The gear is deployed in coastal waters up to 200 meters deep, with demersal and bentho-pelagic species primarily targeted.[260]

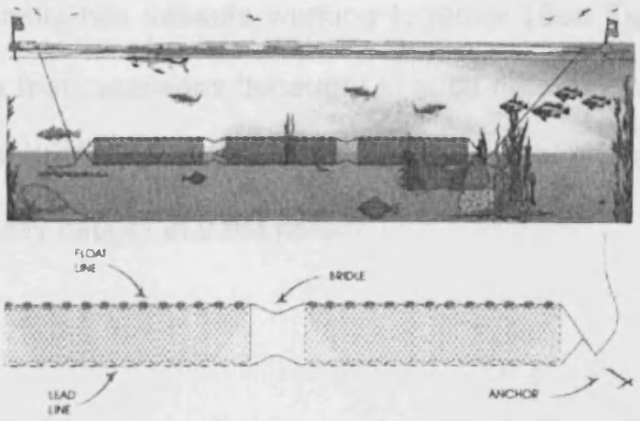

Figure 4

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[256] *Id.*
[257] Tudela, *supra* note 52, at 17.
[258] E. Androukaki & E. Tounta, *A Study of the Distribution and Pathology of Cetaceans in Greece,* 8 EUR. RES. CETACEANS 203, 204 (1994).
[259] Greenpeace, *Small, Grey and Endangered,* Briefing Paper at the 55th Meeting of the International Whaling Commission (2003), at 1.
[260] Bearzi, *supra* note 210, at 81.

Bottom-set gillnets are deployed by approximately 50,000-100,000 boats throughout the Mediterranean basin,[261] with targeted species primarily demersal and bentho-pelagic fish and crustaceans.[262] Bycatch data from bottom gillnets in the region are scarce and largely consist of anecdotal reports. While the reported numbers are relatively low,[263] there is some evidence that incidental capture of cetaceans in bottom gillnets is significant in some areas and that the toll is underestimated.[264]

2.1.2.3.3 Trawl Nets

Trawl nets are cone-shaped nets with a cone-end or bag for collecting fish or other target species that are towed horizontally or obliquely behind a vessel, or occasionally two vessels working together (*See* Figure 5).[265] In most cases, it appears that cetaceans bycaught in such nets are following the nets in pursuit of fish.[266] In the Mediterranean, bottlenose dolphins are the main cetacean species incidentally caught in trawl nets.[267]

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[261] Reeves, et al., *supra* note 184, at 15.
[262] Commission of the European Communities, *supra* note 241, at 43.
[263] IWC, *supra* note 215, at 12. The IWC reported estimated "likely annual ranges of marine mammal morality" of 1-10 Risso's dolphins, 0-5 common dolphins, 50-200 bottlenose dolphins, 1-20 striped dolphins and low numbers of other cetacean species in coastal set gillnet fisheries.
[264] Bearzi, *supra* note 210, at 81. A recent study recently concluded that the vast majority (98%) of cetacean and pinniped bycatch occur in gill net fisheries. Read & Drinker, *supra* note 209, at 4.
[265] A.J. Read, *Incidental Catches of Small Cetaceans, in* THE CONSERVATION OF WHALES & DOLPHINS, *supra* note 153, at 112.
[266] *Id.* at 82.
[267] B. Mussi, et al., *Cetacean Sightings and Interactions with Fisheries in the Archipelago Pontino Campano, Southern Tyrrhenian Sea, 1991-1995,* 12 EUR. RES. CETACEANS 63-65 (1998); D.S. Pace, et al., *Tursiops truncatus Population at Lampedusa Island (Italy): Preliminary Results,* 12 EUR. RES. CETACEANS 165-169.

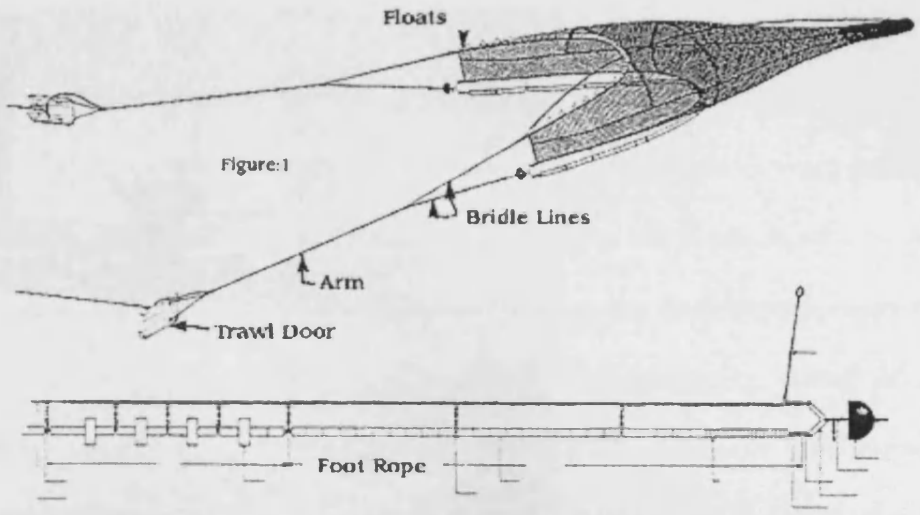

Figure 5

Available research indicates that cetacean bycatch in trawl nets is relatively rare in the Mediterranean. However, high mortality rates have been reported off the Mediterranean coast of Israel, where a recent report found that 39 per cent of bottlenose dolphins discovered dead, stranded or adrift were incidentally bycaught in trawl nets.[268]

2.1.2.3.4 Longlines

Longlines consist of many short lines, each baited with a hook, suspended vertically from a main line that is dragged horizontally through the water. Longlines can carry as many 12,000 hooks per line and stretch as long as 40 miles (*See* Figure 6).[269] Cetaceans can become entangled in the line filaments or other part of the gear or ensnared by the hooks.[270]

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[268] O. Goffman, et al., *Bottlenose Dolphin-Trawler Interactions in the Israeli Mediterranean Coastline: 1993-2001* (2001), IMMRAC/University of Haifa, unpublished report supplied to the author.

[269] Ransom A. Myers & Boris Worm, *Rapid Worldwide Depletion of Predatory Fish Communities*, 423 NATURE 280, 280 (2003); Seafood Choices Alliance, *Glossary of Common Gear Types,*

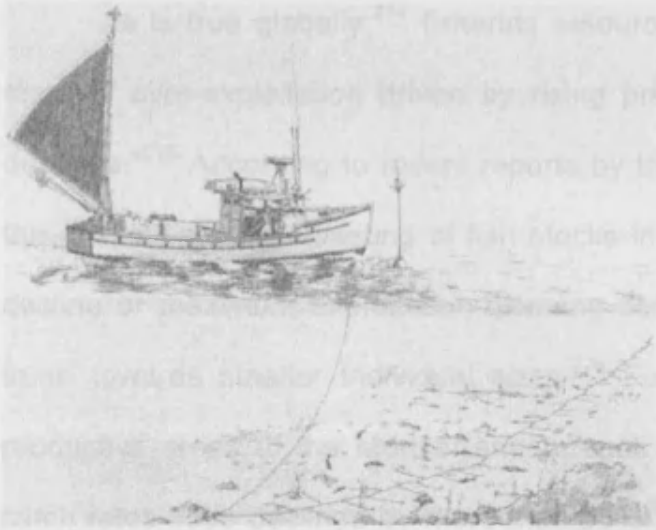

Figure 6

Longlines are commonly used in the Mediterranean to catch tuna, albacore, swordfish and other fish species.[271] Cetacean species in the region reported to be caught in longlines include striped dolphins, bottlenose dolphins, Risso's dolphins, false killer whales, and sperm whales taken off the coast of Spain and Italy.[272] While mortality associated with longlines appears to be a minor threat to cetaceans in the region, comprehensive studies have yet to be conducted.[273]

2.1.2.4 Food Shortages

<http://www.seafoodchoices.com/resources/gear_types.html#gillnet>, site visited on April 29, 2002.

[270] A.J. Read, *Incidental Catches of Small Cetaceans, in* THE CONSERVATION OF WHALES & DOLPHINS, *supra* note 153, at 118.

[271] A. Di Natale, *Interaction between Marine Mammals and Scombridae Fishery Activities: The Mediterranean Case,* 449 FAO FISHERIES REP. 167-174 (1990).

[272] Mussi, *supra* note 267.

[273] Bearzi, *supra* note 210, at 83.

As is true globally,[274] fisheries resources in the Mediterranean "are in a state of over-exploitation driven by rising prices and demand in the past few decades."[275] According to recent reports by the European Environment Agency, the unsustainable harvesting of fish stocks in the Mediterranean has led to the decline or maximum exploitation of many demersal fish stocks, with a general trend towards smaller individual sizes.[276] For example, in some of the most productive areas of the Mediterranean, such as the Adriatic and Sicily, overall catch rates have declined by more than 60%.[277] The stocks of small pelagic fish stocks remain highly variable, depending on environmental conditions;[278] however, it is likely that steep increases in catches in the past two decades mean that many species are now approaching levels of full exploitation.[279]

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[274] "At present, roughly 70 percent of fish stocks for which data are available are fully exploited or overfished. Commercial fishing capacity is estimated in excess of between 50 to 150 percent of what is considered sustainable." World Resources Institute, *People, Communities and the Coastal Environment* 1, 1 (2001). *See also* Ransom A. Myers & Boris Worm, *Rapid Worldwide Depletion of Predatory Fish Communities,* 423 NATURE 280-83 (2003) ("global ocean has lost more than 90% of large predatory fishes"); Rebecca Bratspies, *Finessing King Neptune: Fisheries Management and the Limits of International Law,* 25 HARV. ENVTL. L. REV. 213, 217 (2001) ("Between 1970 and 1990, the world's fishing effort increased at twice the rate of total marine catch"); Jeremy B.C. Jackson, et al., *Historical Overfishing and the Recent Collapse of Coastal Ecosystems,* 293 SCI. 629, 635 (2001); Harry N. Scheiber, *Ocean Governance and the Marine Fisheries Crisis: Two Decades of Innovation and Frustration,* 20 VA. ENVTL. L.J. 119, 121 (2001).

[275] Bearzi, *supra* note 210, at 85. *See also* J.F. Caddy, R. Refk & T. Do-Chi, *Productivity Estimates for the Mediterranean: Evidence of Accelerating Ecological Change,* 26(1) OCEAN & COASTAL MGMT. 1, 11 (1998).

[276] EEA/UNEP, *supra* note 27, at 20.

[277] Commission of the European Communities, *Proposal of a Council Regulation Concerning Management Measures for the Sustainable Exploitation of Fishery Resources in the Mediterranean Sea and Amending Regulations (EC) No. 2847/93 and (EC) No 973/2001, COM(2003) 589 final* (2003), at 2; Giovanni Bearzi, *Investigating Food-Web Interactions Between Mediterranean Coastal Dolphins and Fisheries in 'Natural Laboratories,'* CIESM Workshop Monographs, No. 25, *Investigating the Roles of Cetaceans in Marine Ecosystems* (2004), at 71.

[278] *Id.*

[279] FAO, *Review of the State of the World Fishery Resources: Marine Fisheries, Mediterranean and Black Sea,* FAO Fisheries Circular No. 920 FIRM/C920 (1997), <http://www.fao.org/docrep/003/w4248e/w4248e10.htm#AREA37>, site visited on Aug. 15, 2002.

The expansion of tuna farming operations in the Mediterranean, in which wild tuna are caged and fattened to maximize their desirability for the world's sushi market, may exacerbate food resource problems for cetaceans.[280] The depletion of small pelagic fish species (including Atlantic mackerel, *Scomber scombrus* and Sardinella, *Sardinella aurita* Valenciennes)[281] to feed farmed tuna may affect common dolphins and other cetacean species, especially off the Cartagena coast in Spain.[282]

At some stage, overfishing alters predator/prey relationships and species composition.[283] This is a particular threat in the northwest Mediterranean where fishing takes 40 per cent of the total primary production of the ecosystem — "one of the largest ecological footprints ever estimated."[284]

"However difficult it may be to establish a clear mechanistic link between fisheries and the decline of some cetacean species, such a link provides one of the most plausible contending hypotheses for coastal odontocetes such as short-beaked common dolphins and common bottlenose dolphins."[285] Impairment of

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[280] Tuna farming is conducted off the coasts of Spain, Italy, Malta and Croatia. WWF, *Tuna Farming a Major Threat for Already Over-Fished Wild Tuna in the Mediterranean, Warns WWF,* <http://www.naturalworldtours.co.uk/articles2002/feb/feb1602l.htm>, site visited on Apr. 30, 2002.
[281] Correspondence by e-mail with Julio Valeiras, Instituto Español de Oceanografia, Malaga, Spain, May 1, 2002.
[282] *Tuna Farm Moratorium Petition Fails to Reach EU Ministers,* Environment News Service, Apr. 29, 2002, <http://ens-news.com/ens/apri2002/20021per cent>, site visited on Apr. 30, 2002. *See also* Sergi Tudela, *Tuna Farming in the Mediterranean: The 'Coup de Grâce to a Dwindling Population,* Report to the WWF (2002), at 1.
[283] Lee Kimball, *International Ocean Governance*, IUCN-The World Conservation Union 3 (2001). *See also* Michel Territo, *The Precautionary Principle in Marine Fisheries Conservation and the U.S. Sustainable Fisheries Act of 1996,* 24 VT. L. REV. 1351, 1363 (2000)("Overexploitation of the world's fish populations is one of the greatest threats to the marine biodiversity").
[284] Sergi Tudela, *Grab, Cage, Fatten, Sell,* SAMUDRA, July, 2002, at 12 (English translation by Brian O'Riordan).
[285] Giovanni Bearzi, *Cetacean Prey Depletion in the ACCOBAMS Area,* Second Meeting of the ACCOBAMS Scientific Committee, *supra* note 45, Annex XXX, at 259-60. *See also* Bearzi,

access to prey resources may ultimately result in all of the following impacts on cetaceans:

> 1) increased levels of stress; 2. loss of weight and physical strength accounting for emaciation (e.g. in bottlenose dolphins). . . or starvation, 3) reduced reproductive rates, due to behavioural modifications and negative feedback mechanisms, 4) behavioural responses leading to dispersion or emigration towards areas with higher food availability, 5) increased inter- and intra-specific competition and aggressive behaviour (e.g. in bottlenose dolphins) . . . 6) increased susceptibility to disease due to reduced immune responses (e.g. in striped dolphins) . . . and 7) higher mortality rates.[286]

Moreover, reduced prey availability and pollution may act synergistically, with malnutrition resulting in the mobilization of lipophilic contaminants stored in blubber of cetacean species as a food reservoir. This may maximize exposure at a time when they are already debilitated by food shortages.[287]

Airoldi, et al. recently concluded that the relatively small group size of Risso's dolphin in the Corso-Ligurian basin compared with greater aggregations in the Pacific may be evidence of food resource scarcities.[288] In the Ionian Sea, a recent study found a substantial number of malnourished bottlenose dolphins. This may be attributable to intensive bottom trawling in the eastern portion of the sea, resulting in heavy overfishing of demersal species that are also important

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Holcer & Notarbartolo di Sciara, *supra* note 125, at 372. A persuasive piece of evidence for the hypothesis that the decline of fish prey species may be adversely impacting cetacean populations in the region is a study by Kvarneric that suggested that prey depletion is a factor to explain the unusually high proportion of time (80%) devoted to behavior suggestive of foraging by dolphins in the region. *Id.* at 373.

[286] Bearzi, *supra* note 210, at 87.

[287] *Id.* at 88.

[288] Airoldi, et al., *supra* note 93, at 214.

prey items for bottlenose dolphins in the area.[289] However, the emaciated state of these dolphins may also be due to competition for food with a community of short-beaked common dolphins living in the same area, highlighting the need for additional research.[290] The decline of common dolphin numbers in the same area is also consistent with the hypothesis of reduced prey availability or increased prey patchiness.[291]

In the northern Adriatic Sea, sightings data indicates an overall decline in cetacean diversity and density.[292] This may be attributable to collapses of the population of potential key prey species of bottlenose dolphins and short-beaked common dolphins over the past decade, primarily as a consequence of ongoing overfishing.[293] However, the decline of cetacean species in the Adriatic may also be primarily attributable to high levels of xenobiotics such as PCBs.[294]

Some researchers have also hypothesized that nutritional deficiencies may have played a role in the striped dolphin epizootic in the early 90s.[295] It may also be responsible for the extremely elevated age at maturation observed in striped dolphins in the region compared to other conspecific populations inhabiting waters where food resources are more abundant.[296]

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[289] E. Politi, G. Bearzi & S. Airoldi, *Evidence for Malnutrition in Bottlenose Dolphins Photo-Identified in the Eastern Ionian Sea,* 14 EUR. RES. CETACEANS 234, 234-235 (2000).
[290] Simmonds & Nunny, *supra* note 130, at 51.
[291] Bearzi, *supra* note 210, at 88.
[292] *Id.* at 51.
[293] G. Bearzi, et al., *An Overview of Cetacean Sighting Data From the Northern Adriatic Sea: 1987-1999,* 14 EUR. RES. CETACEANS 356, 356 (2000).
[294] *Id.* at 357.
[295] Bearzi, *supra* note 285, at 260; Aguilar & Raga, *supra* note 49, at 525.
[296] Bearzi, *supra* note 210, at 88.

It must be emphasized that information on species' decline in the region, including fish, remains fragmented and incomplete.[297] Additionally, most of the research to date has focused on the littoral zone, leaving the status of pelagic and deep sea resources, some of which serve as prey species for cetaceans in the region, much more speculative.[298] However, there is also increasing evidence that the gradual extension of fishing activities to off-shore fishing grounds may threaten the food resources of pelagic cetacean species in the region, which heretofore have not been threated by prey depletion.[299]

2.1.2.5 Vessel Noise/Collisions

"The Mediterranean Sea is one of the most heavily navigated of all marine regions, with 30% of the world's merchant shipping concentrated within only 0.8% of the global ocean surface."[300] The high volume of vessels in the region, including high speed ferries, military vessels and pleasure craft may pose a substantial threat to cetacean species in terms of noise and the threat of collisions. This may be particularly serious in the Strait of Gibraltar, the second busiest maritime route in the world, and a key locus for cetacean-watching expeditions.[301] Several cetaceans are found in the area, including long-finned pilot whales, bottlenose dolphins, striped dolphins and common dolphins.[302]

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[297] MARBENA, *Is Marine Biodiversity Under Threat?,* <http://www.vliz.be/marbena/firsttopic.htm>, site visited on Apr. 26, 2002; Bearzi, *supra* note 210, at 85.
[298] *Id.;* Roberts, *supra* note 111, at 670.
[299] Bearzi, *supra* note 277, at 72.
[300] Notarbartolo di Sciara, *supra* note 71, at 124. Each year, 200,000 merchant vessels of over 100 tons traverse the Mediterranean. *Maritime Traffic: 1/3 of Sea-Borne Trade and 1/4 of Oil Carried at Sea,* 52 MEDWAVES 4 (2004).
[301] R. De Stephanis, et al., *Issues Concerning Cetaceans in the Straits of Gibraltar,* 14 EUR. RES. CETACEANS 24, 24 (2000). "Over 80,000 vessels cross the Straits of Gibraltar each year . . . 75

Cetaceans are particularly susceptible to noise pollution. Audiograms demonstrate cetacean sensitivity to sound frequencies up to about 60 to 150 khz, "almost eight times the frequency span of human hearing."[303] A study in the Alboran Sea, frequented by eight species of cetaceans, concluded that small cetaceans reacted to ship noise by reducing clicks and whistles associated with exploring their environment. This may reduce the value of habitats in the region for these species.[304] The low frequency of vocalization of blue whales and fin whales may function as male breeding displays; however, high levels of ambient noise may reduce the distance over which receptive females can hear these vocalizations. Thus low-frequency sounds generated by anthropogenic activities may be interfering with the recovery of baleen species.[305]

A recent review of collisions by ships and cetaceans revealed that fin whales are the most frequently reported victims of ship strikes.[306] In the Corso-Ligurian basin, where Mediterranean fin whales concentrate during their feeding season, a recent study revealed a significant number of injuries of the species associated with vessel collisions, including high-speed ferries that reach speeds

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per cent of the international volume." Erwan Roussel, *Noise Pollution, in* CETACEANS OF THE MEDITERRANEAN & BLACK SEAS, *supra* note 62, at 145

[302] *Id.* at 24.

[303] Sam Ridgway, *Noise Pollution: A Threat to Dolphins?, in* COASTAL-MARINE CONSERVATION 19 (G. Carleton Ray & Jerry McCormick-Ray eds., 2004).

[304] A. Pérez, et al., *The Effects of Acoustic Pollution on the Cetaceans of the Alboran Sea (Spain),* 14 EUR. RES. CETACEANS 191 (2000).

[305] Donald A. Croll, et al., *Only Male Fin Whales Sing Loud Songs,* 417 NATURE 809, 809 (2002). For example, most shipping vessels operate at low frequency ranges of less than 1kHz. This coincides with the frequencies used by certain cetacean species, especially baleen species, for communication and other biologically important activities. Whale & Dolphin Conservation Society, *Oceans of Noise* 25 (Mark Simmonds, Sarah Dolman & Lindy Weilgart eds., 2003), <http://www.wdcs.org/dan/publishing.nsf/c525f7df6cbf01ef802569d600573108/48a0c8d9c559fa0680256d2b004027d4/$FILE/Oceansofnoise.pdf>, site visited on Jan. 17, 2004.

[306] D.W. Laist, et al., *Collisions Between Ships and Whales,* 17 MARINE MAMMAL SCI. 35-75 (2001). *See also* IWC, *supra* note 229, at 6.

of 40 knots.[307] Also, a study by the Italian Stranding Network reported the death of 10 fin whales from boat strikes over a 12-year period.[308] This level of injuries and mortality may pose a serious threat to fin whales in the region given their low numbers, low rates of reproduction, and reproductive segregation from Atlantic stocks.[309] There is also evidence of a high risk of collisions for sperm whales in the Mediterranean, especially in Greek waters.[310] Overall, almost 19 per cent of fin whale and 4.3 per cent of sperm whale strandings are attributable to collisions.[311] Actual deaths associated with ship strikes are likely to be even higher, as most collisions may go unnoticed or unreported.[312]

As is true throughout the world,[313] "the development of [cetacean-watching in the Mediterranean] is happening extremely rapidly and, in the great majority of cases, without any control."[314] (*See also* Figure 7). If not carefully regulated, cetacean-watching and other tourist boats may have adverse consequences for cetacean species in the region. For example, research conducted by Biassoni, et

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[307] G. Pesante, M. Zanardelli & S. Panigada, *Evidence of Man-Made Injuries on Mediterranean Fin Whales,* 14 EUR. RES. CETACEANS 192, 192 (2000); Pesante, et al., *supra* note 26. A recent study found five companies operating high-speed ferries in the Ligurian Sea. *Id.*

[308] Pesante, et al., *supra* note 74.

[309] *Id.*

[310] Geovanna Pesante, *Review of Collisions in the Mediterranean Sea,* Tethys Research Institute Collisions Workshop, <http://www.tethys.org/collisionworkshop.htm> (2001), site visited on Jan. 17, 2004.

[311] Léa David, *Disturbance, Mediterranean Sea, in* CETACEANS OF THE MEDITERRANEAN & BLACK SEAS, *supra* note 62, at 118.

[312] IWC, *supra* note 229, at 6; IWC Scientific Committee, *Report of the Working Group on Estimation of Bycatch and Other Human-Induced Mortality,* Annex M (2001), at 11.

[313] Globally, cetacean-watching is now a $1 billion industry, with more than 9 million tourists in 87 countries participating. IWC, 56th Meeting of the Parties, *A South Pacific Whale Sanctuary,* Agenda Paper submitted by the Governments of Australia and New Zealand, IWC/56/9 (2004), at 11. "The industry . . . is growing at a much faster rate than tourism in general — recently between 11 and 13 percent, and rising." *Id. See also* Brian Morton, *Whaling: When is Enough, Enough?,* 44 MARINE POLLUTION 1-2 (2002).

[314] Pierre-Christian Beaubrun, *Whale Watching, in* CETACEANS OF THE MEDITERRANEAN & BLACK SEAS, *supra* note 62, at 135.

al. demonstrated significant responses by Mediterranean fin whales to the presence of boats in the Corso-Ligurian Basin. This included increases in swimming speed and increased milling, suggesting that the species interrupted routine behaviors to move away from the disturbance.[315] Because the Basin is the principal feeding ground for Mediterranean fin whales, any displacement could have serious implications for the entire population.[316] Moreover, reduction of time spent at the surface as a consequence of vessel disturbance could affect fin whale feeding success, with serious ramifications for their energy budgets and reproductive success.[317] Other potential impacts of vessel traffic on cetaceans may include a decline in lactation, a weakened resistance to disease, and changes in circulation and oxygen deficiencies.[318]

Country	Advent of Cetacean-watching	Number of Whale Watchers	Direct Income (in US$)	Total Income (in US$)
Spain + Balearics	Late '80s	25-38,000	550,000	1,925,000
Gibraltar	1980	18,750	450,000	2,700,000
France	1983	800	80,000	280,000

[315] N. Biassoni, et al., *Fin Whale Reactions to Research Vessels, Assessed by the Use of Laser Range-Finding Binoculars and Respiration Monitoring,* 12 EUR. RES. CETACEANS 126, 127 (1998). *See also* Rochelle Constantine, Dianne H. Brunton & Todd Dennis, *Dolphin-Watching Tour Boats Change Bottlenose Dolphin (Tursiops truncatus) Behaviour,* 117 BIO. CONSERVATION 299-307 (2004); M. Jahoda, et al., *Mediterranean Fin Whale's (Balaeanoptera physalus) Response to Small Vessel and Biopsy Sampling Assessed through Passive Tracking and Timing of Respiration*, 19 MARINE MAMMAL SCI. 96-110 (2003); Alexandra B. Morton & Helena K. Symonds, *Displacement of Orcinus orca (L.) by High Amplitude Sound in British Columbia, Canada,* 59 ICES J. MARINE SCI. 71, 73 (2002).
[316] *Id.*
[317] *Id.*
[318] David, *supra* note 311, at 112.

Monaco	Early '90s	Minimal	Minimal	Minimal
Italy + Sardinia	1988	5,300	241,000	543,000
Croatia	1991	21	15,000	18,000
Greece	Late '80s	3,678	140,000	261,000
Cyprus	Late '90s	Minimal	Minimal	Minimal
Turkey	1994	Minimal	Minimal	Minimal
Israel	Early '90s	300 (1994)	Minimal (1994)	Minimal (1994)
Egypt	Early '90s	10,000	100,000	425,000

Figure 7
Cetacean-watching in the Mediterranean. Surveys in 1995 & 2001.[319]

Steadily rising levels of tourism are likely to produce concomitant increases in boat traffic, including leisure craft, throughout the rest of this century. This will exacerbate collision and noise threats for cetaceans in the region.[320]

2.1.2.6 LFAS

In 1999, 12 Cuvier's beaked whales stranded along the coasts of the Kyparissiakos Gulf of Greece.[321] Researchers have speculated that the stranding

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[319] Pierre-Christian Beaubrun, *Whale Watching, in* CETACEANS OF THE MEDITERRANEAN & BLACK SEAS (Giuseppe Notarbartolo di Sciara ed., 2002).
[320] Simmonds & Nunny, *supra* note 130, at 39.
[321] A. Frantzis & D. Cebrian, *A Rare, Atypical Mass Stranding of Cuvier's Beaked Whales: Cause and Implications for the Species' Biology,* 13 EUR. RES. CETACEANS 332, 332 (1999). In 2000, 16 whales and a dolphin stranded themselves along the coast of the Bahamas during testing of a mid-range frequency sonar system by five U.S. Navy vessels. Jackie Alan Giuliano, *Naval Sonar: the Shot Heard Round the World,* Environment News Service, Jan. 5, 2003, <http://ens-news.com/ens/sep2002/2002-09-27g.asp>, site visited on Jan. 5. 2003.

was caused by NATO testing of Low Frequency Active Sonar (LFAS),[322] a system being developed by the United States Navy to detect submarines in as much as 80 per cent of the world's oceans.[323] LFAS uses a series of loudspeakers that are lowered into the water and synchronized through electrical lines running the length of a central cable. When the speakers are synchronized through a vessel's computer system, they sound in tandem and send out a beam of sound at a frequency of between 100 Hz. and 500 Hz., possibly reaching over 230 decibels. This is "one of the loudest sounds ever created by the humans,"[324] and the loudest sounds ever introduced into oceans, with the possible exception of underground explosions.[325] The sound waves may detect enemy vessels hundreds of miles away, striking them and returning a signal to either the boat that launched the signal or receivers stationed nearby.[326] Because beaked whales may be more sensitive to low frequency sounds than other cetacean

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[322] *Id.* at 333; *Oceans of Noise*, *supra* note 306, at 39.

[323] Natural Resources Defense Council, *Environmental Coalition Announces Plans to Oppose Controversial Navy Sonar Program,* <http://www.nrdc.org/media/pressreleases/010426a.asp>, site visited on June 12, 2002. Natural Resources Defense Council, *Sound the Depths,* <http://www.nrdc.org/nrdcpro/sound/chap3.html>, site visited on June 12, 2002. The U.S. Chief of Naval Operations has contended that LFAS is a critical component of antisubmarine warfare capabilities. Dennis V. McGinn, *The Marine Mammal Protection Act and Surveillance Towed Array Sensor System Low Frequency Active Sonar,* Subcommittee on Fisheries Conservation, Wildlife and Oceans, Oversight Hearing on the Marine Mammal Protection Act, Oct. 11, 2001, <http://resourcescommittee.house.gov/107cong/fisheries/2001oct11/mcginn.htm>, site visited on Oct. 25, 2001.

[324] Giuliano, *supra* note 321.

[325] Jon M. Van Dyke, *Giving Teeth to the Environmental Obligations in the LOS Convention, in* OCEANS MANAGEMENT IN THE 21ST CENTURY: INSTITUTIONAL FRAMEWORKS & RESPONSES 184 (Alex G. Oude Elferink & Donald R. Rothwell eds., 2004).

[326] Natural Resources Defense Council, *Sound the Depths,* <http://www.nrdc.org/nrdcpro/sound/chap3.html>, site visited on Sept. 15, 2002. Bioacousticans have calculated that LFAS reaches levels of 120 decibels even at 500 kilometers, Hal Whitehead, *Testimony to the U.S. House of Representatives,* Subcommittee on Fisheries Conservation, Wildlife and Oceans, Oversight Hearing on the Marine Mammal Protection Act, Oct. 11, 2001, <http://resourcescommittee.house.gov/107cong/fisheries/2001oct11/whitehead.htm>, site visited on Dec. 15, 2001.

species,[327] deployment of LFAS in the Mediterranean in the future could pose a particularly serious and ongoing danger.

Moreover, a study conducted by Rendell and Gordon on the responses of long-finned pilot whales to military sonar in the Ligurian Sea concluded that the whales responded vocally to the pulses.[328] While our rudimentary knowledge of pilot whale vocal behavior precluded any conclusions about whether the whales experienced pain or discomfort from the sounds, the researchers expressed concern because the whales did not appear to habituate to the signal even after many hours, and it was unlikely that these responses could be adaptive in the long term.[329]

Finally, recent research demonstrates that low frequency sonar signals may interfere with the ability of cetaceans to store nitrogen because sound waves can expand the size of the gases' bubbles to the point that they can rupture tissues, block blood vessels and crush nerves. This can lead to symptoms associated with decompression sickness, including joint pain and disorientation.[330] The diving behavior of beaked whales, such as sperm whales, makes them particularly susceptible because nitrogen levels are often

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[327] Colin D. MacLeod, *A Review of Beaked Whale Acoustics, With Inferences on Potential Interactions with Military Activities,* 13 EUR. RES. CETACEANS 35, 35 (1999); D.R. Ketten, *Marine Mammal Hearing and Acoustic Trauma: Basic Mechanism, Marine Adaptations and Beaked Whale Anomalies,* Summary Record, SACLANTCEN Bioacoustical Panel, La Spezia, Italy, 15-17 June 1998, at 2.63-2.75.

[328] L.E. Rendell & J.C.D. Gordon, *Vocal Response of Long-Finned Pilot Whales (Globicephala Melas) to Military Sonar in the Ligurian Sea,* 15(1) MARINE MAMMAL SCI. 198, 203 (1999).

[329] *Id.*

[330] Michael J. Moore & Greg A. Early, *Cumulative Sperm Whale Bone Damage and the Bends,* 306 SCI. 2215, 2215 (2004); Michael Hopkin, *Sperm Whales Suffer the Bends,* News@nature.com, Dec. 23, 2004, <http://www.nature.com/news/2004/041220/full/041220-13.html#B1>, site visited on Dec. 24, 2004.

quadrupled by the end of a typical dive. This may explain why beaked whales have more of a proclivity to beach themselves than any other species in areas with high levels of naval activity.[331]

2.1.2.7 Other Sources of Noise

Noise associated with exploration for resources, such as oil and gas, has been proven to have adverse effects on a wide range of aquatic animals.[332] Researchers have speculated that at least two recorded cases of sperm whale displacement may have been attributable to seismic testing related to mineral exploration, though they point to the difficulties in drawing such causal links given a wide range of potentially confounding factors.[333] Some researchers have expressed concern about the possible impacts of drilling and seismic surveys on cetacean species in the Adriatic; however, it is difficult to conduct assessments without pre-impact data.[334] There is also concern about the impacts of the ever expanding use of loud acoustic harassment devices in the region to ward off dolphins from fishing gear in coastal artisanal fisheries. Researchers have speculated that these devices are excluding cetaceans from potential foraging areas, and perhaps damaging their hearing.[335]

Additional research on noise impacts on cetaceans needs to be conducted, including: 1. the possible cumulative effects of anthropogenic sources in the

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[331] *Id.*
[332] A.W.H. Turnpenny & J.R. Nedwell, *The Effects on Marine Fish, Diving Mammals and Birds of Underwater Sounds Generated by Seismic Surveys,* Consultancy Report FCR 089/94 (1994).
[333] Simmonds & Mayer, *supra* note 155, at 96.
[334] M. Azzali, et al., *Pre-Impact Baseline Studies on Cetaceans and Their Most Important Prey in the Adriatic Sea,* 14 EUR. RES. CETACEANS 165, 165 (2000).
[335] Reeves, et al., *supra* note 184, at 16.

region;[336] 2. the relationship between frequent noise-induced temporary threshold shifts and permanent threshold shifts;[337] 3. the hearing frequency range and response threshold of many cetacean species;[338] 4. the reaction of odontocetes to noise associated with oil and gas exploration.[339]

2.2 The Black Sea Region

2.2.1 Black Sea: Overview

The Black Sea is one of Europe's newest seas, formed 7,000-8,000 years ago when a rise in sea level caused Mediterranean waters to break through the Bosphorous valley, refilling a freshwater lake tens of meters below the prevailing sea level.[340] It is located between 40° 56' and 46° 33' N. and 27° 27' and 41° 42' E.[341] The Sea has a volume of 537,000 km^3,[342] a surface area of 461,000 square kilometers, an average depth of 1,240 meters,[343] and a maximum depth of 2,212

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[336] Donald A. Croll, et al., *Effect of anthropogenic low-frequency noise on the ecology of Balaenoptera whales,* 4 ANIMAL CONSERVATION 13, 25 (2001).
[337] David Kastak, et al., *Underwater Temporary Threshold Shift Induced by Octave-Band Noise in Three Species of Pinniped,* 106(2) J. ACOUSTIC SOC'Y AM. 1142, 1142 (1999); Carolyn E. Schlundt, et al., *Temporary Shift in Masked Hearing Thresholds of Bottlenose Dolphins, Tursiops Truncatus, and White Whales, Delphinapterus Leucas, After Exposure to Intense Tones,* 107(6) J. ACOUSTIC SOC'Y AM. 3496, 3496 (2000).
[338] Kenneth C. Balcomb III & Diane E. Claridge, *A Mass Stranding of Cetaceans Caused by Naval Sonar in the Bahamas,* 5(1) BAHAMAS J. SCI. 2, 3 (2001).
[339] Roussel, *supra* note 301, at 145.
[340] Laurence David Mee, *Protecting the Black Sea Environment: A Challenge for Cooperation and Sustainable Development in Europe in* TERRY ADAMS, et al., EUROPE'S BLACK SEA DIMENSION 79 (2002).
[341] Joanna V. Staneva & Emil V. Stanev, *Ocean Response to Atmospheric Forcing Derived from Different Climatic Data Sets, Intercomparison Study for the Black Sea,* 21(3) OCEANOLOGICA ACTA 393, 394 (1998).
[342] A.S. Bologa, *Destruction of Marine Biodiversity – A Case Study of the Black Sea, in* Proceedings, IOI – Pacem in Maribus XXVIII Conference, Suva, Fiji 249, 249 (G.R. South, G. Cleave & P.A. Skelton eds., 2001).
[343] Konstantin V. Shevlagin, *Environmental Problems in Russia Affecting the Black and Baltic Seas,* 15(3) INT'L J. ENV'T. & POLLUTION 290, 292 (2001).

meters.[344] The Sea is the world's largest semi-enclosed inland sea.[345] It opens to the Mediterranean and Aegean Seas through a 35-kilometer natural channel, the Bosphorous Straits,[346] and to the Sea of Azov through the Kerch Strait, which is less than 20 meters in depth on average.[347] Six countries border the Black Sea: Bulgaria, Georgia, Romania, Russia, Turkey and Ukraine (*See* Table 1 & Figure 8).

Table 1: Population Profile: Black Sea States.[348]

COUNTRY	POPULATION IN BLACK SEA BASIN (MILLIONS)	PER CENT OF BLACK SEA POPULATION
Bulgaria	5.5	5.0
Romania	23	20.6
Ukraine	47.1	42.2
Turkey	7.8	7.0
Russia	26.1	23.4
Georgia	2	1.8
Total, Black Sea Region	111.5	

[344] Cristina Maldonado, et al., *Sources, Distribution, and Water Column Processes of Aliphatic and Polycyclic Aromatic Hydrocarbons in the Northwestern Black Sea Water,* 33(16) ENVTL. SCI & TECH. 2693, 2693 (1999).
[345] H.Z. Sarikaya, M.F. Sevimli & E. Çitil, *Region-Wide Assessment of the Land-Based Sources of Pollution of the Black Sea,* 39(8) WATER SCI. & TECH. 193, 193 (1999).
[346] Commission of the European Communities, Communication from the Commission, *Environmental Co-operation in the Danube-Black Sea Region,* COM(2001) 615 final 5 (2001); Hey & Mee, *The Ministerial Declaration: An Important Step,* supra note 171, at 215.
[347] Frank J. Gable, *The Black Sea: An Environmental and Ecological Profile,* in 15 OCEAN Y.B. 420, 420 (Elisabeth Mann Borgese, et al. eds., 2000).
[348] Commission of the European Communities, *supra* note 346, at 36.

Figure 8
Black Sea Region

The Black Sea is comprised of "two entirely dissimilar, but not competing ecological regimes."[349] From the surface to a depth of approximately 150-200 meters, the water is oxygenated and rich in plankton, supporting a rich array of marine species, including cetaceans, sturgeon, turbot, mackerel and anchovy.[350]

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[349] Michael Griffin, *It's Completely Collapsing,* 142 CERES 28, 29 (1993); M. Grégoire & G. Lacroix, *Study of the Oxygen Budget of the Black Sea Waters Using a 3D Coupled Hydrodynamical-Biogeochemical Model,* 31 J. MARINE SYS. 175, 175 (2001).

[350] *Id.;* Georgian Geoinformation Center, *The Black Sea,* <http://www.grida.no/prog/cee/enrin/htmls/geogia/soegeor/english/blacksea/blacksea.htm>, site visited on Mar. 14, 2000. "A total of 3,774 species of multicellular organisms are enumerated in the lists of Black Sea flora and fauna . . . including 1,619 species of fungi, algae and higher plants, 1,983 species of invertebrates, 168 species of fishes and four species of mammals." Alexei Birkun, Jr., *Habitat Loss and Degradation, Black Sea,* in CETACEANS OF THE MEDITERRANEAN & BLACK SEAS, *supra* note 62, at 62.

However, as a consequence of the sinking and decomposition of organic matter and the Sea's morphometry,[351] 90 per cent of its volume, below a depth of 150-200 meters, (150 meters in the center and 300 meters on the coast[352]) is permanently anoxic. This area contains high levels of hydrogen sulfide that accumulated over thousands of years,[353] making it the world's largest permanently anoxic basin.[354] The lack of oxygen means that there is virtually no life except for anaerobic bacteria below 150 meters in the Sea.[355]

2.2.2 Species and Status

There are currently only three species of cetaceans found in the Black Sea, the common dolphin (*Delphinus delphis*), the bottlenose dolphin (*Tursiops truncatus*), and the harbor porpoise (*Phocoena phocoena*).[356] Some scientists, especially those in the former Soviet Union, categorize all three of these as subspecies, *Delphinus delphis ponticus, Tursiops truncatus ponticus* and

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[351] "Anoxia is established due to restricted mixing between the brackish surface layers (salinities less than or equal to 18 ppt in upper 100-150m) and the deeper waters (approx. 22 ppt, max. depth = 2200m)." Café Thorium, Wood Hole Oceanographic Institute, *Black Sea Introduction,* <http://cafethorium.whoi.edu>.

[352] A.S. Bologa, *Regional Research and Management Developments in the Black Sea,* 31 CERCETĂRI MARINE 7, 8 (1998).

[353] S.K. Konovalov, L.I. Ivanov, A.S. Samodurov, *Fluxes and Budget of Sulphide and Ammonia in the Black Sea Anoxic Layer,* 31(1-3) J. MARINE SYS. 203, 203-204 (2001); Shota Kunchulia, et al., *The Black Sea – New Challenges,* CURRENTS 11, 11 (Summer-Autumn 1999); Shevlagin, *supra* note 343, at 293.

[354] A. Başsari, et al., *Heavy Metal Concentrations in Dolphins from the Black Sea, in* Proceedings of the First International symposium on the Marine Mammals of the Black Sea, 27-30 June 1994 (Bayram Özturk ed., 1994), at 28.

[355] Shevlagin, *supra* note 343, at 293.

[356] ASEN KONSULOV, BLACK SEA BIOLOGICAL DIVERSITY – BULGARIA 37-39 (1998).

Phocoena phocoena relicta.[357] However, additional taxonomic studies are required to confirm or reject these classifications.[358]

The common dolphin is one of two representatives of the Delphinidae family in the Black Sea and the only representative of the *Delphinus* genus in region.[359] It is the most abundant cetacean species in the region.[360] The species is distributed predominantly on the open sea, 6-12 miles offshore,[361] but can also be found in coastal waters during the mass migration of small pelagic fish species (*See* Figure 9).[362] Its diet consists largely of small fish of little commercial value.[363]

Common dolphins have never been recorded in the Sea of Azov, but have been observed occasionally in the Kerch Strait, as well as in the Bosphorous and the Sea of Marmara.[364] The Black Sea common dolphin is classified under the IUCN's Red List of Threatened Species as *Data Deficient*.[365] At the sub-regional

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[357] BAYRAM ÖZTURK & TURKISH MARINE RESEARCH FOUNDATION, BLACK SEA BIOLOGICAL DIVERSITY, TURKEY, Black Sea Environmental Series, Vol. 9 (1998), at 27.
[358] UNEP, Black Sea Red Data Book, *Delphinus Delphis,* <http://www.grid.unep.ch/bsein/redbook/index.htm>, site visited on November 30, 2001.
[359] ALEXEI A. BIRKUN, JR. & SERGEY V. KRIVOKHIZHIN, DISTRIBUTION OF SMALL CETACEANS IN THE NORTHERN PART OF THE BLACK SEA 23 (Commission Internationale pour l'Exploration Scientifique de la Mer Méditerranée, 1998).
[360] I. Dobrovolov & J. Yoneva, *Condition of the Dolphin Populations in the Bulgarian Sector of the Black Sea, in* Proceedings of the First International symposium on the Marine Mammals of the Black Sea, 27-30 June 1994 (Bayram Özturk ed., 1994), at 85.
[361] ÖZTURK & TURKISH MARINE RESEARCH FOUNDATION, *supra* note 357, at 33.
[362] UNEP, *Redbook,* <http://bsein.mhi.iuf.net/redbook/txt/delphin.htm?per cent20MAMMALIA>, site visited on Feb. 2, 2001.
[363] Konsulov, *supra* note 356, at 38.
[364] *Id.*.
[365] *Id.*, *Delphinus delphis.*

level, the IUCN classifies the species as *Vulnerable* in Bulgaria,[366] and *Endangered* in Romania.[367]

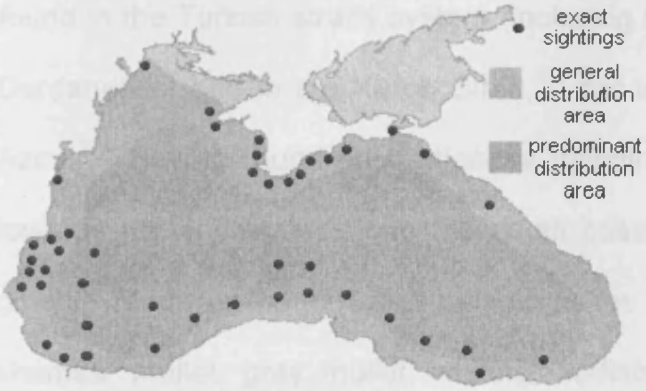

Figure 9
Distribution of the Common Dolphin in the Black Sea[368]

The bottlenose dolphin is a single representative of the genus *Tursiops* and one of the two Delphinidae species in the Black Sea.[369] Recent analysis of 16 samples of bottlenose dolphins from the Black Sea indicates that there is significant genetic variation between the Black Sea population of bottlenose dolphins and those found in the Mediterranean and the East North Atlantic; however the limited sample size renders this finding speculative.[370]

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[366] *Id.*
[367] *Id.*
[368] *Id.*
[369] Alexei Birkun, Jr. *The Current Status of Bottlenose Dolphins (Tursiops truncatus) in the Black Sea*, First Meeting of the Parties, ACCOBAMS, Doc. MOP 1/inf.8 (2002), at 1.
[370] CITES, 12th Conference of the Parties, *Proposal to Transfer Tursiops truncatus ponticus from Appendix II to Appendix I* (2002), Prop. 12.3, sec. 2.1, available at: <http://www.cites.org/common/cop/12/prop/eng/E12-P03.pdf>, site visited on July 1, 2002.

The Black Sea bottlenose dolphin inhabits the territorial waters of all six Black Sea riparian countries, throughout the waters of the Black Sea continental shelf, and occasionally offshore (*See* Figure 10).[371] The species is commonly found in the Turkish straits system (including the Bosphorous, Marmara Sea and Dardanelles) and in the Kerch Strait,[372] but is very rarely sighted in the Sea of Azov.[373] Several hundred bottlenose dolphins annually migrate from the east towards the southwest along the south coast of the Crimea.[374] The bottlenose dolphin feeds on bottom and pelagic fishes including horse mackerel, herring, khamsa, mullet, grey mullet, whiting, flatfish, and the goatfish species *Mullus barbatus ponticus*.[375]

The IUCN classifies the Black Sea bottlenose dolphin as *Data Deficient*, and at the subregional level, *Vulnerable* in Bulgaria and *Endangered* in Romania.[376] The European Cetacean Society has expressed even greater concern, concluding, "[t]he future for Black Sea dolphins is very bleak indeed. There is a very real possibility of their full disappearance over the next decade or two unless urgent action is taken."[377]

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[371] *Id.* at 2.
[372] *Id.* at 3.
[373] *Id.*; IUCN/SSC & TRAFFIC, *Analyses of Proposals to Amend the CITES Appendices,* <http://194.158.14/intranet/DocLib/DOCS/IUCN589.pdf>; UNEP, *supra* note 362.
[374] Birkun, Jr., *supra* note 350, at 62.
[375] S. KLEINENBERG, et al., MAMMALS OF THE BLACK SEA AND SEA OF AZOV: EXPERIENCE OF BIOLOGICAL-TRADE STUDY (1956); S.V. Krivokhizhin & A.A. Birkun, Jr., *Stranding of Cetaceans Along the Coasts of the Crimean Peninsula in 1989-1996,* 12 EUR. RESEARCH CETACEANS 59-62 (1999).
[376] UNEP, *supra* note 362, *Tursiops Truncatus.*
[377] European Cetacean Society, Volume 18, Newsletter, at 7.

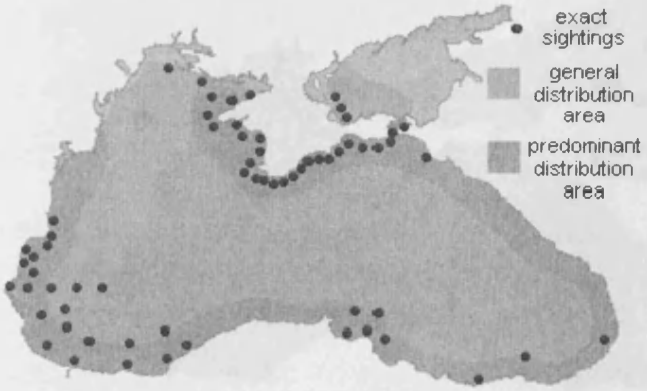

Figure 10
Distribution of the Bottlenose Dolphin in the Black Sea[378]

The harbor porpoise is one of the smallest cetacean species, and a single representative of the genus and family in the Black Sea. It inhabits waters of the continental shelf around the entire perimeter of the Black Sea (*See* Figure 11). Seasonally, harbor porpoises are common in the Sea of Azov and Kerch Strait, as well as the Sea of Marmara and Bosphorous.[379] The species can also be observed in semi-fresh bays, lagoons, estuaries and big rivers, such as the Danube and Don.[380] It feeds on small pelagic or benthic fish, mussels, shrimps, and other invertebrates.[381]

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[378] UNEP, Black Sea Red Data Book, *Tursiops truncatus,* <http://www.grid.unep.ch/bsein/redbook/index.htm>, site visited on Nov. 30, 2001.
[379] Birkun, *supra* note 350, at 62.
[380] BIRKUN & KRIVOKHIZHIN, *supra* note 359, at 9; Alexandros Frantzis, *Mediterranean Harbour Porpoise,* International Fund for Animal Welfare (1998).
[381] Konsulov, *supra* note 356, at 39.

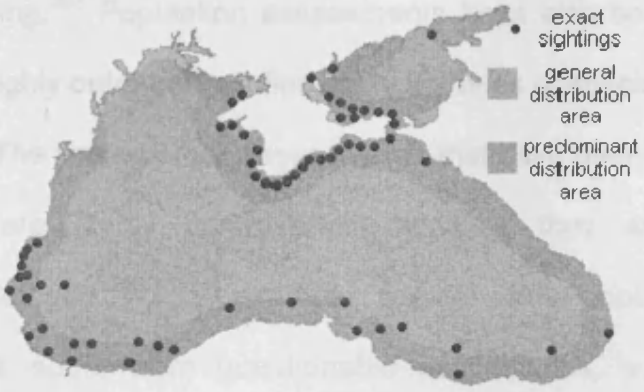

Figure 11
Distribution of the Harbor Porpoise in the Black Sea[382]

Recent genetic research supports the existence of three subspecies of harbor porpoises, with the Black Sea subspecies designated as *P. p. relicta.*[383] However, most zoologists of the former Soviet Union do not even recognize the classification of the Black Sea harbor porpoise as a member of the family Phocoenidae and continue to list it among Delphinidae.[384] The IUCN classifies the Black Sea harbor porpoise as *Vulnerable*, "but it may in fact be Endangered."[385]

Assessing the population status of Black Sea cetaceans is difficult because a comprehensive census has never been conducted for any of these species.[386] Moreover, aerial surveys on dolphin abundance, conducted by the former Soviet Union twice per year since 1967, ceased in 1987 because of a lack

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[382] UNEP, *supra* note 362.
[383] Andrew J. Read, *Harbour Porpoise Phocoena Phocoena (Linnaeus, 1758)*, *in* Ridgway & Harrison, *supra* note 160, at 324. *See also* note 370, *supra*, and accompanying text.
[384] UNEP, *supra* note 362, *Phocoena phocoena*.
[385] IUCN, *supra* note 55, at <http://www.redlist.org/search/details.php?species=17027>, site visited on Jan. 17, 2004.
[386] Pierre Beaubrun, *Present Knowledge of the Upper Levels of the Marine Trophic Chain in the Mediterranean Sea,* in CIESM, MEDITERRANEAN MARINE BIODIVERSITY 41 (1997).

of funding.[387] Population assessments have also been stymied by the absence of, or highly outdated, studies of life histories of species in the region.[388]

The limited stock assessments that have been conducted over the past 70 years are highly controversial because they are based on problematic methodologies.[389] For example, several of the population studies conducted in the 70s suffer from questionable assumptions, such as random population distributions of cetacean species in the region, and incorrect calculations of the number of individual animals likely to be detected on survey tracklines.[390]

With these imposing caveats in mind, let us examine population estimates and trends in this century. In the 1930s, Arseniev estimated that there were between 1.5-2.0 million cetaceans in the Black Sea and Azov Sea.[391] Similar projections of 1.0-2.0 million individuals were made in the 1950s.[392] However, in the past five decades several surveys have indicated that these numbers have plummeted, to approximately 300,000 by the 1960s, and perhaps only 60,000-

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[387] Personal correspondence with Pavel Gol'din, Department of Zoology, V.I. Vernadsky Taurida National University, Simferopol, Ukraine, Oct. 6, 2001; T.D. Smith, *Current Understanding of the Status of Small Cetacean Populations in the Black Sea,* 5(4) FAO FISHERIES SERIES 121, 126 (1982).

[388] P.E. Gol'din, *Growth and Body Size of the Harbour Porpoise, Phocoena Phocoena (Cetacea Phocoenidae), in the Sea of Azov and the Black Sea,* 38(4) VESTNIK ZOOLOGII 59, 59 (2004).

[389] ÖZTURK & TURKISH MARINE RESEARCH FOUNDATION, *supra* note 357, at 32; V.M. Bel'kovich, *The Population Structure of Three Species of Black Sea Dolphins as an Adequate Basis of Their Abundance Estimation, in* Proceedings of the First International symposium on the Marine Mammals of the Black Sea, 27-30 June 1994 (Bayram Özturk ed., 1994), at 71; Y.A. Mikhalev, *Experience of the Abundance Estimation of the Black Sea Dolphins Based on the Aerial Survey, in id.,* at 77.

[390] Smith, *supra* note 387, at 126-128; *see also* Birkun, Jr., *supra* note 369, at 7.

[391] *Id.* at 33; Smith, *supra* note 387, at 126.

[392] Gülfen Bakan & Hanife Büyükgüngör, *The Black Sea,* 41(1-6) MARINE POLLUTION BULL. 24, 30 (2000); V. KOTLYAKOV, M. UPPENBRINK & V. METREVELI, CONSERVATION OF THE BIOLOGICAL DIVERSITY AS A PREREQUISITE FOR SUSTAINABLE DEVELOPMENT IN THE BLACK SEA REGION 354 (1998).

100,000 currently, about 5-10 per cent of the reference level.[393] However, as the table below demonstrates (Table 2), while most stock assessments in recent years evince a downward trend, estimates remain widely divergent.

Table 2
Stock Assessments of Cetacean Populations in the Black Sea: 1930-1987[394]

DD	Tt	Pt	DATE	ABUNDANCE (INDIVIDUALS)	SOURCES
+	+	+	1930	1.5-2 million	Arseniev;[395] Zemsky & Studnetskaya; Zembsky & Yablakov
	+		1967-1971	140,800	
+			1967-1971	284,700	
		+	1967-1971	18,300	
+	+	+	1971	443,800	
+	+	+	1973	275,300	
+	+	+	1967-1973	263,600±42,460	Zemsky & Yablakov[396]
+	+	+	Before 1950	200,000	
+	+	+	1976-1980	102,000-190,000	

[393] Kotlyakov, et al., *supra* note 392, at 354. Joseph F. DiMento, *Black Sea Environmental Management: Prospects for New Paradigms in Transitional Contexts,* in REFLECTIONS ON WATER 245 (Joachim Blatter & Helen Ingram eds., 2001); Cognetti, *supra* note 222, at 511. Of this number, approximately 50,000 are common dolphins. William E. Evans, *Common Dolphin, White-Bellied Porpoise Delphinus dolphin Linnaeus, 1758,* in Ridgway & Harrison, *supra* note 160, at 209.

[394] ÖZTURK & TURKISH MARINE RESEARCH FOUNDATION, *supra* note 357, at 32.

[395] V. Zembsky & A.B. Yablokov, *Catch Statistics. Short History of the Exploitation and Present Status of Delphinus dolphin, Tursiops truncatus and Phocoena phocoena in the Black Sea,* Working paper presented to the meeting of the ACMRR/FAO, La Jolla, California (1994).

[396] *Id.*

+	+	+	1981	145,000	
+	+	+	1981-1983	300,000-350,000	
+	+	+	1983	120,000	
+	+	+	1983-1984	55,000-60,000	
+	+	+	1985-1987	113,000±30,000	
+	+	+	1987	454,440	

Dd: *Delphinus dolphins;* Tt: *Tursiops truncatus;* Pp: *Phocoena phocoena*

There is also a dearth of information on critical life parameters of cetacean species in the region, including their distribution, migration, biology, feeding and reproduction strategies, behavior, and even taxonomy.[397] Most of the available data is very old and speculative because none of the studies have either tracked cetaceans for a long period of time, or periodically, to facilitate discernment of population trends.[398]

2.2.3 Anthropogenic Threats to Black Sea Cetaceans

2.2.3.1 Habitat Degradation and Loss

Extremely high levels of pollution have earned the Black Sea the unenviable title of "the most seriously degraded sea on our planet."[399] As Bologa recently observed, "it is facing huge ecological disequilibria which could finally turn this body of water into a dead sea."[400]

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[397] BAYRAM ÖZTURK & TURKISH MARINE RESEARCH FOUNDATION, *supra* note 357, at 59.
[398] *Id.* at 28.
[399] Bologa, *supra* note 342, at 250.
[400] Alexandru S. Bologa, *Recent Changes in the Black Sea Ecosystem,* 15 OCEAN Y.B. 1, 1 (1999).

Several factors make the Black Sea particularly vulnerable to land and sea-based pollutants. First, "the Black Sea has a vast catchment area (1,874,900 square kilometers), which is about 4.5 times larger than the sea surface area itself."[401] Second, it receives the pollution load from 18 countries and 160 million people, as well as 40 million summer visitors.[402] Finally, the Black Sea also holds the distinction of having the longest residence time for waters among all enclosed coastal seas, with the exchange taking approximately 140 years.[403] As is true in the Mediterranean, this results in very slow removal rates for toxic chemicals.[404] Tides are also very small and flush weakly, resulting in large residual loads of pollutants in the basin after discharge.[405]

Land-based pollution accounts for 70 per cent of the total load to the Black Sea,[406] with the primary source being 300 tributaries,[407] of which the most important are the Danube, Dniester, Dnieper, Don and Kuban rivers.[408] (*See*

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[401] Staneva & Stanev, *supra* note 341, at 394.
[402] Maldonado, et al., *supra* note 344, at 2693; Vladimir V. Efimov & V.N. Eremeev, *The Development of the Black Sea Area, in* MARINE ISSUES FROM A SCIENTIFIC, POLITICAL & LEGAL PERSPECTIVE 177 (Peter Ehlers, Elisabeth Mann-Borgese & Rüdiger Wolfrum eds., 2002).
[403] Radu Mihnea, *Pollution Problems and Sources in the Black Sea,* SYMPOSIUM II: THE BLACK SEA IN CRISIS 1287 (Sarah Hobson & Laurence David Mee eds., 1997).
[404] *See supra* Sec. 2.1.3.1.
[405] Gable, *supra* note 347, at 426; Natalia A. Milchakova & Ronald C. Phillips, *Black Sea Seagrasses,* 46 MARINE POLLUTION BULL. 695, 695 (2003).
[406] Mihnea, *supra* note 403, at 100.
[407] ÖZTURK & TURKISH MARINE RESEARCH FOUNDATION, *supra* note 357, at 28.
[408] Thomas Land, *Co-ordinated Action is Key to Black Sea Pollution Strategy,* LLOYDS LIST, Jan. 2, 1997. "Rivers with an average annual discharge of 348 cubic kilometres of fresh water drain into the Black Sea. 86% of this outflow comes from ten major rivers." Shalva Jaoshvili, *The Rivers of the Black Sea,* European Environment Agency, Technical Rep. No. 71 (2002), at 49, <http://reports.eea.eu.int/technical_report_2002_71/en/tech71_en.pdf>, site visited on Sept. 18, 2003.

Figure 12) The Danube, which flows through six countries,[409] accounts for two-thirds of the riverine input into the Sea, about 200 km^3/yr.[410]

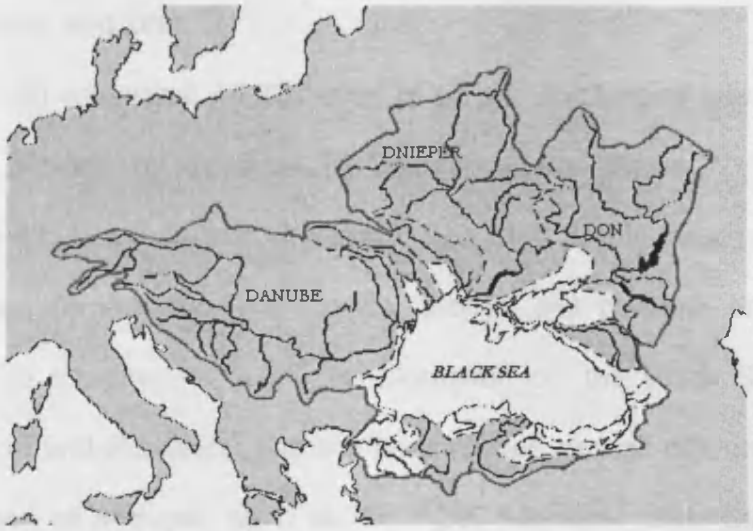

Figure 12

The Danube's inflow to the Black Sea also includes over 50,000 tons of oil,[411] approximately half of the inputs of oil from land-based activities,[412] and

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[409] Gabriela Velea, *Black Sea Dolphins Face Extinction,* INTER PRESS SERVICE, Apr. 21, 1996 (LEXIS-NEXIS, News Group File).

[410] Ő. Baştűrk, et al., *Characteristic Chemical Features and Biogeochemical Cycles in the Black Sea,* ENVIRONMENTAL DEGRADATION OF THE BLACK SEA: CHALLENGES & REMEDIES 44 (Sűkrű T. Beşiktepe, Űmit Űnlűata & Alexandru S. Bologa eds., 1999); Efimov & Ereev, *supra* note 402, at 178.

> The [Danube] river is 2,857 kilometers long and drains 817,000 square kilometers including all of Hungary, most parts of Romania, Austria, Slovenia, Croatia, and Slovakia, and significant parts of Bulgaria, Germany, the Czech Republic, Moldova and Ukraine. Territories of the FR Yugoslavia, Bosnia and Herzegovina and small parts of Italy, Switzerland, Albania and Poland are also included in the basin . . . The Danube River discharges into the Black Sea through a delta which is the second largest natural wetland area in Europe.

International Information Centre for Terminology, Environmental Programme for the Danube River Basin, Strategic Action Plan for the Danube River Basin 1995-2005, <http://www.infoterm.or.at/ceit/sap1.htm>, site visited on Sept. 25, 2002.

substantial inputs of heavy metals, including 1,000 tons of chromium, 900 tons of copper, 60 tons of mercury, 4,500 tons of lead, as well as substantial amounts of cadmium, and zinc.[413]

An additional 45,000 tons of oil are discharged into the Sea annually by ships bearing oil destined for Mediterranean States.[414] It is anticipated that hydrocarbon inputs into the Black Sea may rise in future years given plans to increase oil imports and exports through sea harbors, creation of new ports, plans to increase oil and gas extraction on the Black Sea shelf of Ukraine, Bulgaria and Romania, and the construction of high-risk underwater pipelines to transport oil and gas, such as the 1,250 kilometer "Blue Stream" pipeline, which began to deliver natural gas from Russia in the spring of 2003.[415] One of the most serious threats may be an increase in tanker accidents associated with shipments from the newly opened Caspian oil fields, especially in the Turkish

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[411] Sarikaya, et al., *supra* note 345, at 197. "Of the 111 thousand tons of oil entering the Black Sea each year, 48 per cent is transported by the Danube River." *Id. See also* J.W. Readman, et al., *Petroleum and PAH Contamination in the Black Sea,* 41(1) MARINE POLLUTION BULL. 48, 60 (2002).

[412] Strategic Action Plan for the Rehabilitation and Protection of the Black Sea (1996), <http://www.blacksea-environment.org/knop4.html>, site visited on Sept 15, 2002.

[413] C. Zeri, et al., *A Comparative Approach of Dissolved Trace Element Exchange in Two Interconnected Basins: Black Sea and Aegean Sea,* 40(8) MARINE POLLUTION BULL. 666, 668 (2000); F. Monaci, et al., *Trace Elements in Striped Dolphins (Stenella coeruleoalba) from the Western Mediterranean,* 99 ENVTL. POLLUTION 61, 61-62 (1998); Kapana Sharma, *The Tale of a Dying Sea: Slowly Some of the Landlocked Seas are Becoming Terminally Ill,* THE HINDU, Oct. 14, 1997, at 12C.

[414] Thomas Land, *Pollution and Politics in the Black Sea,* 274 CONTEMPORARY REV. 230, 230 (1999); G. Cognetti, *Rehabilitation and Protection of the Black Sea: The Challenge of a New Transboundary Environmental Policy,* 34(10) MARINE POLLUTION BULL. 752, 752 (1997).

[415] Mevlut Katik, *As Blue Stream Pauses, Turkey Seeks Energy Independence,* Eurasianet.org, Apr. 30, 2003, <http://www.eurasianet.org/departments/business/articles/eav043003.shtml>, site visited on Jan. 1, 2005. Gazprom, the state Russian oil company, pumps 7 billion cubic meters of natural gas to Turkey annually. Mekhman Gafarly (translated by A. Ignatkin), *Farewell to Turkey?,* WHAT THE PAPERS SAY (Part B, Russia), Dec. 16, 2004, at 1 (LEXIS-NEXIS, News Group File). Turkey plans to increase its purchases of natural gas from Blue Stream to 16 billion cubic meters by 2010. *Turkey Plans to Boost Russian Gas Purchases by 2010,* PETROLEUM REP., Dec. 8, 2004 (LEXIS-NEXIS, News Group File).

Straits.[416] Oil pollution degrades critical coastal habitats for cetaceans in the region and also adversely affects the eggs and larvae of important prey fish species, including mullet and anchovy.[417]

While comprehensive data on riverine inputs of heavy metals into the Black Sea remain limited, a study by the Russian Hydrochemical Institute concluded that the annual loads of heavy metals from the Danube, Dnieper, Don, Kuban and Belaya rivers are 87 tons of cadmium, 1,500 tons of copper, 825 tons of lead, 2,600 tons of zinc, 207 kilotons of nitrates, 31 kilotons of phosphates, and 47 kilotons of phosphorus.[418]

The Black Sea also suffers from high levels of organohalogen pollution, including DDT (exceeding the background rate by a factor of 110) and PCBs (exceeding the background rate by a factor of 103), as well as hexachlorohexanes, hexachlorobenzene, chlordanes, heptachlor, heptachlor epoxide, aldrin, dieldrin, endrin, methoxyclor, mirex, and tributlytin.[419] The principal sources for these toxic substances are agriculture, industry, and municipal sewage.[420]

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[416] Commission of the European Communities, *supra* note 346, at 13.
[417] Birkun, Jr., *supra* note 369, at 13.
[418] *Id.* at 293. *See also* S. Topcuoğlu, et al., *Heavy Metals in Organisms and Sediments from Turkish Coast of the Black Sea, 1997-1998,* 27 ENV'T INT'L 521, 521 (2002).
[419] Birkun, *supra* note 369, at 14; Kotlyakov, et al., *supra* note 392, at 42; Bathini Madhusree, et al., *Contamination by Butyltin Compounds in Harbour Porpoise (Phocoena phocoena) from the Black Sea,* 359 FRESNIUS J. ANALYTIC CHEMISTRY 244, 245 (1997). It should be emphasized, however, that measurements of DDT in the region are scarce and distribution of organochlorine compounds remains highly uncertain. G. Fillmann, et al., *Persistent Organochlorine Residues in Sediments from the Black Sea,* 44(2) MARINE POLLUTION BULL. 122, 123 (2002); Gaye Tuncer, et al., *Land-Based Sources of Pollution along the Black Sea Coast of Turkey: Concentrations and Annual Loads to the Black Sea,* 36(6) MARINE POLLUTION BULL. 409, 410 (1998).
[420] Gülfem Bakan & Sema Ariman, *Persistent Organochlorine Residues in Sediments Along the Coast of Mid-Black Sea Region of Turkey,* 48 MARINE POLLUTION BULL. 1031, 1031-32 (2004); Birkun, *supra* note 369, at 14.

Harbor porpoises in the region are particularly threatened by organochlorine compounds because of their preference for coastal habitats and a diet consisting primarily of benthic fish.[421] Extremely high concentrations of organochlorine residues have been found in harbor porpoises in the region.[422] The concentrations of DDT in the blubber of two common dolphins that died from morbillivirus were also 50-100 times higher than levels in toothed cetaceans from the North Sea, North Atlantic Ocean and Baltic Sea.[423]

The 70 million residents of the Black Sea's coastal areas[424] dump more than 570 million cubic meters of untreated sewage into the Sea, supplemented by a very large additional contribution by the residents of the Danube river basin.[425] In some parts of the region, solid waste is also dumped directly into the Sea.[426] Industrial and sewage pollution has been associated with immunological disorders in Black Sea cetaceans.[427] Several mass strandings of Black Sea cetaceans in the past two decades have been linked to immuno-deficiencies exacerbated by pollution.[428] Researchers have also speculated that highly

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[421] Andrey A. Artov, *The Harbour Porpoise, Phocoena Phocoena Relicta in Waters Off Crimea,* 8 EUR. RES. CETACEANS 122, 122 (1994).
[422] Shinsuke Tanabe, et al., *Isomer-Specific Analysis of Polychlorinated Biphenyls in Harbour Porpoise (Phocoena phocoena) from the Black Sea,* 34(9) MARINE POLLUTION BULL. 712, 712 (1997).
[423] Birkun, Jr., *supra* note 350, at 65.
[424] ACCOBAMS, First Meeting of the Scientific Committee, Tunis, Tunisia, 3-5 Oct. 2002, *Minutes of the 9th Ministerial Meeting of the Black Sea Commission, Ministerial Declaration & Excerpt from the Report on Implementation of the Rehabilitation Plan for the Black Sea* (2003), Doc. CS1/Inf 1, at 3.
[425] Birkun, Jr., *supra* note 350, at 66; *The Black Sea in Crisis, supra* note 403, at 1287.
[426] CITES, *supra* note 370, at sec. 2.4.
[427] Convention on International Trade in Endangered Species of Wild Fauna and Flora, Eleventh Meeting of the Conference of the Parties, *Transfer of Tursiops truncatus ponticus from Appendix II to Appendix I,* Prop. 11.14 (2000), at 5 (hereinafter CITES, 1MOP).
[428] *Id.* at 7; A. Birkun, *Evidence of Morbilliviral Disease in Black Sea Common Dolphins, in* Proceedings of the Twelfth Annual Conference of the European Cetacean Society 323 (Feb.

pathogenic diseases found in stranded dolphins in the region, such as mixed-bacterial pneumonias and septicaemias, may be linked to intensive levels of fecal pollution of coastal waters.[429] Sixty species of microorganisms, including various intestinal bacteria, have been detected in the respiratory tracts of bottlenose dolphins and harbor porpoises.[430]

2.2.3.2 Incidental Catch

Bycatch in fisheries operations is probably the gravest threat to Black Sea cetacean species residing in coastal waters,[431] and the greatest single threat to harbor porpoises in the region.[432] Significant numbers of dolphins have been killed in the past two decades in driftnets and bottom-set gillnets off the continental shelf in all six riparian countries.[433] 95% of the species incidentally caught in nets have been harbor porpoises.[434] Incidental catches have also been recorded in the Azov Sea and Kerch Strait.[435] The threat is particularly great on the Turkish coast. Bottom gill nets used in the turbot, sole, and sturgeon fishery

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1999); Alexei Birkun Jr., *The Black Sea Common Dolphin Epizootic in 1994,* 9 EUR. RES. CETACEANS 266, 266 (E.C.M. Parsons & H. Nice eds., 1996).

[429] Alexei A. Birkun, Jr. & Sergei V. Krivokhizhin, *Is There Any Progress in the Protection of Black Sea Cetaceans?,* 7 EUR. RES. CETACEANS 288, 288 (1993).

[430] A.A. Birkun, et al., *Present Status and Future of Black Sea Dolphins,* 6 EUR. RES. CETACEANS 47, 48 (1992).

[431] B. Özturk, A.A. Özturk & A. Dede, *A Cetacean Bycatch in the Western Coast of the Turkish Black Sea in 1993-1997,* 13 EUR. RES. CETACEANS 134, 134 (1999).

[432] Birkun, Jr., *supra* note 369, at 9. Harbour porpoises are principally threatened by bottom-set gillnets in the turbot fishery. *Minutes of the 9th Ministerial Meeting of the Black Sea Commission, supra* note 424, at 24; Alexei Birkun, Jr., *Cetacean Surveys in the Black Sea (August-October 2003): Harbour Porpoises Continue to Be in Decline,* 1(1) FINS 12, 13 (2004).

[433] *Id.;* Bayram Öztürk, *Cetaceans and the Impact of Fisheries in the Black Sea,* ACCOBAMS BULL., Oct., 1999, at 11.

[434] Alexei Birkun Jr., *Bottom-Set Gillnet Fisheries and Harbour Porpoises in the Black Sea: High-Tech Against Cetaceans,* 2(1) FINS 10 (2005), <http://www.accobams.org/download/newsletter/FINS_2_1.pdf>, site visited on July 3, 2005.

[435] Alexei Birkun, Jr., *Interactions Between Cetaceans and Fisheries, Black Sea, in* CETACEANS OF THE MEDITERRANEAN AND BLACK SEAS, *supra* note 62, at 100.

are killing at least 2,000-3,000 harbor porpoises and 200-300 bottlenose dolphins annually.[436]

Significant cetacean bycatches in bottom-set gillnets that target turbot (*Psetta maeotica*), sturgeon (*Acipenser spp.*) and other fish species[437] have also been recorded off the Crimean and northern Caucasus coasts,[438] potentially posing a serious threat to common dolphins, bottlenose dolphins and harbor porpoises.[439] A substantial portion of this catch is illegal.[440]

2.2.3.3 Direct Catches/Killing

Historically, cetaceans were hunted in the region for oil, vitamin D extracted from blubber, meal for poultry feed,[441] human consumption,[442] and for the manufacture of leather products.[443] While the origins of the fisheries are unclear, they may have begun at the turn of the 19th Century.[444]

Russia launched a Black Sea dolphin fishery in the 1870s, and several other States in the region, including Bulgaria, Romania, and Turkey followed suit over the next fifty years. Cetaceans in the region were first hunted by shooting

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[436] ÖZTÜRK & TURKISH MARINE RESEARCH FOUNDATION, *supra* note 357, at 30.
[437] A. Birkun, Jr., et al., *Causes of Mortality in Black Sea Harbour Porpoises (Phocoena Phocoena) from Bulgarian, Georgian and Ukrainian Waters (1997-1999),* 14 EUR. RES. CETACEANS 262, 262 (2000).
[438] Andrey A. Artov, *The Harbour Porpoise, Phocoena Phocoena Relicta in Waters Off Crimea,* 8 EUR. RES. CETACEANS 122, 122 (1994); V. Pavlov, A. Artov & T. Zhuravleva, *Impact of Fishing on Black Sea Dolphins Off the Crimea Coasts, in* Proceedings of the First International Symposium on the Marine Mammals of the Black Sea, 27-30 June 1994 (1994), at 41.
[439] E.B. Gol'din & A.M. Artov, *Cetaceans in South-Eastern Crimean Coastal Waters: An Experience of Two-Year Observations,* 14 EUR. RES. CETACEANS 224, 224-225 (2000).
[440] Alexei Birkun, Jr., *Black Sea,* in Notarbartolo di Sciara, *supra* note 62, at 34.
[441] *Id.*
[442] Alexei Birkun, Jr., *Black Sea,* in Notarbartolo di Sciara, *supra* note 440, at 31.
[443] Randall S. Wells & Michael D. Scott, *Bottlenose Dolphin Tursiops Truncatus* (Montagu, 1821), *in* HANDBOOK OF MARINE MAMMALS 164 (Sam H. Ridgway & Richard Harrison eds., 1999).
[444] Birkun, Jr., *supra* note 440, at 31.

with guns and later by purse seining.[445] While the catch was only 9,300 in 1927, it rapidly escalated over the next decade.[446] Landings peaked between 1930 and 1950, with the former Soviet Union taking more than 147,000 cetaceans in 1938 and Turkish fishers more than 40,000-70,000 annually during this period.[447] The fishery ultimately collapsed in the 1960s,[448] but not before the estimated take of 3.5-6.5 million dolphins during the century[449] had reduced the abundance of dolphins and porpoises in the region "to marginal levels."[450]

Commercial dolphin hunting was banned in 1966 by the former Soviet Union, Bulgaria, and Romania, and by Turkey in 1983, though substantial illegal killing may continue currently in Turkey.[451]

In some parts of the Black Sea region, dolphins and porpoises have been viewed as rivals for commercial fish resources,[452] leading to their depiction as as "ichthyophagous monsters" and "man's worst enemies."[453] This rationale was used by the former Soviet Union and the former Yugoslavia to justify mass

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[445] RICHARD ELLIS, DOLPHINS & PORPOISES 110 (1982)
[446] *Id.* at 195.
[447] Joiris, et al., *supra* note 135, 905; A.A. Birkun, et al., *Present Status and Future of Black Sea Dolphins,* 6 EUR. RES. CETACEANS 47, 47 (1992).
[448] CITES, 11MOP, *supra* note 427, at 7. While the exact number of cetaceans killed in the region the 20th Century remains unknown due to poor catch statistics, it probably exceeded 1.5 million in the former USSR and four to five million by other Black Sea countries. Birkun, *supra* note 369, at 11.
[449] V.A. Zemsky, *History of the Russian Fishery of Dolphins in the Black Sea, in* Proceedings of the First International Symposium on the Marine Mammals of the Black Sea, 27-June 1994 (Bayram Özturk ed., 1994), at 46.
[450] Ellis, *supra* note 445, at 195.
[451] *Id.;* Robin Churchill, *Sustaining Small Cetaceans: A Preliminary Evaluation of the Ascobans and Accobams Agreements,* INTERNATIONAL LAW & SUSTAINABLE DEVELOPMENT 227 (Alan Boyle & David Freestone eds., 1999); Evans, *supra* note 393, at 209.
[452] Dolphins were alleged to be damaging fishing nets and stealing fish from fishing vessels.
[453] Giovanni Bearzi & Randall R. Reeves, *The Plight of the Mediterranean Common Dolphins,* 1(1) FINS 8, 8 (2004).

dolphin killings during the 19th and 20th Centuries.[454] The Turkish Ministry of Agriculture went so far as to supply ammunition to fishers in the 1970s to kill dolphins.[455] These hunting campaigns may have been the primary cause of severe dimunition of Adriatic dolphin stocks by the early 1960s.[456]

Capture for trading purposes, including at the international level, has played a "non-negligible role" in threatening stocks of bottlenose dolphins in the region.[457] While the scale is unknown, capture of bottlenose dolphins for exhibit, research and export has occurred in several Black Sea range states, including Russia, Ukraine and Georgia.[458] For example, there are currently 12 dolphinaria in the Black Sea region housing 100-120 bottlenose dolphins.[459] These facilities require the annual capture of between 24-48 wild cetaceans to replace dolphins that die in the facilities.[460] Many of these facilities suffer from deteriorating infrastructures and inadequate maintenance, posing serious health threats to captured dolphins.[461]

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[454] G. Lauriano, *Interactions Between Common Bottlenose Dolphins (Tursiops truncatus) and the Artisanal Fishery in Asinara Island National Park (Sardinia): Assessment of Catch Damage and Economic Loss,* 6(2) J. CETACEAN RES. & MGMT. 165, 173 (2004); Birkun, Jr., *supra* note 440, at 31.
[455] Cern Orkun Kiraç, *Witnessing the Monk Seal's Extinction in the Black Sea,* 4(2) MONACHUS GUARDIAN 1, 2 (2001).
[456] Bearzi & Reeves, *supra* note 453, at 8.
[457] Council of Europe, Convention on the Conservation of European Wildlife and Natural Habitats, *Conservation of Tursiops Truncatus Ponticus (Black Sea Bottlenose Dolphin) and its Possible Listing in Appendix I of CITES,* Secretariat Memorandum T-PVS (2001) 28 (2001), at 3. Bottlenose dolphins can fetch approximately $20,000 in international trade. *UN Body Rejects Trade Ban on Black Sea Dolphins,* Planet Ark, Nov. 11, 2002, <http://www.planetark.org/dailynewsstory.cfm/newsid/18515/story.htm>, site visited on Nov. 12, 2002.
[458] CITES, 11MOP, *supra* note 427, at 8.
[459] *Minutes of the 9th Ministerial Meeting of the Black Sea Commission, supra* note 424, at 24.
[460] *Id*; Birkun, *supra* note 369, at 23. The wide difference in estimates of the number of facilities in the region itself speaks volumes as to research shortfalls in the Black Sea.
[461] Birkun, Jr., *supra* note 440, at 34-5.

The Russian Federation and Ukraine also capture cetaceans in the Kerch Strait and the south Crimea for military and scientific programs, though the numbers are not disclosed. Some of these die in the capture operations as a consequence of stress or asphyxia,[462] or from diseases such as multi-bacterial pneumonia and septicaemia in inadequately maintained facilities.[463]

During the past decade, export of dolphins from Russia and Ukraine has expanded, including to Argentina, Byelorussia, Chile, Cyprus, Egypt, Hungary, Iran, Israel, Lithuania, Romania, Turkey, the United Arab Emirates, Vietnam, Canada and former Yugoslavian countries.[464] This includes the display of Black Sea dolphins in traveling shows in the Middle East.[465] A recent study of exports from Russia, Ukraine and Georgia indicates that the majority of exported bottlenose dolphins died during transport or shortly after their arrival, and only one captive birth has been recorded.[466]

Some of the trade in Black Sea dolphins is probably illegal, and perhaps substantial, but the levels remain unknown.[467] Efforts to ascertain these levels have been stymied in many cases by incomplete documentation by exporting and importing nations.[468]

2.2.3.4 Food Shortages

The Black Sea has undergone a massive loss of fauna species in the last 20 years, with 85 per cent of marine life, including 20 of the Sea's 26 commercial

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[462] Birkun, *supra* note 369, at 23.
[463] Birkun, Jr., *supra* note 440, at 35.
[464] *Id.* CITES, *supra* note 370, at sec. 3.2.
[465] *Id.* at sec. 3.2.
[466] *Id.*
[467] CITES, 11MOP, *supra* note 427, at 8-9; CITES, *supra* note 370, at sec. 3.3.
[468] CITES, *supra* note 370, at sec. 3.3.

species rendered extinct.[469] Severe declines in fish catches have been recorded in the National Reports on Diversity of Bulgaria, Romania, the Russian Federation and Ukraine,[470] translating into an 80 per cent reduction in the total catch in the last two decades.[471] Overall, half of the 180 fish species in the Black Sea are threatened in the region,[472] and while the maximum sustainable catch in the region has been estimated to be over 2 million tons annually, "it hardly reaches 400,000 tons due to over fishing problems."[473]

The diminution of ichthytofauna species is attributable to several factors. Perhaps the most serious is a massive increase in eutrophication over the past few decades. The long residence time of water masses in the Black Sea, and strong thermohaline stratification, renders the Sea highly sensitive to increased production of organic matter.[474] The estimated 570 million cubic meters of untreated organic waste dumped annually into waters by contiguous States and upstream countries has produced vast areas of eutrophication.[475] Other important sources of nutrient load have been agricultural and industrial sources,

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[469] Alexandru S. Bologa, *Present Trends in the Black Sea Ecosystem and its Biodiversity, in* II RADIOLOGICAL IMPACT ASSESSMENT IN THE SOUTHEASTERN MEDITERRANEAN SEA 53 (F.K. Vosniakos eds., 2000); *The Black Sea in Crisis,* 105(12) ENVTL. HEALTH PERSPECTIVES 1287, 1287 (1997).
[470] *Id.* at 53.
[471] Efimov & Eremeev, *supra* note 402, at 178.
[472] T.A. Shiganova, et al., *Changes in Species Diversity and Abundance of the Main Components of the Black Sea Pelagic Community During the Last Decade,* ECOSYSTEM MODELING AS A MANAGEMENT TOOL FOR THE BLACK SEA 183 (LEONID I. IVANOV & TEMEL OGUZ eds., 1998); Nicolae Bodeanu, *Algal Blooms and Development of the Main Phytoplanktonic Species at the Romanian Black Sea Littoral in Conditions of Intensification of the Eutrophication Process,* 1992 SCI. TOTAL ENV'T 891, 903.
[473] ACCOBAMS, First Meeting of the Scientific Committee, *Minutes of the 9th Ministerial Meeting of the Black Sea Commission, Ministerial Declaration,* CS1/Inf 1 (2002), at 7.
[474] Adriana Cociasu, et al. *Long-Term Ecological Changes in Romanian Coastal Waters of the Black Sea,* 32(1) MARINE POLLUTION BULL. 32, 32 (1996).
[475] *Id.;* Cognetti, *supra* note 414, at 752, Land, *supra* note 59. "[M]ore than 21 per cent of the wastewater collected from municipalities in the Danube basin is discharged to surface waters without treatment ..." Maldanado, et al., *supra* note 128, at 3295.

including petrochemical and metal processing facilities.[476] 70 per cent of the nutrients come from the six Black Sea countries, with the other 30 per cent from non-coastal countries.[477]

Overall, during a thirty-year period from the 1950s to 1987, the phosphorus load transported by the Danube to the Black Sea increased from 13,000 tons to 30,000 tons, while nitrogen loads increased from 300,000 tons to 740,000 tons. Outflows of phosphorus and nitrates from the Dniester increased seven-fold and three-fold, respectively, during the same period.[478] Between the 1950s and 1980s, the nutrient supply discharged by the Danube, Dniester and Dnieper into the Black Sea increased about ten-fold, though discharges declined somewhat from the latter two rivers in the 1990s.[479] The construction of dams for irrigation and energy purposes has likely exacerbated eutrophication by reducing the influx of freshwater by approximately 50 km^3 and decreasing the sediment load from rivers that discharge into the Sea.[480]

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[476] Commission of the European Communities, *supra* note 346, at 9.
[477] *Id.* at 12.
[478] Istvan Ijjas, *Reducing Phosphorus in the Danube Basin,* in VI BIOPOLITICS: THE BIO-ENVIRONMENT 113 (Agni Vlavianos-Arvanitis & Jan Morovic eds., 1998) ("There has been an enormous increase in the nutrient load to the Black Sea in the past 25 years, probably as a consequence of the widespread use of phosphate detergents and intensification of agriculture"); Erkki Leppäkoski & Pia Elena Mihnea, *Enclosed Seas Under Man-Induced Change: A Comparison Between the Baltic and Black Seas,* 25(6) AMBIO 380, 382 (1996).
[479] Gabriela Friedl, Christian Dinkel & Bernhard Wehrli, *Benthic Fluxes of Nutrients in the Northwestern Black Sea,* 62(1-2) MARINE CHEM. 77, 77 (1998). *See also* H.I. Sur, et al., *Coastal/Deep Ocean Interactions in the Black Sea and Their Ecological/Environmental Impacts,* 7 J. MARINE SYSTEMS 293, 299 (1999). The decline in nutrient discharges from the Dniester and Dnieper during the last decade was primarily attributable to a rapid decrease in the use of fertilizer in the former USSR. However, this was not likely to substantially impact nutrient loads in the Black Sea because the phosphorus load from the Dniester and Dnieper combined is only approximately 7 per cent of that of the Danube, and 3 per cent in the case of nitrogen. *Id.* at 78.
[480] Gable, *supra* note 347, at 435.

The Sea is now classified as the largest eutrophic (nutrient-rich) body of water in the world.[481] In the northwest shelf alone, this has resulted in over 30,000-50,000 square kilometers of hypoxic waters.[482] These conditions have resulted in severe declines in oxygen uptake for many marine species, huge declines in the quantity and diversity of zooplankton species that are the principal prey items for many fish species,[483] and the proliferation of species that compete with planktivorous fish for food, including the medusa species *Aurelia aurita*.[484] This has contributed to the extinction of 40 species of fish in the Black Sea region, as well as sponges, sea anemones, shrimps, crabs and other species.[485] In the last several years the flux of sinking particulate organic matters in the upper layer of the Sea has declined,[486] resulting in an increase in anchovy and sprat stocks in the region.[487] However, this may be largely attributable to the

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[481] Griffin, *supra* note 349, at 29.
[482] S. Konovalov & J.W. Murray, *Variations in the Chemistry of the Black Sea on a Time Scale of Decades (1960-1995),* 31(1-3) J. MARINE SYS. 217, 223-224 (2001); Cognetti, *supra* note 414, at 752. *See also* Kunchulia, et al., *supra* note 353, at 11; Leppäkoski & Mihnea, *supra* note 168, at 381 (95 per cent of the Ukrainian shelf and entire Sea of Azov prone to hypoxia).
[483] Adriana Petranu, et al., *Status and Evolution of the Romanian Black Sea Coastal Ecosystem, in* ENVIRONMENTAL DEGRADATION OF THE BLACK SEA: CHALLENGES AND REMEDIES 175, 183 (S. Beşiktepe, et al. eds., 1999); Bologa, *supra* note 400, at 6.
[484] G.E. Shulman, et al., *Influence of Anthropogenic Impact on the Physiology of Some Black Sea Fish Species, in* ENVIRONMENTAL DEGRADATION OF THE BLACK SEA: CHALLENGES AND REMEDIES 258 (S. Beşikepe ed., 1999). "[In the past 20 years} [t]he Euphotic zone, where the sunlight is sufficient for biological production, decreased from 50-60 to 30-40 meters." Efimov & Eremeev, *supra* note 402, at 178.
[485] Kotlyakov, et al., *supra* note 392, at 42; Jacqueline M. McGlade, *Governance of Transboundary Pollution in the Danube River,* 5(1) AQUATIC ECOSYSTEM HEALTH & MGMT. 99, 100 (2002); Laurence Davis Mee, *Can the Marine and Coastal Environment of the Black Sea Be Protected?* (2000), unpublished manuscript supplied to the author, at 5; Cociasu, et al., *supra* note 474, at 37.
[486] Efimov & Eremeev, *supra* note 402, at 183.
[487] Konstantin Mikhailov & Kamen Prodanov, *Commercial Fishery of Small Pelagic Fishes Along the Bulgarian Black Sea Coast During 1925-2002,* <http://www.iasonnet.gr/abstracts/Prodanov.pdf>, site visited on July 13, 2003.

serious economic downturn in former socialist Black Sea countries in the nineties.[488]

Another serious threat to fish species in the region is a jellyfish-like species, the ctenophore *Mnemiopsis leidyi,* which was accidentally introduced into the Black Sea in the mid-1980s from the ballast water of a ship from the United States.[489] *Mnemiopsis* thrives in the Black Sea, at one time constituting *nearly half* of the total biomass in the sea, or approximately one billion tons, before beginning to decline in the mid-nineties.[490] By consuming huge amounts of zooplankton, fish eggs, and larvae, it has contributed substantially to the decline of many fish species in the Black Sea, and pushed others to extinction.[491] For example, competition for food resources with *Mnemiopsis* was a major contributor to the massive decline of small pelagic fish species from the late 80s through the mid-90s, including anchovy (*Engraulis encrasicolus ponticus*), sprat (*Sprattus sprattus*), scad (*Trachurus trachurus*) and horse mackerel (*Trachurus*

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[488] *Id.* at 184; Mikhailov & Prodanov, *supra* note 487, at 4.
[489] Black Sea Environmental Program Home Page, *The Black Sea in Crisis,* <http://www.domi.invensis.com.tr/blacsea/crisis.htm>, site visited on June 24, 2002.
[490] Commission of the European Communities, *supra* note 346, at 14; Shulman, et al., *supra* note 484, at 258. At some points, the concentration of *Mnemiopsis leidyi* has reached densities of one kilogram of biomass per square meter in the Black Sea. IUCN, Global Ballast Water Management Programme, *The Problem,* <http://globallast.imo.org/index.asp?page=problem.htm&menu=true>, site visited on Oct. 5, 2004.
[491] A. Occhipinti-Ambrogi & D. Savini, *Biological Invasions as a Component of Global Change in Stressed in Stressed Marine Ecosystems,* 46 MAR. POLLUTION BULL. 542, 546 (2003) ("[The mass development of this species . . . lead (sic) to a catastrophic decline of zooplankton and of the once flourishing pelagic fisheries"); DiMento, *supra* note 393, at 245; GESAMP Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection, *Opportunistic Settlers and the Problem of the Ctenophore Mnemiopsis leidyi Invasion in the Black Sea,* 58 REP. STUDIES GESAMP, <http://gesamp.imo.org/no58/index.htm> (1997), site visited on Jan. 17, 2004; Colin Woodard, *Troubles Bubble Under the Sea,* CHRISTIAN SCI. MONITOR, Sept. 10, 1997, at 1.

mediterraneus ponticus).[492] The decline of these species, especially anchovy and scad, may adversely affect cetacean abundance in the region because of their importance as prey.[493]

The past few decades have witnessed a rapid intensification of commercial fishing operations in the Black Sea. For example, the catch of sprat increased from 3,100 tons in the 1970s to 105,200 tons in 1989, the horse mackerel catch increased from 4,900 tons in 1980 to 147,700 tons in 1985, and anchovy catches increased from 128,000 tons to 485,000 tons by 1994.[494] This escalation has proved to be unsustainable in many cases, contributing to the rapid decline of several fish species, including anchovy,[495] turbot, mackerel, bluefish,[496] and sprat.[497] Abundance trends have also turned negative for mullet (*Lisa spp., Mugil cephalus*) and turbot, especially in the northern part of the Black

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[492] GESAMP, *supra* note 491, at 10; Shulman, et al., *supra* note 484, at 258. Since 1940, 21 new species have immigrated to the Black Sea, substantially modifying the structure of marine communities in the region. Victoria Tiganus, *Present State of Marine Biodiversity in the Romanian Black Sea, in* MEDITERRANEAN MARINE BIODIVERSITY, *supra* note 492, at 57. The number of introduced species in the region may increase by approximately 80 species over the next 20 years in the absence of a more aggressive effort to slow down their rate of introduction. Charles Françoise Boudoureque & Marc Verlaque, *Biological Pollution in the Mediterranean Sea: Invasive Versus Introduced Macrophytes,* 44(1) MARINE POLLUTION BULL. 32, 36 (2002).

[493] Birkun, Jr., *supra* note 350, at 66.

[494] Bologa, *supra* note 400, at 4.

[495] Griffin, *supra* note 349, at 30; Mehmet Salih Celikkale, *The Fishery in Black Sea,* International Whaling Commission, SC/42/SM40 (1990), at 10. "[T]he total commercial catch of anchovy experienced a 12-fold drop (from an absolute maximum of 468,000 tonnes in the 1987-1988 fishing season to 39,100 tonnes in 1990-1991)." Birkun, Jr., *supra* note 435, at 98.

[496] Bologa, *supra* note 400, at 4; Whale & Dolphin Conservation Society, *ACCOBAMS: WDCS Welcomes New Initiative for Black Sea and Mediterranean Whales and Dolphins,* <http://wdcs.org/wdcs/campaign/conventi/accobams.htm>, site visited on Nov. 25, 2001.

[497] "[L]andings of sprat fell nearly by a factor of eight (from 105,200 tonnes in 1989 to 13,700 tonnes in 1993 . . ." Birkun, Jr., *supra* note 435, at 99.

Sea.[498] Pollution has also taken its toll on fish stocks, contributing to serious declines in, *inter alia*, mackerel, rays and mullets.[499]

There is some evidence of nutritional distress among Black Sea cetacean species in recent years,[500] and reduced prey availability has been cited by some researchers as a factor affecting the abundance of shortbeaked common dolphins and harbor porpoises in the region.[501] This may be attributable to the decline of some of their key prey species as a consequence of the anthropogenic activities listed above.[502] These species includes anchovy, mullet, sprat, whiting (*Merlangius merlangus euxinus*), gobies (Gobiidae *gen. spp.*), horse mackerel and ray species.[503] However, there is insufficient evidence to establish a definitive nexus between the decline of cetaceans in the region and lack of food.[504] To date, "distinct signs of malnutrition have been observed only in stranded individuals found with locomotor problems caused by severe trauma or infection."[505] (*See also* Figure 13).

Consumers

Fish Species	Common	Bottlenose	Harbor	Fisheries

[498] *Id.* at 99.
[499] DiMento, *supra* note 393, at 245; Zaitsev & Mamaev, *supra* note 172, at 42.
[500] BIRKUN & KRIVOKHIZHIN, *supra* note 359, at 25. Food shortages may also render cetaceans in the region more susceptible to disease, parasitic infection and mobilization of toxic pollutants. CITES, *supra* note 370, at sec. 2.4.
[501] Bearzi, *supra* note 285, at 260.
[502] ÖZTURK & TURKISH MARINE RESEARCH FOUNDATION, *supra* note 357, at 30; CITES, *supra* note 370, at sec. 2.4.
[503] Georgi M. Daskalov, *Overfishing Drives a Trophic Cascade in the Black Sea,* 225 MARINE ECO. Progress Series 53, 56 (2002); Fabio Badalamenti, et al., *Estimates of trophic level in the red mullet Mullus barbatus :comparison between gut-contents and stable-isotope data, in* CIESM, FISHING DOWN THE MEDITERRANEAN FOOD WEBS? 19 (Frédéric Briand ed., 2000); CITES, 11MOP, *supra* note 427, at 6; BIRKUN & KRIVOKHIZHIN, *supra* note 359, at 17 & 25; Birkun, *supra* note 369, at 20.
[504] Gol'din, *supra* note 387.
[505] Birkun, Jr., *supra* note 435, at 99.

	Dolphins	Dolphins	Porpoises	
Anchovy	P	S	P	P
Sprat	P	U	P	P
Whiting	S	P,S	P,S	S
Pelagic pipefishes	P,S	U	U	U
Black Sea turbot	U	P	U	P
Thornback ray	U	P,S	U	S
Mullets	S	P,S	S	P
Grey mullet	U	P,S	U	P
Far-east mullet	U	P	S	P
Gobies	U	U	P	S
Red mullet	S	S	S	P
Bonito	S	S	U	P
Shad	S	U	S	P
Zander	U	S	S	U
Bream	U	S	S	U
Bluefish	S	U	U	P
Horse mackerel	S	U	U	P
Garfish	S	U	U	S
Mackerel	S	U	U	P
Wrasses	S	U	U	U
Blennies	S	U	U	U
Sea scorpion	U	S	U	U

Corb	U	S	U	U
Silverside	U	U	S	U
Flounder	U	U	S	S
Snouted sole	U	U	S	U
Pickerel	U	U	S	U

Figure 13
Target fish species of Black Sea cetaceans and commercial fisheries and their relative importance to consumers: P – primary, S – secondary and U– undefined (non-target species). More than one letter in a column denotes disagreements among researchers.[506]

There is also evidence that reductions of food supplies in some regions has resulted in increased conflict between cetaceans and the fishing industry. This may constitute an additional threat to the species because fishers may view them as competitors for increasingly scarce resources and seek to kill them.[507]

2.2.3.5 Natural Disease

Disease poses a serious threat to cetacean species in the region. Two natural pathogens are known to cause mass mortality events among cetaceans in the region. The lung nematode *Skrjabinalius cryptocephalus* has been identified as the primary natural cause of death for Black Sea cetaceans.[508] Sixty-seven per cent of the bottlenose dolphins examined during 1989-1991 had destructive lesions in their lungs,[509] and Black Sea harbor porpoises have

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[506] Alexei Birkun, Jr., *Interactions Between Cetaceans and Fisheries, Black Sea, in* CETACEANS OF THE MEDITERRANEAN AND BLACK SEAS, *supra* note 62, at 10.
[507] ÖZTURK & TURKISH MARINE RESEARCH FOUNDATION, *supra* note 357, at 30.
[508] *Id.* at 7.
[509] *Id.* at 7.

experienced mass mortalities due to lung worm infections (nematodes *Halocercus taurica* and *H. ponticus*).[510] Multi-microbial pollution of coastal waters associated with the dumping of untreated sewage has been associated with local and generalized secondary infections in individuals weakened by other diseases, including helminth infestation and on-infectious pathology.[511]

An unidentified morbillivirus was the likely cause of the death of several thousand cetaceans in the region off the Turkish, Crimean, Russian and Bulgarian coasts in 1990.[512] As is true in the Mediterranean, high pollutant loads may have rendered species in the region susceptible to viral infections.[513]

2.2.3.6 Maritime Traffic

Maritime traffic in the region also threatens Black Sea cetaceans. Shipping lanes crossing the Black Sea coincide with the primary habitat and migration routes for cetaceans, especially the Bosphorous shipping junction, the Kerch Strait, and the northwestern harbor agglomeration, including ports in Odessa Bay and estuaries of the Dnieper, Dniester and South Boug rivers.[514]

Approximately 40,000 ships pass through the Bosphorous, as well as innumerable smaller crafts.[515] Frequent lengthwise and transverse traffic poses serious risks of collisions for porpoises and dolphins visiting the strait and in transit to neighboring regions.[516] In the Kerch Strait, two port complexes are

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[510] UNEP, *supra* note 362.
[511] Birkun, *supra* note 369.
[512] CITES, 11MOP *supra* note 427, at 7.
[513] *Id.*
[514] Birkun, Jr., *supra* note 362, at 18.
[515] Alexei Birkun, Jr., *Disturbance, Black Sea, in* CETACEANS OF THE MEDITERRANEAN & BLACK SEAS, *supra* note 62, at 162.
[516] *Id.* at 161; CITES, 11MOP, *supra* note 427, at 5-6.

situated along the Ukrainian and Russian shores, connected by a ferry line that operates all year round. About 10,000 vessels move through the Strait annually, as do all three species of cetaceans in the region.[517] The north-western group of harbors, including ports in the Odessa province of Ukraine and marine and river transport facilities in the estuaries of the Dnieper, Dniester and South Boug, constitute the second largest shipping center in the Black Sea subregion after the Bosphorous junction. Harbor porpoises have been frequently observed in Odessa Bay and adjacent waters, as well as in the Dnieper and South Boug estuaries and Dnieper and its lower tributaries. A group of four common bottlenose was also observed in the Dnieper in 2000.[518] Other multi-activity ports with shipping facilities that may threaten cetaceans include Varna (Bulgaria), Constantza (Romania), Danube Delta (Romania and Ukraine), Sevastopol (Ukraine), Novorossiysk (Russia), Batumi (Georgia), Trabszon, Samsun and Zonguldak (Turkey). Because traffic is more concentrated in coastal waters over the continental shelf of the Black Sea, the gravest threats are posed to the inshore species in the region, those being harbor porpoises and common bottlenose dolphins.[519]

Maritime traffic in the Black Sea peaked between 1985-1992 and subsequently declined until the mid 1990s. However, it is anticipated that the

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[517] Birkun, Jr., *supra* note 515, at 161.
[518] *Id.*
[519] *Id.*

development of shipping facilities will accelerate over the next few decades in the region, with vessel exchange between seas also increasing.[520]

2.2.3.7 Other Threats

Physical modification of the Black Sea seabed threatens cetacean habitat and results in stock disturbances. For example, channel dredging in the region results in the dumping of bottom sediments that may diminish water transparency and lead to destruction and silting of benthic communities, ultimately reducing cetacean foraging capabilities.[521] "The rate of sediment accumulation at Black Sea dumping sites exceeds the natural sedimentation rate by more than 1000 times."[522] These activities are concentrated in the shallow waters of the north-western shelf of the Black Sea, as well as the Azov Sea and estuaries of major rivers, including the Danube, Dnieper, Dniester, South Boug, Don and Kuban, and the Kerch Strait.[523]

Drilling and seismic exploration associated with offshore gas and oil exploitation and bottom trawling fisheries also threaten water quality, prey species and the habitat of cetacean species in the region.[524] Accidents associated with such activities may also pose a direct threat. A potent attestation

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[520] *Strategic Action Plan for the Rehabilitation and Protection of the Black Sea, supra* note 412.
[521] Birkun, Jr., *supra* note 369, at 18.
[522] Birkun, Jr., *supra* note 515, at 162.
[523] *Id.*
[524] *Id.*

to this was an explosion on an offshore drilling platform in the Azov Sea in 1982 that killed over 200 harbor porpoises.[525]

These activities are widely conducted in the region, with a concentration in the shallow north-western portion of the Black Sea and in the north-western corner of the Sea of Azov. It is anticipated that oil and gas exploration will expand substantially in the near future.[526]

There have been no studies of the impact of noise on cetaceans in the Black Sea region.[527] However, some researchers believe that heavy traffic between the Black Sea and the Marmara Sea may be contributing to steady reductions in the number of dolphins migrating between the two seas each year. The apparent absence of resident cetacean populations in the Dardanelles for the past 20 years may also be attributable to heavy maritime traffic.[528]

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[525] *Id.* Seismic testing associated with oil exploration near Russia's Sakhalin Island also may explain the low body weight of Western Pacific gray whales in the region. Scientists speculate that drilling noise may have driven the whales away from their feeding grounds in the area. Jim Carlton, *Stymied in Alaska, Oil Producers Flock to a Newer Frontier,* WALL STREET J., Sept. 4, 2002, at A15.

[526] *Id.*

[527] ÖZTURK & TURKISH MARINE RESEARCH FOUNDATION, *supra* note 357, at 31; Birkun, *supra* note 369, at 17.

[528] ÖZTURK & TURKISH MARINE RESEARCH FOUNDATION, *supra* note 357, at 31.

Chapter 3

The ACCOBAMS Framework

3.1 Negotiating History

The genesis of ACCOBAMS was the decision by the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention)[529] in 1989 to establish an informal group on small cetaceans and a resolution by the parties to the CMS noting "the need to look at the conservation of migratory small cetacean species globally."[530]

In 1991, an early draft of ACCOBAMS was reviewed at a meeting of the Secretariats of the Convention for the Protection of the Mediterranean Sea Against Pollution (Barcelona Convention),[531] the Bern Convention, the Convention on the Conservation of Migratory Species and Wild Animals,[532] and the International Union for the Conservation of Nature and Greenpeace International. That same year, the Conference of the Parties to CMS adopted a resolution urging Party and non-Party range states of small cetaceans listed in Appendix II of the treaty, especially those proximate to the Black and Mediterranean Seas, to accord priority to concluding agreements under the CMS to protect these species.[533] As Gillespie suggests, negotiation proved to be

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[529] 1979, E.T.S. 104.
[530] CMS, *Small Cetaceans,* Resolution 2.3 (1988), at 52. The Parties also suggested that regional agreements were one of the best ways to protect small cetacean species and that species listed in the appendices should be considered as candidates. *Id. See also* CMS, *Small Cetaceans,* Resolution 3.3 (1991), at 50.
[531] Done Feb. 16, 1976, *reprinted in* 15 I.L.M. 290 (1976).
[532] *See supra* note 3.
[533] Secretariat, Convention on the Conservation of Migratory Species of Wild Animals, *Draft Agreement on the Conservation of [Small] Cetaceans of the Mediterranean and the Black Seas* (Sept. 1995), at 4, (hereinafter *Draft Agreement*).

protracted for several reasons, including the difficulties associated with seeking to bring together countries of two subregions into the framework, the decision to expand the agreement's purview to larger cetaceans, and the resistance of some range states to adopting the treaty prior to resolving issues related to Black Seas fisheries.[534]

Mediterranean range states convened a meeting in Athens in October 1992, to discuss the draft Agreement.[535] Subsequent input was provided by representatives of Black Sea range states at a meeting in 1994.[536] The United Nations Environment Program (UNEP)/CMS Secretariat also suggested some elements for conservation of marine mammals in the Black Sea, including:

1. Cooperative mechanisms between range states for surveys, monitoring and research to determine abundance, migration routes and important habitats;
2. Creation and maintenance of a network of specially protected areas;
3. Cooperative research on fisheries-small cetacean interactions to assess levels of bycatch and identification of ways to reduce accidental take;
4. Elaboration and implementation of new fisheries policies to minimize entanglement of marine mammals in fishing gear;
5. Strengthening of capacities to enforce existing and envisaged fisheries regulations;
6. Promotion of information exchanges among research institutes and government agencies in the region;
7. Collaboration with research programs being conducted by the Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas (ASCOBANS);
8. Development and strengthening of *ex situ* conservation programs.[537]

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[534] Alexander Gillespie, *Small Cetaceans, International Law and the International Whaling Commission,* 2(2) MELBOURNE J. INT'L L. 275, 300-301 (2001).
[535] Alain Piquemal, *La Protection de la Biodiversite en Mediterranee et Mer Noire,* <http://www.unice.fr/CERDAM/actu1.htm> (1997), site visited on Mar. 12, 2001.
[536] *Draft Agreement, supra* note 533, at 4.
[537] UNEP/CMS Secretariat, *Elements of an Agreement under the Bonn Convention (CMS) for the Conservation of Marine Mammals of the Black Sea*, prepared for the International Symposium on Marine Mammals of the Black Sea, Istanbul, 27-30 June 1994.

At a 1995 meeting in Monaco, the text of the agreement and its conservation plan were drawn up, and the taxonomic scope of the agreement was extended to large cetaceans found in the region.[538] A negotiating session in 1996,[539] convened by the UNEP/CMS Secretariat in conjunction with Monaco and France, culminated in the signature of the Agreement by eleven states on November 24, 1996.[540]

3.2 Treaty Provisions

3.2.1 Framework for the Treaty/Scope

Although ACCOBAMS is a freestanding treaty, it was developed under the framework of the CMS. Thus, its objectives and implementation will be strongly influenced by this agreement. The CMS was the direct outgrowth of a recommendation adopted at the 1972 United Nations Conference on the Human Environment, calling upon nations "to enact international conventions and treaties to protect species inhabiting international waters or those which migrate from one country to another."[541] Its membership now includes 88 Parties from

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[538] CMS/CET/Doc.4 (Rev.1)(1995); ACCOBAMS Secretariat, <http://www.accobams.mc/Accob/Wacco.nsf/Fram1Gb!OpenFrameSet>, site visited on Sept. 29, 2001.

[539] Document CMS/CET-II/Doc. 6, Convention on the Conservation of Migratory Species of Wildlife Animals, Final Negotiation Meeting, *Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area, 19-24 Nov. 1996.*

[540] CMS/CET-II/Doc. 6 and Document CMS, Nov. 24, 1996; Piquemal, *supra* note 535. The eleven States signing the Agreement were Albania, Cyprus, Spain, France, Georgia, Greece, Italy, Morocco, Monaco, Portugal and Tunisia. Personal correspondence from Douglas Hykle, CMS Secretariat, Mar. 24, 1998, via e-mail.

[541] Stockholm Declaration on the Human Environment, June 16, 1972, U.N. Doc. A/Conf.48/14/Rev. 1. For a concise discussion of the negotiating history of CMS, *see* P. VAN HEIJNSBERGEN, INTERNATIONAL LEGAL PROTECTION OF WILD FAUNA & FLORA 28 (1997).

Africa, Central and South America, Asia, Europe and Oceania.[542] Additionally, 25 non-parties participate in the implementation of Agreements and Memoranda of Understanding of the CMS.[543]

Parties to the CMS pledge to take measures to protect "wild animals that migrate across or outside national jurisdictional boundaries."[544] In the case of endangered migratory species, listed in Appendix I of the treaty, the Parties are required to prohibit their taking and to take appropriate conservation measures, including habitat restoration and control of the introduction of exotic species.[545] Currently, Appendix I includes nine species of cetaceans, two of which are found in the Mediterranean, fin and sperm whales.[546]

However, the CMS also functions as a framework convention for potential protection of migratory species not identified as currently endangered. The treaty outlines two types of agreements that may be entered into by the Parties. Article IV(3) calls upon the Parties to conclude AGREEMENTS to protect species listed in Appendix II, encompassing species "which have an unfavourable conservation status . . . as well as those which have a conservation status which would significantly benefit from the international co-operation that could be achieved by

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[542] CMS Secretariat, *Parties to the Convention on the Conservation of Migratory Species of Wild Animals*, Dec. 2004, <http://www.cms.int/pdf/en/party_list/Partylist_eng.pdf >, site visited on Jan. 1, 2005.
[543] CMS Secretariat, *Countries Participating in CMS Agreements/MOU's That Are Not Yet Parties to the CMS (February 2003),* <http://www.wcmc.org.uk/cms/participantsofCMSagreements.htm>, site visited on Jan. 17, 2004.
[544] CMS, *supra* note 4, at Preamble.
[545] *Id.* at art. III.
[546] Fin and sperm whales were added to Appendix I by the CMS Parties at the 7th Meeting of the Conference of the Parties in September, 2002, UNEP, *'Jaws' Win Tough New Protection from Human Predators*, <http://www.unep.org/Documents/Default.asp?ArticleID=3135&DocumentID=264>, Sept. 25, 2002, site visited on October 5, 2002.

an international agreement."[547] Article IV(4) encourages the Parties to conclude "agreements for any population or any geographically separate part of the population of any species or lower taxon or wild animals, members of which periodically cross one or more national jurisdictional boundaries." Parties entering into either an Article IV(3) or IV(4) Agreement need not be Parties to the CMS.[548]

As one commentator notes, the drafters of the CMS intentionally capitalized the term "agreements" in Article IV(3) to distinguish them from "agreements" entered into under Article IV(4). When states enter into an Article IV(3) AGREEMENT, they are required to conform to detailed guidelines outlined in Article V for the conservation of Appendix II species.[549] By contrast, Article IV(4) agreements may encompass species not listed in Appendix II; moreover, these agreements are not subject to CMS Article V guidelines.[550]

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[547] *Id.* at art. IV(1).

[548] *Id.* at art. V(2). Currently the European Union and ten of the States in the ACCOBAMS Agreement Area are also Parties to the CMS. None of the States bordering the Black Sea are Parties to the treaty. Secretariat, CMS, *supra* note 537, at 3.

[549] Nijkamp & Nollkaemper, *supra* note 5, at 287.

[550] Three Article IV(3) AGREEMENTS have been entered into by CMS Parties, the Agreement on the Conservation of Bats in Europe (EUROBATS) (entered into force on Jan. 16, 1994), the Agreement on the Conservation of African Eurasian Migratory Waterbirds (AEWA) (adopted on June 16, 1995), and the Agreement on the Conservation of Albatrosses and Petrels (concluded on Feb. 2, 2001). In addition to ACCOBAMS, two other agreements have been entered into under Article IV(4), the Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas, *supra* note 5, and the Agreement on the Conservation of Seals in the Wadden Sea (entered into force, Oct. 1990). CMS Secretariat, *Guide to the Convention on the Conservation of Migratory Species of Wild Animals,* MARINE 1997, at 5-8. Article IV(4) also provides for the establishment of Memorandum of Understanding (MOU) among Parties. The primary objective of MOUs "is to co-ordinate short-term measures to be taken by the Range States at the administrative and scientific levels, in most cases on the basis of already existing commitments through internal legislation and/or programmes within the Range States." Convention on the Conservation of Migratory Species of Wild Animals, *Guide to the Convention on the Conservation of Migratory Species of Wild Animals* (2002), <http://www.wcmc.org.uk/cms/pdf/CMS_Guide_Jan02_en.pdf>, at 4, site visited on May 9, 2003. MOUs may be legally less binding than Agreements under the CMS, or may even be non-binding.

ACCOBAMS was drafted as an "agreement" under Article IV(4) of the CMS.[551] Thus, while Appendix II of the CMS lists only four species of cetaceans found in the Mediterranean and Black Seas,[552] ACCOBAMS's status as an Article IV(4) agreement permitted the Parties to establish conservation measures for "all cetaceans that have a range which lies entirely or partly within the Agreement Area or that accidentally or occasionally frequent the Agreement Area."[553]

The "Agreement Area" encompasses "all the maritime waters of the Black Sea and the Mediterranean and their gulfs and seas, and the internal waters connected to or interconnecting these maritime waters, and of the Atlantic area contiguous to the Mediterranean Sea west of the Strait of Gibraltar."[554]

Membership in the agreement is open to "any Range State, whether or not areas under its jurisdiction lie within the Agreement Area, or regional economic

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To date, seven MOUs have been drafted under the CMS, the Memorandum of Understanding Concerning Conservation Measures for the Aquatic Warbler; the Memorandum of Understanding Concerning Conservation Measures for the Siberian Crane, *Grus leucogeranus*; the Memorandum of Understanding Concerning Conservation Measures for the Slender-billed Curlew, *Numenius tenuirostris*; the Memorandum of Understanding Concerning Conservation Measures for Marine Turtles of the Atlantic Coast of Africa, the Memorandum of Understanding on the Conservation and Management of the Middle-European Population of the Great Bustard, *Otis tarda;* the Memorandum of Understanding Concerning Conservation Measures for Marine Turtles of the Indian Ocean and South-East Asia; and the Memorandum of Understanding Concerning Conservation and Restoration of the Bukhara Deer (*Cervus elaphus bactrianus*). Convention on the Conservation of Migratory Species of Wild Animals, *Agreement Summary Sheets,* <http://www.wcmc.org.uk/cms/pdf/en/summary_sheets/AmgtSumSheet_engl.pdf>, site visited on May 9, 2003.

[551] ACCOBAMS, *supra* note 1, at art. I(4).

[552] *Phocoena phocoena* (Black Sea populations); *Tursiops truncatus* (western Mediterranean and Black Sea populations); *Stenella coeruleoalba* (western Mediterranean populations) and *Delphinus delphis* (western Mediterranean and Black Sea populations), CMS, *supra* note 4, at App. II (last amended in 2002).

[553] ACCOBAMS, *supra* note 1, at art. 1(2). Annex I to the treaty contains an "indicative list" of cetaceans to which the Agreement applies.

[554] ACCOBAMS, *supra* note 1, at art. I(1) (a).

integration organization, at least one member of which is a Range State . . ."[555] Reflecting the desire of the parties to seek the cooperation of both riparian states and other nations whose activities may impact cetaceans in the region, the term "Range State" is defined broadly as "any State that exercises sovereignty and/or jurisdiction over any part of the range of a cetacean population covered by this Agreement, or a State, flag vessels of which are engaged in activities in the Agreement Area which may affect the conservation of cetaceans."[556]

3.2.2 Objectives/Commitments

"Recognizing that cetaceans are an integral part of the marine ecosystem which must be conserved for the benefit of present and future generations,"[557] the Parties to ACCOBAMS commit themselves to take coordinated measures "to achieve and maintain a favourable conservation status for cetaceans."[558] While the term "favourable conservation status" is not defined under the treaty, presumably the Parties will rely, at least in the early stages of the treaty's operation, on the definition of this term provided for in the CMS. Article I(1)(c) of the CMS provides that a species' "conservation status" is to be taken as "favourable" where (1) "population dynamics data indicate that the migratory species is maintaining itself on a long-term basis as a viable component of its ecosystem;" (2) the range of the species is neither being nor likely to be reduced;

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[555] *Id.* at art. XIII(1). "Regional economic integration organization" "means an organization constituted by sovereign States which has competence in respect of the negotiation, conclusion and application of international agreements in matters covered by this Agreement." *Id.* at I(3)(h). At this time, the only candidate for membership under art. XIII(1) would be the European Union.
[556] *Id.* at 1(3)(g).
[557] *Id.* at Preamble.
[558] *Id.* at art. II(1).

(3) there is and will be sufficient habitat to maintain the population on a long-term basis; (4) the distribution and abundance of the species "approach historic coverage and levels to the extent that potentially suitable ecosystems exist and to the extent consistent with wise wildlife management."[559]

Measures to be taken by the Parties to ensure the favorable conservation status of cetaceans in the Agreement Area include prohibition of the deliberate taking of cetaceans and the establishment of a network of specially protected areas.[560] Additionally, the Parties agree, "to the maximum extent of their economic, technical, and scientific capacities," to implement measures outlined in the treaty's Conservation Plan.[561] The Conservation Plan is denominated an integral part of the treaty.[562] Measures set forth in the Conservation Plan include the following:

3.2.2.1 National Legislation

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[559] CMS, *supra* note 4.

[560] ACCOBAMS, *supra* note 1, at art. II(1). Both the International Convention for the Regulation of Whaling (ICRW), Dec. 2, 1946, 62 Stat. 1716, T.I.A.S. No. 19\849, 161 U.N.T.S. 361, art. VIII, and ACCOBAMS provide, as exceptions to the prohibition against taking cetaceans, for research "aimed at maintaining a favourable conservation status for cetaceans." ACCOBAMS, *supra* note 1, at art. II(2). However, unlike under the ICRW, ACCOBAMS prohibits lethal or non-*in situ* research and requires advanced approval by the treaty's Scientific Committee. *Id.* This may be in recognition of the fact that the ICRW's scientific research provision has been used as a pretext by States, including Japan and Norway, to undercut the moratorium on commercial whaling established by the International Whaling Commission (IWC) in 1982. Japan and Norway kill 800-900 whales annually in the name of research despite the fact that the IWC's Scientific Committee consistently concludes that this research does not substantially contribute to the rational scientific management of whale stocks or meet research needs deemed critical by the Committee. IWC, *Resolution on Southern Hemisphere Minke Whales and Special Permit Whaling*, Resolution 2003-3 (2003); IWC, *Resolution on Commercial Whaling,* IWC/53/26 (2001); *Resolution on Expansion of JARPNII Whaling in North Pacific,* IWC/53/39 (2001). *See also* William C.G. Burns & Geoffrey Wandesforde-Smith, *The International Whaling Commission and the Future of Cetaceans in a Changing World,* 11(2) REV. EUR. COMM. & INT'L ENVTL. L. 199, 202-203 (2002).

[561] ACCOBAMS, *supra* note 1, at Annex 2.

[562] *Id.* at para. 1(5).

The Parties pledge to adopt the necessary legislation to accord cetaceans "full protection" in "waters under their sovereignty and/or jurisdiction and outside these waters in respect of any vessel under their flag or registered within their territory engaged in activities which may affect the conservation of cetaceans."[563] More specifically the Parties agree to take measures to reduce the incidental catch of cetaceans, including prohibiting the use of drift nets of more than 2.5 kilometers in length in the Agreement Area, preventing fishing gear from being discarded or left adrift at sea, and mandating the use of devices on fishing gear that ensure the immediate release of ensnared cetaceans. Additionally, the Parties are required to conduct impact assessments to determine the impact of current or future activities on cetaceans by the fishing industry, the tourism sector, including cetacean-watching operations, and offshore exploitation of resources.[564] The Parties also pledge to use other relevant instruments to

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[563] *Id.* at para. 1.

[564] *Id.* at para. 1(a)-(c). To inform these efforts, the treaty includes a provision for collection and analysis of data on human-cetacean interaction through cooperation between the Parties and international organizations. *Id.* at 2. The establishment of environmental impact assessment mechanisms is concordant with Principle 17 of the Rio Declaration that grew out of the United Nations Conference on Environment and Development in 1992. Principle 17 provides:

> Environmental impact assessment, as a national instrument, shall be undertaken for proposed activities that are likely to have a significant adverse impact on the environment and are subject to a decision of a competent national authority.

UNEP, Principle 17, Rio Declaration on Environment and Development, <http://www.unep.org/Documents/Default.asp?DocumentID=78&ArticleID=1163>, site visited on Jan. 9, 2003. Environmental impact assessments have been incorporated into several other international instruments in recent years, including the Convention on Environmental Impact Assessment in a Transboundary Context (1991), <http://www.unece.org/env/eia/eia.htm>, site visited on May 9, 2003; the Madrid Protocol on Environmental Protection to the Antarctic Treaty, Oct. 4, 1991, Art. 8 & Annex I, 30 ILM 1461 (1991), at art. 3(2)(c), and the Convention on Biological Diversity, Convention on Biological Diversity of the United Nations Conference on the Environment and Development, *opened for signature* June 5, 1992, U.N. Doc. DPI/1307, *reprinted in* 31 I.L.M. 818, at art. 14.

regulate the discharge of pollutants that have an adverse effect on cetaceans.[565] Finally, Parties pledge to seek to strengthen or create national institutions to further implementation of the Treaty.[566]

3.2.2.2 Human-Cetacean Interaction Assessment and Management

In collaboration with other relevant international organizations, the Parties agree to collect and analyze data on direct and indirect interactions between humans and cetaceans in the context of fishing, industrial and tourism activities, as well as the impacts of land-based and maritime pollution. The Parties are also to take appropriate remedial measures and develop guidelines and/or codes of conduct to regulate and manage such activities.[567]

3.2.2.3 Habitat Protection

ACCOBAMS calls upon the Parties to establish and manage specially protected areas that correspond to critical cetacean habitat and feeding regions within the Agreement Area.[568] The Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean of the Barcelona Convention for the Protection of the Mediterranean Sea Against Pollution,[569] is cited as the most apposite framework for establishing specially protected areas.

The Protocol requires the Parties to establish specially protected areas in marine and coastal zones to safeguard, *inter alia,* "habitats critical to the survival,

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[565] *Id.* at para. 1(d).
[566] *Id.* at para. 1(e).
[567] *Id.* at para. 2.
[568] *Id.* at 3.
[569] *See supra* note 531. The Protocol was adopted in June 1995, and is slated to replace the Protocol concerning Mediterranean Specially Protected Areas of 1982, in accordance with Article 32 of that agreement. The Protocol has not yet entered into force.

reproduction and recovery of endangered, threatened or endemic species of flora or fauna."[570] The Protocol's list of "endangered or threatened species" encompasses all cetacean species listed in ACCOBAMS in the Mediterranean region.[571] The Protocol calls upon the Parties to prohibit activities that adversely affect endangered or threatened species and to prohibit the destruction of critical habitat of such species. It also establishes a framework for cooperative scientific and technical research, including monitoring, to effectuate the Protocol's objectives. This research is to be coordinated through a Regional Activity Centre for Specially Protected Areas.[572]

3.2.2.4 Research and Monitoring

Despite more than a century of research, our understanding of the critical parameters for assessing the health of the stocks of cetaceans, including abundance, recruitment rates, age distribution, pregnancy rates, sex ratios in breeding populations and interaction with fisheries, remains woefully inadequate.[573] Moreover, our knowledge of the dynamics of small cetaceans, which are the predominant species found in the ACCOBAMS Agreement Area, is

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[570] *Id.* at art. 4(c).
[571] *Id.* at Annex II.
[572] *Id.* at art. 20(3).
[573] Andrew J. Read, *Incidental Catches of Small Cetaceans, in* Simmonds & Hutchinson, *supra* note 153, at 124; ANIMAL WELFARE INSTITUTE, DEBUNKING THE RMP 14-18 (1994); K. RADWAY ALLEN, CONSERVATION & MANAGEMENT OF WHALES 70-71 (1980).

even more rudimentary.[574] For most small cetacean species, there is virtually no basic data or estimates of important biological parameters.[575]

Recognizing the egregious gaps in knowledge that exist vis-à-vis cetaceans in the region,[576] ACCOBAMS calls for a coordinated research and monitoring program by the Parties, including efforts to determine cetacean migration routes and feeding areas, feeding requirements of species covered by the Agreement with a view to adapting fishing regulations and techniques, the impact of interactions with humans, and the status and trends of discrete populations.[577]

3.2.2.5 Capacity Building, Collection and Dissemination of Information, Training and Education

Recognizing the differing needs and developmental stages of Range States in the region, the Conservation Plan provides for the Parties to accord priority to capacity building of the necessary expertise to implement the Convention.[578] The Plan contemplates the development of common tools for collection and dissemination of information about cetaceans and organization of training and education programs through the coordinated efforts of the Parties,

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[574] William C. Burns, *The International Whaling Commission and The Regulation of the Consumptive and Non-Consumptive Uses of Small Cetaceans: The Critical Agenda for the 1990s*, 13 WIS. INT'L L.J. 105, 123 (1994).
[575] *Id.; Report of the Scientific Committee, supra* note 40, at 68 (Paucity of data in context of harbor porpoises, "particularly in regard to stock structure, bycatch estimates and dispersal rates").
[576] ACCOBAMS, *supra* note 1, Preamble ("despite past or ongoing scientific research, knowledge of the biology, ecology, and population dynamics of cetaceans is deficient").
[577] *Id.* at Annex II, para. 4.
[578] *Id.*

the Agreement Secretariat, the Co-ordination Units and the Scientific Committee. The primary avenues of cooperation contemplated under the Agreement are: 1. Development of data collection systems for observations, incidental catches, strandings, and epizootic events; 2. Preparation of directories of national authorities, research and rescue centers, scientists and on-government organizations concerned with cetaceans; 3. Preparation of a directory of existing protected or managed areas that could benefit the conservation of cetaceans and marine areas of potential importance for the conservation of cetaceans; 4. Preparation of a directory of national and international cetacean legislation; 5. Preparation of information materials, including identification guides; 6. Development and implementation of training programs on conservation techniques, particularly in the context of observation, release, transport and first aid techniques, and responses to emergency situations.[579]

3.2.2.6 Emergency Responses

ACCOBAMS calls for the Parties to develop and implement emergency measures when "exceptionally unfavourable or endangering conditions occur."[580] Measures to be taken include the implementation of emergency plans in response to major pollution events, strandings or epizootics, development of capacities for rescue operations for wounded or sick cetaceans, and preparation of a code of conduct for institutions involved in cetacean research.[581]

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[579] *Id.* at para 5.
[580] *Id.* at para. 6.
[581] *Id.* at para. 6.

3.3 Institutions

ACCOBAMS reflects the common pattern of institutional arrangements that characterize most multilateral environmental agreements established over the past few decades, including regularly scheduled meetings of the Parties, subsidiary bodies to assist in implementation, and a Secretariat.[582]

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[582] *See* Robin R. Churchill & Geir Ulfstein, *Autonomous Institutional Arrangements in Multilateral Environmental Agreements: A Little-Noticed Phenomenon in International Law*, 94 AM. J. INT'L L. 623 (2000).

3.3.1 Meeting of the Parties

The Meeting of the Parties is designated within the Agreement as its decision-making body.[583] After an initial meeting one year after the Agreement enters into force,[584] Meetings of the Parties are to occur at intervals of not more than three years unless the Parties decide otherwise.[585] All plenary sessions of the meetings are to be open to the public, unless a two-thirds majority of Parties present and voting decide that a single session must be closed for exceptional reasons.[586]

At these meetings, each Party is accorded one vote and regional economic organizations may exercise a vote in matters within their competence equal to the number of their member States that are Parties to the Agreement.[587] All decisions of the Meeting of the Parties are to be adopted by consensus,[588] subject to exceptions outlined in Article X, described below. However, if consensus cannot be achieved with respect to matters covered by annexes to the Agreement, a decision may be adopted by a two-thirds majority of the Parties present and voting. Any Party may notify the Depositary of its intention not to apply the decision within 150 days of said vote.[589] While the treaty does not so

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[583] ACCOBAMS, *supra* note 1, at art. III(1).
[584] The first Meeting of the Parties took place in Monaco in February 2002.
[585] ACCOBAMS, *supra* note 1, at art. III(2). An extraordinary session of the Meeting of the Parties is to be convened by the Secretariat upon the written request of at least two-thirds of the Parties. *Id.* at art. III(3).
[586] 1MOP, *Rules of Procedure for the Meetings of the Contracting Parties to the Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Continguous Atlantic Area,* art. 23.
[587] *Id.* at art. III(5).
[588] *Id.* at art. III(6).
[589] *Id.*

specify, this opt out provision means that the decisions of the Parties are legally binding on all Parties that do not invoke this opt out provision.

Article X provides for amendments to the Agreement by the Meeting of the Parties. Additional annexes or amendments to the Agreements other than annex amendments are to be adopted by a two-thirds majority of Parties present and voting. Such amendments come into force for those Parties that have accepted them within thirty days after their adoption.[590]

Proposed amendments to an Annex of the Agreement also require adoption by a two-thirds majority of the Parties present and voting at a Meeting of the Parties. These amendments enter into force 150 days after the date of adoption by the Meeting of the Parties.[591] During the 150 day period after the date of adoption of such an amendment, any Party may enter a reservation to the amendment.[592] Such amendments then only enter into force for the reserving party if it subsequently withdraws the reservation.[593]

The Parties agreed to adopt rules of procedure and establish an Agreement Secretariat, regional co-ordination units, a Bureau and a Scientific Committee at the First Meeting of the Parties.[594] At its subsequent ordinary meetings, the Parties will, *inter alia,*: 1. Review scientific assessments of the conservation status of cetacean species in the Agreement Area and that of

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[590] *Id.* at art. X(3). If a Party deposits an instrument of acceptance for an amendment under Article X(3) after the date on thiwch two thirds of the Parties have deposited their instruments acceptance, the amendment comes into force for that party thirty days after depositing the instrument of acceptance. *Id.*
[591] *Id.* at art. X(4).
[592] *Id.* at art. X(5).
[593] *Id.* The amendment then enters into force for the Party withdrawing its reservation 30 days after the date of withdrawal. *Id.*
[594] *See* secs. 3.3.2-3.3.5; sec. 4.2 *infra.*

important habitats; 2. Review the progress made in implementing the Agreement on the basis of the reports of the Parties and the Secretariat; 3. Make non-binding recommendations to the Parties on specific actions to improve the Agreement's effectiveness; 4. Review proposed amendments; 5. Adopt a budget for the next financial period and consider other financial issues; 6. Review arrangements for the Agreement's Secretariat, Co-ordination units and the Scientific Committee.[595]

Each Party will be required to prepare a report for each session of the Meeting of the Parties on its implementation of the Agreement, with an emphasis on the conservation measures taken and scientific research and monitoring activities.[596]

The Agreement also contains a provision for according observer status at the Meeting of the Parties sessions to representatives from the following sectors:

1. The United Nations and its Specialized Agencies;
2. The International Atomic Energy Agency;
3. Any State not a Party to the Agreement;
4. Secretariats of other global and regional conventions or agreements concerned *inter alia* with the conservation of cetaceans;
5. Regional or subregional fisheries management organizations with competence for species found temporarily or permanently resident in the Agreement;
6. Any other agency or body technically qualified in the conservation of cetaceans, unless at least one third of the Parties present object.[597] This includes, international agencies or bodies, international non-governmental agencies or bodies, and national

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[595] *Id.* at art. III(8).
[596] ACCOBAMS, *supra* note 1, at art. VIII(b).
[597] *Id.* at art. III(8).

non-governmental agencies or bodies approved for this purpose by the States in which they are located.[598]

Observers are not accorded voting rights;[599] however, they may speak during plenary sessions of the Meeting of the Parties.[600]

3.3.2 Secretariat

The Agreement Secretariat's primary functions are to oversee arrangements for sessions of the Parties; to facilitate cooperation between the Parties, non-Party States, and relevant national and international bodies; to execute decisions addressed to it by the Meeting of the Parties; to administer the Agreement's budget; and to provide the public with information about the treaty.[601] The Secretariat, in consultation with the Scientific Committee and the Co-ordination Units,[602] is also charged with preparing guidelines to reduce or eliminate adverse human-cetacean interactions, habitat protection and natural resource management methods germane to cetaceans, and emergency and rescue methods.[603]

3.3.3 Co-ordination Units

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[598] 1MOP, *Rules of Procedure for the Meetings of the Contracting Parties to the Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Continguous Atlantic Area,* art. 5(2).
[599] ACCOBAMS, *supra* note 1, at art.
[600] *Rules of Procedure for the Meetings of the Contracting Parties to the Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Continguous Atlantic Area,supra* note 598, at art. 11(2). Observers may also be invited to participate in sessions of Committees and Working Groups if invited by Chairpersons of these bodies. *Id.* at art. 24.
[601] *Id.* at art. IV.
[602] *See* sec. 3.3.3, *infra.*
[603] ACCOBAMS, *supra* note 1, at art. IV(3).

Sub-regional Co-ordination Units are to be established in the Mediterranean Sea and contiguous Atlantic areas and the Black Sea to collect and evaluate relevant information, to facilitate implementation of the treaty's provisions, including commitments set out in the Agreement's Conservation Plan in Annex 2, and to report on the status and trends of populations in the respective sub-regions.[604] The Units will also service meetings of the Scientific Committee and prepare a report for communication to the Meeting of the Parties.[605]

In consultation with the Scientific Committee and the Agreement Secretariat,[606] the Secretariat is also charged with regularly updating reports on the status and trends of cetacean populations in the region, a subregional directory of areas important for cetaceans, and a subregional directory of national authorities, research and rescue centres, scientists and non-government organizations concerned with cetaceans.[607]

3.3.4 Bureau

The Bureau, which will consist of the Chairperson and Vice-Chairpersons of the Meetings of the Parties, will provide general policy, operational and financial guidance to each Co-ordination unit concerning implementation and promotion of the Agreement. It will also represent the Parties in other forums.[608]

3.3.5 Scientific Committee

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[604] *Id.* at art. V(1).
[605] *Id.*
[606] *See* sec. 3.3.2, *supra.*
[607] *Id.* at art. IV(3).
[608] *Id.* at art. VI.

The Scientific Committee of ACCOBAMS is comprised of experts in the field of cetacean conservation science and serves as an advisory body to the Meeting of the Parties.[609] The Scientific Committee's responsibilities include: 1. Providing advice to the Meeting of the Parties on scientific and technical issues germane to implementation of the Agreement, as well as to individual Parties through the subregional Co-ordination Units; 2. Providing advice on the formulation of guidelines for protecting cetaceans and habitats under Article IV(3); 3. Conducting assessments of reviews prepared under the Agreement's Conservation Plan and formulating recommendations to the Meeting of the Parties relating to their development, contents and implementation; 4. Conducting scientific assessments of the conservation status of cetacean populations in the region; 5. Providing advice for the development and co-ordination of international research and monitoring programs; 6. Facilitating exchange of scientific information and conservation techniques.[610]

3.4 Financial Arrangements

The scale of contributions to the budget by each Party, as well as budgetary decisions, were to be established by the Meeting of the Parties at its first session.[611] The Meeting of the Parties is also authorized to establish a supplementary conservation fund derived from voluntary contributions of the

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[609] *Id.* at art. VII(1).
[610] *Id.* at art. VII(3).
[611] *Id.* at art. IX(1) (2).

Parties or other sources.[612] The Parties are also encouraged to provide bilateral or multilateral technical and financial support to assist Range states that are developing countries or economies in transition in the implementation of the Agreement.[613]

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[612] *Id.* at art. IX(3).
[613] *Id.* at art. IX(4).

Chapter 4

The First Meeting of the Parties

4.1 Overview

The First Meeting of the Parties to ACCOBAMS (1MOP) was held from February 28-March 2, 2002 in Monaco. Parties to the Agreement in attendance were: Albania, Bulgaria, Croatia, Spain, Georgia, Malta, Morocco, Monaco and Romania.[614] Tunisia was also granted the status of a full participating party with voting rights in recognition of the fact that it had embarked on the process to become a party.[615] Representatives from several riparian States within the Agreement's area also participated in the meeting as observers: Bosnia-Herzegovina, Egypt, France, the United Kingdom, Greece, Libya, Lebanon, Portugal, Turkey and Ukraine, as well as one regional economic integration organization, the European Commission.[616] Also present as observers were representatives from several United Nations Organizations and Secretariats, intergovernmental organizations, NGOs, and scientific institutions and bodies.[617]

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[614] 1MOP, *supra* note 61, at 4.
[615] Resolution 1.1, *Accepting Candidate Parties for the Right to Vote at the First Session of the Meeting of the Parties to the Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Area. Id.* at 19.
[616] *Id.*
[617] UNEP, the Mediterranean Action Plan (MAP/UNEP); the Convention on the Conservation of Migratory Species of Wild Animals; the Regional Activity Centre for Specially Protected Areas; the Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas; the International Whaling Commission; the Commission internationale pour l'exploration scientifique de la Méditerranée; the Bern Convention/Council of Europe, NATO SACLANT CEN; the International Union for the Conservation of Nature; the American Society of International Law – Wildlife Interest Group, the Association de sauvegarde des mammifères marins,; Blue World; the European Cetacean Society; the Group de recherché sur les cétacés; Greenpeace; the Mediterranean Protected Areas Network; SOS Grand Bleu; the Swiss Cetacean Society; MAREVIVO; the Tethys Research Institute, the Whale and Dolphin Conservation Society; the World Wildlife Fund; the Instituto Centrale per la Ricerca Scientifica e Technologica Applicata al Mare; the Oceanographical Museum of Monaco, BLUWEST and Whalecraft. Proceedings, 1MOP, *supra* note 61, at 4.

Several of the observing States made statements as to the prospects for becoming Parties to the ACCOBAMS in the future. The delegates from France and Portugal indicated that ratification procedures were underway and should be completed by the end of the year.[618] Greece's delegate indicated that his nation was "interested in the Agreement, but would not guess as to when it might be ratified."[619] The United Kingdom indicated that it was assessing whether it can ratify the Agreement solely on behalf of Gibraltar, a dependent territory within the Agreement Area, or whether the metropolitan United Kingdom must ratify the Agreement initially. If the latter turns out to be the case, the delegate indicated that the implications for the United Kingdom's shipping interests must be assessed.[620] Lebanon's delegate indicated that discussion was ongoing.[621] Egypt stated that it was in the process of joining the Agreement and that it would ultimately be sent to Parliament.[622] The delegate from Turkey indicated that "ongoing deliberations" were occurring; however, he would not speculate on when the Agreement might be ratified.[623] Ukraine's delegate indicated that the Agreement has been translated and a regulation had been passed in Parliament to prepare the necessary documents to join.[624] The European Commission

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[618] Personal notes of the author, ACCOBAMS 1MOP. France became a Party to the treaty on January 6, 2004, and Portugal on January 1, 2005.
[619] *Id.*
[620] *Id.*
[621] *Id.*
[622] *Id.*
[623] *Id.*
[624] *Id.* Ukraine subsequently became a Party on January 1, 2004.

delegate indicated that there was no plan for the EC to join the Agreement at this point.[625]

[625] *Id.*

4.2 Organizational/Procedural Matters

Under Article III(7)(b) of ACCOBAMS, the following tasks were to be completed at the First Meeting of the Parties: 1. Establishment of an Agreement Secretariat to perform functions outlined in Article IV of the Agreement; 2. Designation of Co-ordination units within an existing institution in each of the Agreement's subregions to facilitate implementation of the measures prescribed in Annex II of the Agreement; 3. Election of a Bureau, as provided for under Article VI; 4. Establishment of a Scientific Committee as provided for in Article VII; and 5. A decision on the format and content of Party reports on the implementation of the Agreement, as provided for in Article VIII.

4.2.1 Establishment of the Permanent Secretariat

The Parties accepted the offer of the Government of the Principality of Monaco to host the Permanent Secretariat and provided it with a budget.[626] The Secretariat is to consist of an Executive Secretary and part-time Secretary, provided by the host country, which will be responsible for staff expenses.[627] The Executive Secretary will be responsible for reporting on Agreement implementation to the competent bodies of the CMS and maintaining regular

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[626] *Id.*, Resolution 1.2, *Establishment of the Permanent Secretariat for the Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area. Id.* at 20.

[627] *Id.*, Resolution 1.2, Annex I, *Terms of Reference for Arrangements Concerning the Secretariat, Id.* at 21.

communications with the CMS Secretariat and CMS Agreements Secretariats Unit.[628]

[628] *Id.*

4.2.2 Establishment of the Scientific Committee

The parties at 1MOP established a 12-member Scientific Committee comprised of:

- One qualified expert representing each of the four geographical regions designated by the parties (Western Mediterranean and Contiguous Atlantic Area; Central Mediterranean; Eastern Mediterranean; Black Sea);[629]
- Five qualified experts in cetacean conservation appointed by the General Secretariat of the International Commission for the Scientific Exploration of the Mediterranean Sea (CIESM);
- One representative each from the World Conservation Union, the European Cetacean Society and the Scientific Committee of the International Whaling Commission.[630]

The Agreement's Sub-Regional Co-ordination Units[631] were also instructed by the Parties to fully participate in the work and meetings of the Scientific

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[629] The Parties and regional economic integration organizations (the European Community) are partitioned into the 4 respective regions as follows. A parenthesis indicates that the State or regional economic organization can opt for designation in one of a number of different regions.

Regions	Riparian States and Regional Economic Integration Organizations
Western Mediterranean and Contiguous Atlantic Area	Algeria, (European Community), France, (Italy), Monaco, Morocco, Portugal, Spain, (Tunisia), United Kingdom
Central Mediterranean	Albania, Bosnia Herzegovina, Croatia, (European Community), (Greece), (Italy), Libya, Malta, Slovenia, (Tunisia), Federal Yugoslav Republic
Eastern Mediterranean	Cyprus, Egypt, (European Community), (Greece), Israel, Lebanon, Syria, (Turkey)
Black Sea	Bulgaria, Georgia, Romania, Russian Federation, (Turkey), Ukraine

Table:
1MOP, *supra* note 61, Resolution 1.2, Annex I, *Division of the Geographical Scope of the Agreement into Four Regions and Regional Representations. Id.* at 24.

[630] *Id.*, Resolution 1.3, *Establishment of the ACCOBAMS Scientific Committee. Id.* at 22. ASCOBANS was also asked to participate in the work of the Committee. *Id. Report of the First Session of the Meeting of the Parties, Part I,* at 8.

[631] *See* sec. 3.3.3, *supra.*

Committee.[632] Additionally, the Chair of the Scientific Committee, in consultation with the Executive Secretary, is authorized to complement the representatives at the meetings of the Committee with representative specialists in environmental law, fisheries and socio-economics, designated as "special guests."[633]

4.2.3 Establishment of the Sub-Regional Co-ordination Units

Pursuant to Article III(7)(c), the Parties established sub-regional co-ordination units (RCUs) for the Mediterranean Sea and Contiguous Atlantic Area and the Black Sea. The Mediterranean/Contiguous Atlantic Area RCU was established within the framework of the Barcelona Convention's Regional Activities Center for Specially Protected Areas (SPA/RAC) and funding was provided through the ACCOBAMS budget. The Secretariat was also urged to sign a Memorandum of Cooperation with SPA/RAC.[634] The Memorandum outlines the roles and functions of the RCU as follows:

- Facilitating the implementation in the sub-region of the Conservation Plan of ACCOBAMS in accordance with the guidance of the Meeting of the Parties to the Agreement;
- Collecting and assessing the information that will help facilitate implementation of ACCOBAMS and an appropriate broadcasting of this information;
- Providing administrative and technical support for the meetings of the Scientific Committee and preparing a report for the meeting of the Contracting Parties of the ACCOBAMS through the Secretariat of the Agreement on the implementation of the activities carried out within the ACCOBAMS framework in the area covered by the Med/RCU;

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[632] 1MOP, *supra* note 61, Resolution 1.3, at 22.
[633] *Id.*
[634] *Id.*, Resolution 1.4, *Establishing the Sub Regional Co-Ordination Unit for the Mediterranean Sea and Contiguous Atlantic Area. Id.* at 25.

- Managing the Mediterranean Database of Cetacean Strandings (MEDACES) for the sub-region in conjunction with the ACCOBAMS Scientific Committee.[635]

The Mediterranean contiguous Atlantic Area RCU will also serve as a link to other components of the Mediterranean Action Plan to ensure synergies of the activities of the respective bodies, especially the Barcelona Convention's authority to establish Specially Protected Areas.[636] Additionally, the Memorandum calls for the RCU to consult with the Scientific Committee and Secretariat of ACCOBAMS to prepare regular reviews of the status and trends of cetacean populations in the region.[637]

The parties also created a sub-regional unit for the Black Sea in the Black Sea Commission and provided financial support in the Agreement's budget.[638] As outlined in the Memorandum, the responsibilities of the RCU will be as follows:

- Facilitating and promoting the implementation of the Conservation Plan of ACCOBAMS, taking in consideration the guidance of the Meeting of the Parties to the Agreement;
- Collecting and assessing the information which will allow the aims of implementing the ACCOBAMS to be better reached, and an appropriate broadcasting of this information;
- Providing administrative and technical support at the ACCOBAMS Black Sea sub region level for the meetings of the Scientific Committee and preparing a report for the meeting of the Contracting Parties of the

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[635] ACCOBAMS, First Meeting of the Parties, *Draft Memorandum of Cooperation between the Secretariat of the Agreement on Conservation of Cetaceans of the Black Sea, the Mediterranean Sea and the Contiguous Atlantic Area (ACCOBAMS), and the Regional Activity Centre for Specially Protected Areas (RAC/SPA) of the Mediterranean Action Plan Concerning the Sub-Regional Co-ordination Unit for the Mediterranean and Contiguous Atlantic Area,* MOP/1/inf. 4 (2002).
[636] *Id.*
[637] *Id.*
[638] *Id.*, Resolution 1.5, *Establishment of the Sub Regional Co-Ordination Unit for the Black Sea. Id.* at 26.

ACCOBAMS through the Permanent Secretariat of the Agreement on the implementation of the activities carried out within the ACCOBAMS framework in the area covered by the BS/RCU.[639]

Tracking the language in the Mediterranean Memorandum, the Black Sea RCU is also tasked with seeking synergies with the Strategic Action Plan for the Rehabilitation and Protection of the Black Sea and to assist in the preparation of reports on population trends and other pertinent information.[640] In apparent acknowledgement of the serious resource constraints in the region, the ACCOBAMS Secretariat is charged with the responsibility to seek financial resources to meet the priorities for the region, facilitate sub-regional NGO participation, stress the need for regional capacity building and to foster exchanges with the Mediterranean and Atlantic contiguous zone.[641]

4.2.4 Other Procedural Matters

The Parties also adopted Rules of Procedure for the Meetings of the Parties,[642] and the Agreement's Bureau.[643]

4.3 Financial Matters

The Parties adopted a budget for 2002-2004 and established the scale of contributions for the parties to the Agreement.[644] Non-party states, as well as

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[639] ACCOBAMS, First Meeting of the Parties, *Draft Memorandum of Cooperation between the Secretariat of the Agreement on Conservation of Cetaceans of the Black Sea, the Mediterranean Sea and the Contiguous Atlantic Area (ACCOBAMS) and the Permanent Secretariat of the Commission for the Protection of the Black Sea Against Pollution Concerning the Sub-Region Coordinating Unit for the Black Sea,* MOP1/inf.5 (2002).
[640] *Id.*
[641] *Id.*
[642] 1MOP, *supra* note 61, Annex II, at 80-9.
[643] *Id.*, Annex III, at 92.
[644] *Id.*, Resolution 1.6, *Financial and Administrative Matters;* Annexes I & II. *Id.* at 27-32.

governmental, intergovernmental and non-governmental organizations were also invited to consider voluntary contributions to the Agreement.[645]

The Parties established the terms of reference for the Agreement's Trust Fund, which is comprised of contributions from current Parties or those that join during the first budgetary period, which ended on December 31, 2004,[646] and other voluntary contributions from Parties, non-Parties, and other governmental, intergovernmental and non-governmental organizations and other sources.[647]

Acknowledging that implementation of the Agreement in some member States might be severely constrained by a lack of adequate financial resources, the Parties also established a Supplementary Conservation Grants Fund "to facilitate the implementation of the Agreement and the international priorities adopted by the Parties."[648] The Parties and prospective donors were urged to make voluntary contributions to the Fund.[649]

4.3.1 ACCOBAMS Budget: 2002-2004

In addition to funding of administrative functions,[650] which will be largely covered by the host government, the three-year budget adopted at 1MOP provides funding for a wide array of conservation initiatives,[651] including the following:

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[645] *Id.*, Resolution 1.6, *supra* note 644, at 27.
[646] *Id.*, Resolution 1.6, Annex 3, *Terms of Reference for the Administration of the Trust Fund for the Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area. Id.* at 33.
[647] *Id.*
[648] *Id.*, Resolution 1.7, Establishment *of a Supplementary Conservation Grants Fund. Id.* at 36.
[649] *Id.*
[650] *Id.*, Resolution 1.6, *Financial and Administrative Matters,* Annex I, Budget 2002-2004, at 28-29.
[651] *Id.* at 30-31.

1. Harmonization of whale watching regulations: €4000 per annum
2. Assessment and management of human-cetacean interactions:
    a. Competitive interaction between coastal dolphins and artisanal fisheries: €4,000 (2002); €10,000 (2003), €10,000 (2004)
        i. Voluntary contributions: €4,000 (2002); €10,000 (2003), €10,000 (2004)
    b. Establishment of a cetacean bycatch database: €4,000 per annum (2002-2004);
3. Habitat protection:
    a. Development and implementation of pilot conservation and management actions in critical habitats for populations belonging to priority species: €10,000 (2002); €15,000 (2003); €15,000 (2004)
    b. Workshop on methods for evaluation of habitat degradation and impacts on cetacean populations: €50,000 (2003);
4. Research and Monitoring:
    a. Conservation plan for cetaceans in the Black Sea (application for Global Environment Facility funding (GEF[652]), pending);[653]

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[652] Instrument for the Establishment of the Restructured Global Environment Facility, *adopted* June 18, 1994, *reprinted* in 33 I.L.M. 1278 (1994). The GEF was established as a pilot program under the rubric of the United Nations Development Program (UNDP), the World Bank, and the United Nations Environment Program (UNEP) in 1994. The scope of its original mandate was to provide funding on a concessional basis to developing States to assist them in implementation of environmental protection program in four categories: 1) protection of the ozone layer; 2) limitation of greenhouse gas emissions; 3) protection of biodiversity; and 4) protection of international waters. *Id.* at 1285. The fund was replenished in 1998, with 36 States pledging $2.75 billion. Global Environment Facility, *What Is the Global Environment Facility?*, <http://gefweb.org/What_is_the_GEF/what_is_the_gef.html>, site visited on July 15, 2002. In August, 2002, 32 States agreed to the largest replenishment yet, pledging $2.92 billion over four years for financing existing focal areas – biodiversity; climate change; international waters; and replacing ozone depleting chemicals, and additional support for its new mandates with regard to persistent organic pollutants (POPs) and desertification. Global Environment Facility, *Donor Countries Agree to the Highest Replenishment Ever for Global Environment Facility (GEF),* Aug. 7, 2002, <http://gefweb.org/Outreach/Media/Press_Releases/2002%20GEF%20Replenishment%20Aug07 2002.pdf>, site visited on Aug. 9, 2002. The GEF is now the largest multilateral source of aid for protection of the global environment. Andrea K. Gerlak, *One Basin at a Time: The Global Environmental Facility and Governance of Transboundary Waters,* 4(4) GLOBAL ENVTL. POL. 108, 108 (2004).

[653] The project proposal includes provisions for monitoring, conservation and management of Black Sea cetacean populations and will be submitted to the GEF Council jointly by the ACCOBAMS Secretariat and the Black Sea Commission. The proposed program will last for four years and cost approximately $2 million, $1 million of which would be funded by GEF. *Minutes of the 9th Ministerial Meeting of the Black Sea Commission, supra* note 424, at 23. *See also* Alexei Birkun, et al., *Towards a Conservation Plan for the Black Sea,* Second Meeting of the Scientific Committee of ACCOBAMS, *supra* note 45, at Annex XII. However, the proposal had not yet been submitted to GEF. Personal correspondence with the ACCOBAMS Executive Secretary, Marie-Christine van Klaveren, Jan. 18, 2004.

b. Conservation plan for short-beaked common dolphin in Mediterranean Sea: €4,000 (2002); €4,000 (2003); €4,000 (2004)
c. Conservation plan for common bottlenose dolphin in Mediterranean Sea: €4,000 (2002); €4,000 (2003); € 4,000 (2004);
d. Basin-wide Mediterranean sperm whale survey: €8,000

5. Capacity building, Training and Education:
   a. Establishment and implementation of a long-term training program on cetacean research, monitoring and conservation/management techniques and procedures: €5,000 per annum (2002-2004);
      i. Voluntary contributions: €15,000 per anum (2002-2004)
   b. Educational tools for organization of research projects and basic technical studies: €6,000 (2002); €10,000 (2003); €10,000 (2004)
      i. Voluntary contributions: €6,000 (2002); €5,000 (2003); €5,000 (2004)
   c. Information missions in countries: €6,000 (2002); €7,000 (2003); €3,500 (2004)
6. Collection and Dissemination of Information:
   a. Regional directory of national authorities, research and salvage centers, scientists and governmental and non-governmental organizations concerned with the Agreement's objectives: €2,000 (2003)
   b. Stranding network: €4,000 per annum (2002-2004);
   c. Development of a network of specialized bibliographic collections and databases: €5,000 (2002); €2,000 (2003); €2,000 (2004)
   d. Establishment of a centralized tissue bank: €4,000 (2002)

TOTAL – Trust Fund: €76,000 (2002); € 79,000 (2003); €72,500 (2004)
TOTAL - Voluntary : €70,000 (2002); €130,000 (2003), €80,000 (2004)

4.4 Establishment of a Triennial National Report Format

Similar to other regimes that have recognized the value of uniform reporting formats,[654] the Parties pursuant to Article VIII of ACCOBAMS established national reporting formats for riparian Parties in the Agreement Area for their initial reports and reports beginning from the second meeting of the Parties. Report formats for non-riparian Parties were also established.[655] The Parties were called upon to prepare national reports and submit them at the Second Meeting of the Parties in accordance with the timetable outlined in Article VIII(b) of ACCOBAMS. The Second Meeting of the Parties will also review the national reporting formats and recommend any necessary changes.[656]

4.4.1 Elements of Reporting Forms

Riparian Parties of the Agreement Area are required to provide the following substantive information in their first reports to the Secretariat:

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[654] For example, in 2000 the Parties to the Convention on Biological Diversity, *supra* note 564, established a recommended format for national reports. 5th Conference of the Parties to the Convention on Biological Diversity, Decision V/19, *National Reporting* (2000), <http://www.biodiv.org/decisions/default.asp?lg=0&dec=V/19>, site visited on May 29, 2003. As Herkenrath suggests, the Parties' were most likely motivated by the lack of uniformity of national reports to date, making it difficult to compare information from such reports, as well as the failure of many Parties to report on critical aspects of implementation, including the development of National Biodiversity Strategies and Action Plans. Peter Herkenrath, *The Implementation of the Convention on Biological Diversity – A Non-Government Perspective Ten Years On,* 11(1) REV. EUR. COMMUNITY & INT'L ENVTL. L. 29, 31 (2002). The United Nations Environment Program's Environmental Management Group has also established an Issue Management Group to help facilitate reporting harmonization for biodiversity-related treaties. United Nations, Twenty-Second Session of the Governing Council/Global Ministerial Environmental Forum, UNEP/GC.22/INF/14 (2002), at 11, <http://www.unep.org/GoverningBodies/GC22/Document/k0263224.pdf>, site visited on Jan. 17, 2004.

[655] *Id.*, Resolution 1.8, *Establishment of a Triennial National Report Format for the Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area. Id.* at 37.

[656] *Id.*

1. A list of national authorities, organizations, research centers, and rescue centers active in the field of study and conservation of cetaceans;
2. Primary national legislative and regulatory texts pertinent to cetaceans;
3. Bilateral or multilateral fishing agreements in the Agreement Area of ACCOBAMS to which the reporting Party is a member;
4. Membership in any of the following "Relevant Conventions and Agreements":
    a. Convention on Biological Diversity;
    b. Convention on the Conservation of Migratory Species of Wild Animals;
    c. Convention on the Conservation of European Wildlife and Natural Habitats;
    d. United Nations Convention on the Law of the Sea;
    e. Protocol concerning Special Protected Areas and Biological Diversity in the Mediterranean;
    f. Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas;
    g. Convention on International Trade in Endangered Species of Wild Fauna and Flora;
    h. International Convention for the Regulation of Whaling (ICRW);
    i. Agreement on Straddling Fish Stocks and Highly Migratory Fish Stocks
    j. General Fisheries Commission for the Mediterranean;
    k. La Commission Internationale pour l'Exploration Scientifique de la Méditerranée
5. Networks established by the reporting Party for monitoring cetacean strandings;
6. Plans for emergencies associated with cetaceans, including conditions for activation and reporting systems;
7. A list of cetaceans reported in the area under the jurisdiction of the reporting Party included in the distribution area, as defined under Article I(3)(f) of ACCOBAMS, and the frequency in which these species were sighted during the reporting period;
8. Information on the national fishing fleet active in the Agreement Area, including types of fishing conducted by these vessels and the number of units;
9. Scientific assessment of the state of cetacean conservation in the area under national jurisdiction included in the distribution area;
10. Conservation measures introduced to attain and maintain a state of conservation favorable to cetaceans;
11. Research work conducted to improve knowledge of the biology and ecology of cetaceans;
12. Programs of continuous monitoring undertaken by the reporting Party;
13. Measures taken to implement bilateral or multilateral cooperation programs;

14. Specific information linked to the agenda of the session at which the report is submitted.[657]

The Parties also stressed the need for each Party to review the implementation of Resolutions of the Meetings of the Parties within their national reports.[658]

The format for reports for the second Meeting of the Parties is virtually identical, except that the Parties are also required to document the following: 1. "Changes" in several of the measures set out in the first report form, including cetacean strandings networks and emergency plans; 2. Results obtained during the reporting period of scientific assessments of the state of cetacean conservation; 3. Measures introduced during the reporting period to implement the Conservation Plan in the following areas:

- Measures introduced to eliminate deliberate removal;
- Measures introduced to reduce man/cetacean interaction;
- Measures introduced to create and maintain a network of specially protected areas to protect cetacean habitats;
- Measures related to the reduction of pollution;
- Measures introduced to strengthen national capacities, the institutional framework, the collection and dissemination of information, and education;
- Other measures

4. Information on possible disagreements with other Parties; 5. Possible difficulties encountered in implementation of the Agreement; 6. Exceptions permitted to the prohibition on deliberate takes of cetaceans under Article II(2) and Annex 2; 7. Ongoing projects and funding for conservation and research; 8. Meetings, symposia and other events organized during the reporting period or

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[657] *Id.*, Resolution 1.8, Form I, *First Report of Riparian Parties of the Agreement Area.*
[658] *Id.*, Resolution 1.8.

planned for the following years; 9. Specific information pertinent to the agenda of the session at which the report is submitted.[659]

The reporting forms for non-riparian Parties for both the first and subsequent sessions are virtually identical to that required for the Parties.[660]

4.5 International Implementation Priorities: 2002-2006

At 1MOP, the Parties adopted a set of implementation priorities for 2002-2006.[661] The Agreement Secretariat was also instructed to coordinate closely with related Conventions and International Organizations, in particular CIESM and "ACCOBAMS Partners."[662]

The 18 "priority actions" identified by the Parties were generated from a broader list of activities developed during a CIESM Workshop in 2001.[663] Each action includes references to the corresponding paragraphs of the Agreement's

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[659] *Id.*, Resolution 1.8, Form II, *Reports of Riparian Parties of the Agreement Area, Starting from their Second Ordinary Session of the Meeting of the Parties.*
[660] *Id.*, Resolution 1.8, Forms III & IV.
[661] *Id.*, Resolution 1.9, *International Implementation Priorities for 2002-2006.*
[662] "ACCOBAMS Partners" are "Organisations and Institutions technically qualified in Cetacean Conservation [that] play a significant role in the relevant activities of the Agreement" and are designated as such by the Parties. *Id.* at Resolution 1.13, *Awarding of the Status "ACCOBAMS' Partner."* This status was conferred on the following organizations at 1MOP: American Society of International Law – Wildlife Interest Group, European Cetacean Society, Instituto Centrale per la Ricerca Applicata al Mare, National Institute for Marine Research and Development, Oceanographic Museum of Monaco, Pelagos Cetacean Research Institute, Swiss Cetacean Society, Tethys Research Institute, University of Valencia, Whale and Dolphin Conservation Society, BREMA Laboratory. *Id.* ACCOBAMS Partners are invited to participate as observers at ACCOBAMS meetings and as advisors for activities related to implementation of the Agreement. Partners may also be invited "to contribute to the evaluation of project proposals, project implementation, and the evaluation of project results, as well as to participate in the development of policy and technical and/or scientific instruments for the application of the Agreement." *Id.*, Resolution 1.13, Annex I, *Rules for Conferring the Status of 'ACCOBAMS' Partner.*
[663] *Id.*, Resolution 1.9, Annex I, *International Implementation Priorities for 2002-2005.*

Conservation Plan and an indicative budget corresponding for the most part to the budget adopted at 1MOP.[664] Below is a brief summary of each action.

Action #1: Development of criteria and provision of *ad hoc* support for the harmonization of commercial whale watching regulations with science-based knowledge on the protection needs of cetacean populations.

The Parties recognized that it was likely that nations in the region would draft and implement cetacean-watching regulations in the future as these operations further develop. Thus, the Parties called for the development of guidelines to assist countries in drafting such regulations, as well as *ad hoc* scientific support to facilitate the development and implementation of adaptive cetacean-watching management. The Parties also called for the establishment and maintenance of a centralized inventory of commercial cetacean-watching operations in the Agreement Area.[665]

Action #2: Investigation of Competitive Interactions between Coastal Dolphins and Artisanal Fisheries

In 2001, the Italian government's Institute for Applied Marine Research (ICRAM) sponsored a workshop in Rome to assess the problem of conflicts between dolphins and Mediterranean coastal fisheries.[666] The workshop documented substantial incidences of dolphins targeting fishing gear and

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[664] *Id.*
[665] *Id.* at 55. The indicative budget for the project was established at:

- Guidelines and scientific support (2002): €4,000
- Scientific support (2003-2004): €4,000
- Scientific support (2005-2006): €4,000

[666] Instituto Centrale per la Ricerca Applicata al Mare, *supra* note 101.

aquaculture facilities as part of their foraging strategy, and anecdotal reports of retaliation by fishers.[667]

The workshop concluded that one of the primary mechanisms to reduce cetacean interactions with fishing gear, acoustic deterrence devices (often referred to as "pingers), may prove ineffective, and could have negative ramifications for both cetaceans and other marine species. It recommended that additional research be conducted on the nature and extent of interactions between dolphins and small-scale fisheries in the Mediterranean, the costs of such interactions for the fishing sector, the effects of these interactions on dolphin populations and the effectiveness of acoustic devices.[668]

This proposed action by the Parties would seek to implement the recommendations of the workshop, including:

- Development of detailed quantitative information on the characteristics of common bottlenose and short-beaked common dolphin populations in the Mediterranean;
- Obtaining data on the spatial, seasonal and operational features of small-scale coastal trammel and gillnet fisheries in the region;
- Identification of "problem areas" where there are high dolphin densities and high levels of fishing activity;
- Testing of deterrence techniques and technologies in areas of high dolphin predation, including potential side effects of mitigation approaches.[669]

Action #3 Creation of a Cetacean Bycatch Database (first phase)

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[667] *Id.* at 6, 8.
[668] *Id.* at 22-23. *See also* Lauriano, et al., *supra* note 454, at 172 (some fisheries in Mediterranean operate in marine protected areas; thus, deployment of pingers may be inconsistent with objectives of such reserves).
[669] 1MOP, *supra* note 61, Resolution 1.9, Annex I, at 55-6. The indicative budget for this item is as follows:

- 2002-2004: €48,000
- 2005-2006: €60,000

While it is believed that incidental catching of cetaceans in fishing gear is a major source of mortality in the region,[670] the Parties at 1MOP concluded that data remains scarce on bycatch numbers and rates, gear and species involved, and the geographical and seasonal variability of bycatch rates[671] This Action calls for the establishment of mechanisms to "facilitate the incorporation of reporting of cetacean bycatch incidents into fishery management practice throughout the Agreement Member States, and to encourage the use of independent observers aboard vessels to collect unbiased data."[672]

More specifically, the Action calls for the establishment of a bycatch Task Force to coordinate a three-year pilot research program in three experimental areas, ideally one in a northern Mediterranean country, one in a southern Mediterranean country, and one in a Black Sea country. It is contemplated that the research program would be subsequently extended throughout the Agreement region. The Task Force's responsibilities during the pilot phase would include working with fishery management authorities in the selected countries, providing technical support, data quality control, training, awareness building, advice and recommendations, and provision of assistance to create a centralized bycatch database.[673] Cooperation with European Commission initiatives in this context was also encouraged.[674]

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[670] *See supra* notes 210-213, and accompanying text.
[671] 1MOP, *supra* note 61, Resolution 1.9, Annex I, at 56. The Scientific Committee of the IWC has made similar findings in recent years. *See* IWC, *supra* note 229, at 4.
[672] *Id.*
[673] *Id.*
[674] *Id.*

Action #4: Development and Implementation of Pilot Conservation and Management Actions in Well-Defined Key Areas Containing Critical Habitat for Populations Belonging to Priority Species

Despite the recent growth of scientific knowledge and attention to cetacean ecology in the Agreement Area, the Parties concluded that there was growing evidence of population declines for certain species and increasing range fragmentation.[675] The Parties expressed particular concern for short-beaked common dolphins in the Mediterranean, harbour porpoises, common bottlenose dolphins, and sperm whales, citing increasing evidence of "dramatic reductions" in some relic populations of these species and the threat of complete disappearance if effective measures are not promptly taken.[676]

In this Action, the Parties proposed the development of pilot conservation and management projects in four areas containing, respectively, critical habitat for one of the four priority species.[677] Proposed conservation measures include the establishment of *ad hoc* protected areas encompassing critical habitat for target species, the adoption of experimental management plans, intensive monitoring of the targeted cetacean populations, research, regulation of threatening anthropogenic activities, educational programs directed at the local

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[675] *Id.* at 56.
[676] *Id.* at 57.
[677] *Id.* The Parties identified four priority areas: "(a) the coastal waters surrounding the island of Kalamos, western Greece (short-beaked common dolphins); (b) the coastal area of southern Crimea, Ukraine, comprised between Cape Sarych and Cape Khersones (harbour porpoises and Black Sea common bottlenose dolphins); (c) the offshore waters of southern Crete, Greece (sperm whales); and (d) the waters of the Loceinj-Éres Archipelago, Croatia (Mediterranean common bottlenose dolphins)." *Id.*

fishing communities and recreational users and promotion of more compatible alternative activities, such as cetacean-watching.[678]

Action #5: Workshop on Methods for the Evaluation of Habitat Degradation and its Effects on Cetacean Populations

Acknowledging the limited information available on how habitat degradation affects cetaceans, the Parties proposed a workshop to determine and develop a framework and methodology to conduct such assessments. The workshop would review existing information, develop the concept of cetacean critical habitat and quantifiable indices and review and develop modeling approaches to assess the significance of changes in these indices.[679] Ultimately, the Parties hope to develop strategies for monitoring critical habitat quality, thresholds that may affect cetaceans, and assessment of proposals for activities that may affect cetacean habitat.[680]

Action #6: Conservation Plan for Cetaceans in the Black Sea

ACCOBAMS and the Black Sea Commission are preparing a proposal to be funded by the GEF for the development of a comprehensive conservation and management plan for Black Sea cetaceans.[681] Components of the plan would

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[678] *Id.* The indicative budget for this Action is: 2002-2004: €80,000.
[679] *Id.* at 57. The indicative budget for the workshop would be €50,000.
[680] *Id.*
[681] *Id.* at 58. The GEF established a $95 million, six-year partnership with Danube/Black Sea basin States in 2001 to address water-related environmental problems in the region. World Bank, *GEF Strategic Partnership on the Black Sea/Danube River Basin,* <http://lnweb18.worldbank.org/ECA/ECSSD.nsf/48ba649afd5d920485256a0300716536/92f3e72e61b1650185256ae2005f811e?OpenDocument>, site visited on July 2, 2002. Other institutional partners in the program include the European Union, UNEP, the World Bank and the United Nations Development Program. UNEP, *Bleak Story of the Black Sea Highlighted in Global Assessment of World's Waters,* <http://www.unep.org/Documents/Default.asp?DocumentID=219&ArticleID=2937>, site visited on July 2, 2002.

include efforts to fill knowledge gaps in the context of cetacean distribution, abundance, population structure and factors threatening conservation initiatives in the Black Sea region. It is envisioned that the plan will also include management measures, including the establishment of specially protected areas, implementation of regulations to increase the sustainability of human activities and training, education and awareness initiatives.[682]

Action #7: Conservation Plan for Short-Beaked Common Dolphins in the Mediterranean Sea

Acknowledging the "drastic decline" of the abundance of short-beaked common dolphins in the Mediterranean over the last few decades, the Parties proposed a comprehensive assessment of the status and threats faced by the species in the region. The project's focus would be a series of localized surveys, concentrated in the eastern Mediterranean. Collaborative studies would also be established to facilitate a better understanding of population structure and identification of regional differences in contaminant exposure.[683]

The program's objectives include adoption of regulations and policies to reduce point and non-point nutrient discharges, remediation of toxic "hot spots," and integrated management of water and land resources. World Bank, Framework Brief, *GEF Strategic Partnership on the Danube/Black Sea Basin* (2001), <http://www.gefweb.org/Documents/Council_Documents/GEF_C17/BS-DANUBE_FRAMEWORK_BRIEF_v4__final_.pdfhttp://www.gefweb.org/Documents/Council_Documents/GEF_C17/BS-DANUBE_FRAMEWORK_BRIEF_v4__final_.pdf,> site visited on July 2, 2002.

[682] *Id.*

[683] *Id.* In the first phase, the Parties proposed the establishment of a steering committee to complete preparation of the plan. The complete proposal for this Action is to be presented for approval at the Second Meeting of the Parties. *Id.* The indicative budget for the Action was set at € 12,000 over three years. The Plan's development will be assisted by two NGOs, the Whale and Dolphin Conservation Society and the Swiss Working Group for the Protection of Marine Mammals. The organizations will provide assistance to the Tethys Research Institute

Action #8 Conservation Plan for Common Bottlenose Dolphins in the Mediterranean Sea

The Parties at 1MOP proposed a series of population assessments across the Mediterranean regions where common bottlenose dolphins are known to occur, and large-scale but less intensive surveys to identify previously unknown "hotspots" of bottlenose dolphin occurrence.[684] The surveys should be designed to facilitate subsequent assessment of species distribution and relative sighting frequency over time. Efforts should also be made to monitor and assess threats to the species, including incidental catches and direct kills, contaminants, and nutritional stress associated with reduced availability of prey.[685]

Action #9 Basin-Wide Mediterranean Sperm Whale Survey (first phase)

The Parties called for a comprehensive survey of the abundance, distribution and presence of critical habitats for sperm whales in the Mediterranean. The project will also include training of research personnel region-wide.[686]

(http://www.tethys.org/), the organization in charge of preparation for the plan. *ACCOBAMS First Scientific Committee Meeting Follow-Up,* 17 CMS BULLETIN 21 (2003).

[684] *Id.* at 59.

[685] *Id.* at 59. In the first phase, the Parties proposed the establishment of a steering committee to complete preparation of the plan. The complete proposal for this Action is to be presented for approval at the Second Meeting of the Parties. *Id.* The indicative budget for the Action was set at €12,000 over three years. A draft conservation plan was presented at the Second Meeting of the ACCOBAMS Scientific Committee in November, 2003. The plan outlines 21 proposed actions in four broad categories: Management; Capacity Building; Education and Awareness; and Research and Monitoring. Bearzi, *supra* note 45, at 3.

[686] *Id.* In the first phase, the Parties proposed the establishment of a steering committee to complete preparation of the plan. The complete proposal for this Action is to be presented for approval at the Second Meeting of the Parties, with surveys to be possibly conducted in July 2005. The indicative budget was set at €8,000 for two years. The survey will include involvement by an NGO, the International Fund for Animal Welfare, which will send its research vessel "Song

Action #10: Identification of Mediterranean Sites of Conservation Importance for Fin Whales in Addition to the Ligurian-Corsican- Provençal Basin and Assessment of Functional Relations of Such Sites to the Basin with Respect to the Species' Habitat Needs

It is currently unknown where fin whales migrate when they depart each year from their area of highest concentration in the Mediterranean, the Ligurian-Corsican-Provençal (LCP) Basin.[687] The Parties proposed a four-year project to determine habitat use and movement patterns of fin whales outside the LCP Basin, with an emphasis on ascertaining the critical breeding and nursery areas of the species. While the Parties proposed no funding for the project for the period of 2002-2004, they expressed their hope that synergies between ACCOBAMS and other organizations concerned about cetacean conservation might develop in the future.[688]

Action #11: Development of Photo-Identification Databases and Programmes Encompassing the Entire ACCOBAMS Area

The Parties at 1MOP recognized the importance of photo-identification techniques for studying cetaceans, including in the Agreement Area. The European Commission's Europhlukes[689] program was highlighted. The Europhlukes program seeks to establish a large database of cetacean photos to

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of the Whale" to the Ionian Sea to develop a pilot project. *ACCOBAMS First Scientific Committee Meeting Follow-Up, supra* note 683, at 21.

[687] *Id.* at 60.

[688] *Id.* at 60-1.

[689] *See* <http://www.europhlukes.net/>, site visited on June 29, 2002.

facilitate individual identification of cetaceans so as to enhance understanding of cetacean populations and movements in European waters.[690]

The Parties could not secure a budget for this Action for 2002-2004; however, they recommended that an operational link be established with the Europhlukes program, with an eye to future collaborative initiatives, including extension of the program to non-European partners within the Agreement Range States.[691]

Action #12: Establishment and Implementation of a Long-Term Training Program on Cetacean Research, Monitoring and Conservation/Management Techniques and Procedures

In this Action, the Parties emphasized the need to diffuse research monitoring abilities in regions within the Agreement Area where there are deficiencies. The Parties deemed this to be one of the "highest priorities" for cetacean conservation.[692] The Action calls for initial organization of field-based training courses to teach standard research techniques and follow-up support to selected trainees in their respective countries to assist with development and implementation of research and conservation projects.[693]

Action #13: Development of an Educational Tool for the Organization of Research Projects and basic Technical Studies

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[690] *Id.*
[691] 1MOP, *supra* note 61, Resolution 1.9, Annex I, at 61. Unfortunately, at this time southern Mediterranean and Black Sea States are not covered by photoidentification studies, and there is no available funding for training of researchers or field work. Geovanni Bearzi, *ACCOBAMS Capacity Building Initiatives to Promote Cetacean Research and Conservation in Black Sea Countries: Progress Report,* Second Meeting of the Scientific Committee of ACCOBAMS, *supra* note 45, Annex XIV, at 129.
[692] *Id.*
[693] *Id.* The indicative budget for this Action is € 60,000 for 2002-2004.

Noting that several countries have indicated a need for guidance and training in the areas of research and monitoring techniques, this Action calls for the production and distribution of a "pedagogic kit." The kit will include a basic scientific overview of cetaceans, a description and identification guide to cetaceans in the Agreement Area, protocols for the approach and observation of cetaceans at sea, sampling protocols and instructions for interventions in the case of strandings, legal documents, a list of Marine Protected Areas, training and education opportunities, and useful addresses.[694]

Action #14: Creation of Sub-Regional Directories of National Authorities, Research and Rescue Centers, Scientists, and Governmental and Non-Governmental Organizations Concerned with the Agreement's Objectives

The Parties called for updating the directory established by SPA/RAC, the Tethys Research Institute and the Interim Secretariat of ACCOBAMS, extending it to the Black Sea and contiguous Atlantic Area.[695]

Action #15: Support to the Implementation of National Stranding Networks, and Their Co-Ordination into a Wider Regional Network

Noting the important opportunities that strandings present for obtaining knowledge, such as natural and human-induced cetacean mortality, the Parties agreed to take measures to improve strandings networks in the Agreement Area.[696] As a preliminary step, the Parties called for the establishment of a coordination mechanism, consisting of a centralized cetacean stranding

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[694] *Id.* at 62. The indicative budget for this Action is € 42,000 for two years.
[695] *Id.*
[696] *Id.* at 62-3.

database to promote exchange of information on strandings among Agreement Range States. Several subsequent steps were also proposed, including promotion of an ACCOBAMS-SPA/RAC agreement to optimize use of the Mediterranean Database of Cetacean Strandings and widening it to include Black Sea data, organization of trainings, interfacing with a regional system of tissue banks, creation of a website and publication and diffusion of a comprehensive stranding protocol and ethical code.[697]

Action #16: Development of Network of Specialized Bibliographic Collections and Databases

Acknowledging that deficiencies in diffusing up-to-date specialized scientific literature in most Range States hindered cetacean research, the Parties proposed the establishment of a working group to review the availability of bibliographic materials, to facilitate access to information by local scientific communities, and to provide a framework for capacity building to encourage documented cetacean research in the Agreement Area.[698] The Parties also called for the adoption and promotion of modern document transfer and

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[697] *Id.* The indicative budget for the Action is € 12,000 for 2002-2004; € 28,000 for 2004-2006. In a separate resolution, the Parties recommended that each individual Party that had not yet done so should implement national networks or information structures for collecting data on strandings. *Id.,* Resolution 1.10, *Cooperation between National Networks or Cetacean Strandings and the Creation of a Data Base,* at 65. The Parties also recommended enhancement of data collection coordination, increased participation of the NGO and scientific communities where appropriate, and appropriate methods of field-work in cetacean training courses. The Parties also requested that the Scientific Committee approve a general protocol at its first meeting on measures to be taken when cetaceans are stranded in the region. *Id.* at 66.

[698] *Id.* at 63.

exchange technologies and management of library databases to facilitate cross-library research and exchange of materials.[699]

Action #17: Establishment of a System of Tissue Banks

Central repositories of cetacean tissues are important for enhancing the understanding of pathological and toxicological mechanisms critical to the conservation of species in the region. The Parties proposed to assist coordination between two tissue banks currently being established in the Mediterranean, one focusing on pollutants, at the University of Barcelona, and the other focusing on pathology, at the University of Padova. The Parties also proposed enlargement of the geographic scope of the bank systems to the entire Agreement Area.[700]

Action #18: Establishment of a Task Force for Special Mortality Events

In the face of major cetacean mortality events in the Agreement Area in recent years, the Parties recommended establishment of a Task Force for marine mammal mortality and special events.[701] The Task Force's work should include development of intervention protocols and codes of conduct for emergency situations.[702]

4.6 Guidelines for Commercial Cetacean-Watching Activities in the ACCOBAMS Agreement Area

[699] *Id.* The indicative budget for 2002-2004 is: € 114,000.
[700] *Id.* at 64.
[701] *Id.*
[702] *Id.*

While emphasizing the educational value of commercial cetacean-watching activities in a Resolution, the Parties also acknowledged the need for national regulations to minimize their potentially adverse impacts.[703] The original version of this Resolution[704] called upon the Parties to adopt a set of guidelines on cetacean-watching, included as Annex I to the Resolution.[705] However, in the face of resistance to this proposal, the Resolution was amended to recommend that the Parties "take into consideration the Guidelines . . . when drafting or updating their domestic legislation on cetacean-watching."[706] The Scientific Committee was also asked to further develop the guidelines on the basis of evolving scientific knowledge.[707]

4.6.1 Provisions of the Draft Guidelines

The scope of the draft Guidelines is limited to commercial cetacean-watching activities,[708] though the Parties also acknowledged the need to develop guidelines in the near future for cetacean-watching activities conducted for research or non-commercial recreational purposes.[709] The Guidelines recommend that the Parties require an assessment of the impact of cetacean-watching activities on the favorable conservation status of cetaceans prior to

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[703] *Id.*, Resolution 1.11, *Guidelines for Commercial Cetacean-Watching Activities in the ACCOBAMS Area,* at 67.
[704] ACCOBAMS, Draft Resolution 1.11, *Regulation of Commercial Whale-Watching in the Black Sea, the Mediterranean Sea and the Contiguous Atlantic Area,* MOP1/22/crp.1 (2002).
[705] *Id.*, Resolution 1.11, Annex I, at 69-71.
[706] *Id.*, Resolution 1.11, at 67.
[707] *Id.* at 68. The Scientific Committee subsequently developed cetacean-watching guidelines to be considered at the 2nd Meeting of the Parties. *Guidelines for Commercial Cetacean-Watching Activities in the ACCOBAMS Area,* Second Meeting of the Scientific Committee of ACCOBAMS, *supra* note 45, at Annex VI.
[708] *Id.* at 69.
[709] *Id.*, Resolution 1.11, at 67.

permitting such activities. No cetacean-watching activity should be authorized if, on the basis of the best available scientific information, "there are threats of significant adverse impact on the behavioural patterns or physiological well-being of cetaceans, having regard to the number and effect of existing cetacean-watching operations."[710]

Commercial operations should also be subject to the granting of permits by competent authorities in each State, the issuance of which is subject to submission of pertinent information about the operation and proof of qualifications of the operator and staff and evidence that the operation has "sufficient educational value to the public."[711] The Guidelines also set forth conditions for conducting cetacean-watching operations, including speeds at which vessels can approach and depart the vicinity of cetaceans, the number of vessels or aircraft permitted in a watching area at one time, and rules prescribing disturbance or harassment.[712] Finally, the Guidelines recommend the imposition of sanctions of sufficient gravity so as to deter violations.[713]

4.7 Conservation of the Black Sea Bottlenose Dolphin

Recognizing that domestic and international commercial trade in Black Sea bottlenose dolphins could exacerbate stresses on its population,[714] the Parties passed a resolution at 1MOP calling upon the Parties to strictly enforce

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[710] *Id.* Annex I, at 69.
[711] *Id.* at 69-70.
[712] *Id.* at 70.
[713] *Id.* at 71.
[714] *Id.*, Resolution 1.12, *Conservation of the Black Sea Tursiops truncatus: Bottlenose Dolphins,* at 72. *See also supra* notes 457-467 and accompanying text.

the prohibition against deliberate taking and keeping of the species. Additionally, it called upon the Parties to ban the importation, exportation or re-exportation of Black Sea bottlenose dolphins from ACCOBAMS range States, particularly Black Sea riparian countries.[715]

The Parties also recognized the preeminent role of the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES)[716] on trade issues, and called on ACCOBAMS members who are also Parties to CITES[717] to notify the Secretariat and the Parties of the trade prohibitions agreed to at 1MOP.[718] Additionally, the Parties called for full implementation of CITES Decision 11.139, which requests that range States for the species provide information to the Convention's Animals Committee, including the number of dolphins taken from the wild each year, their population status, if known, the number of dolphins exported each year and the number of dolphins taken incidentally in fisheries operations.[719] The Parties also called for full implementation of CITES Decision 11.91, which calls on the CITES Animals Committee to review issues associated with conservation and trade in Black Sea bottlenose dolphins, including review of information submitted by the Parties

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[715] 1MOP, Resolution 1.12, *supra* note 714, at 72-73.
[716] *See* note 1259, *infra*.
[717] All of the current Parties to ACCOBAMS are also Parties to CITES. CITES, *List of Contracting Parties,* <http://www.cites.org/eng/parties/alphabet.shtml>, site visited on Jan. 17, 2004.
[718] 1MOP, Resolution 1.12, *supra* note 714, at 73. The Resolution also called upon other range states of the species to implement these measures.
[719] CITES, Decision 11.139, *Decisions of the Conference of the Parties to CITES in Effect After the 11th Meeting,* <http://www.cites.org/eng/decis/all_decis.doc>, site visited on June 30, 2002.

under Decision 11.139, as well as to review genetic evidence to help assess the genetic distinctiveness of the sub-species.[720]

Decisions 11.91 and 11.139 were taken in response to a proposal at the 11th Conference of the Parties to CITES by the United States and Georgia to transfer the Black Sea bottlenose dolphin from Appendix II of the Convention to Appendix I, imbuing it with additional protection from potentially adverse trade.[721] The proposal was withdrawn when it became clear that there was insufficient information to facilitate a full discussion of the status of the species and possible conservation options.[722] Georgia re-submitted this proposal for consideration at the 12th Conference of the Parties. Opposition to the proposal was spearheaded by Russia, which contended that a recent survey of fishers and sailors indicated that stocks in the region were increasing.[723] However, the Parties ultimately agreed to annotate Appendix II to establish a zero quota for live specimens of Black Sea bottlenose dolphins "removed from the wild and traded for primarily commercial purposes."[724]

4.8 Assessment of 1MOP

In this section I will analyze the results of 1MOP and possible portents for the future implementation of the ACCOBAMS.

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[720] *Id.*, Decision 11.91. *See also* CITES, Notification No. 2001/032 (2001).
[721] CITES, Prop. 11.14, *supra* 427. For a discussion of the criteria for inclusion in Appendix I or II of CITES, and its implications, *see* notes 1265-1269, *infra,* and accompanying text.
[722] CITES, 18th Meeting of the Animals Committee, *Trade in Tursiops truncatus ponticus,* <AC18 Doc. 16.1 (2002).
[723] *Id.*
[724] CITES, Twelfth Conference of the Parties, *Amendments to Appendices I and II of the Convention* (2002), at 7, available at: <http://www.cites.org/common/cop/12/appendix_notice.PDF>, site visited on Nov. 16, 2002.

4.8.1 The Implementation Priorities: 2002-2006

The Implementation Priorities adopted at 1MOP represent an excellent overview of the threats to cetaceans in the region and some of the actions that must be taken to implement an effective conservation regime in the region. However, both the method established for implementing the priorities and the scope of several of the actions can be faulted on several grounds. First, the Parties correctly noted that they "require a clear prioritization of conservation and research activities in order to apply their limited resources most effectively," and that prospective donors would also be "greatly assisted in their allocation of funds" by setting clear priorities of needs.[725] However, in adopting the list of priorities, the Parties emphasized that the order in which they were listed "does not imply priority," but rather tracks the order in which conservation measures are listed in the Conservation Plan of ACCOBAMS.[726] As a consequence, the "priorities" constitute little more than a very long laundry list of potential measures to be taken by the Parties without providing any guidance as to where the scarce resources of the regime, the Parties, and prospective donors, should be concentrated over the next five years and beyond.[727] Moreover, in also emphasizing that the Priorities were "without prejudice to the pursuance of existing conservation actions"[728] the Parties further clouded guidance to Member States and donors by failing to assess the appropriateness of current national

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[725] 1MOP, *supra* note 61, Resolution 1.9.
[726] *Id.* at Annex I.
[727] There is no evidence that the ordering of conservation measures in the Conservation Plan of ACCOBAMS was intended to prioritize the actions in any way.
[728] *Id.*

conservation initiatives and their prioritization vis-à-vis the priorities adopted at 1MOP.

Guidance in this context should be provided by the Scientific Committee given the scientific orientation of most of the priorities. The Scientific Committee should outline perhaps the top four or five priorities and suggest the requisite funding levels to implement these actions. The Secretariat should subsequently transmit these findings to the Parties and prospective funders.[729]

A second problem with the Priorities list is that there is an excessive emphasis on conducting additional research rather than implementation of substantive actions to address threats to cetaceans in the region. To be sure, shared scientific knowledge is a critical condition for the formation of regimes and their continuing viability,[730] and thus the early commitment to scientific research by the Parties is laudable. Moreover, there are substantial uncertainties as to population trends, cetacean biological parameters, and the impacts of anthropogenic activities on cetaceans in the Agreement Area. However, there is clearly sufficient scientific evidence of serious declines in several species in the region, and substantial evidence of the nexus between these declines and factors such as pollution, incidental bycatch and overfishing, to justify immediate precautionary action[731] to avert potential population crashes.

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[729] The Parties at 1MOP authorized the Agreement's Bureau to establish priorities for the allocation of contributions of new Parties or voluntary contributions towards implementation of the conservation component of the budget. 1MOP, *supra* note 61, Resolution 1.6.

[730] M. List & V. Rittberger, *Regime Theory and International Environmental Management, in* THE INTERNATIONAL POLITICS OF THE ENVIRONMENT: ACTORS, INTERESTS & INSTITUTIONS 103 (A. Hurrell & B. Kingsbury eds., 1992).

[731] For a discussion of implementation of the Precautionary Principle in the context of ACCOBAMS, *see* sec. 7.2.2, *infra.*

Yet, the largest single expenditure contemplated in the Priorities is €114,000 for establishment of specialized bibliographies and databases. To put this in perspective, this is more than is proposed for the establishment of *all* of the first phases of conservation and management plans for species of greatest concern in the region, the short-beaked common dolphin, common bottlenose dolphin, harbor porpoise, and sperm whale.[732]

Moreover, there is overwhelming evidence that habitat degradation constitutes a serious threat to cetaceans throughout the world, including in the ACCOBAMS Agreement Area.[733] Unfortunately, the Parties have called for additional research rather than substantive measures to begin to reverse the tide of habitat destruction in the region. The same came be said in the Parties' approach in several other sections of the Implementation Priorities. For example, while acknowledging the serious nature of competitive interactions between coastal dolphins and artisanal fisheries, the Parties merely called for additional data collection and adverted to the need to "evaluate" mechanisms to reduce interactions without establishing any timelines for taking substantive measures.[734] The same can be said in the context of cetacean bycatch in fisheries. While acknowledging uncertainties as to whether current levels of bycatch are sustainable, the Parties' three-year plan calls only for data collection in three experimental areas, with the possibility of subsequent extension of this

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[732] 1MOP, *supra* note 61, Resolution 1.9, at Action No. 4, Action No. 7, Action No. 8.
[733] *See* secs. 2.1.3.2 & 2.2.3.1, *supra*. *See also* Leszek Karczmarski, *Conservation and Management of Humpback Dolphins: The South African Perspective,* 34(3) ORYX 207, 212 (2000); S. Ellis, et al., *Baiji (Lipotes vexillifer) Population and Habitat Viability Assessment – Preliminary Report,* 20 SPECIES 25-29 (1993).
[734] 1MOP, *supra* note 61, Resolution 1.9, at Action No. 2.

program to other areas in later years.[735] Glaringly absent are mandates to conduct research on measures to reduce bycatch or to implement measures to do so.

Overall, there is a very real threat that ACCOBAMS will devolve into the same kind of "more-and-better-study approach" that threatens the effectiveness of the other cetacean agreement established under the CMS, ASCOBANS.[736]

4.8.2 The Budget

The amount budgeted by the Parties at 1MOP for conservation programs is extremely low. Even assuming that the Parties' most optimistic projections come to fruition, with voluntary contributions exceeding allocated contributions for 2002 and 2003 and nearly equaling them in 2004,[737] the total budget for

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[735] *Id.* at Action No. 3.

[736] Nijkamp & Nollkaemper, *supra* note 5, at 290. There is very strong evidence that bycatch of harbor porpoises is unsustainable in the ASCOBANS Agreement Area and constitutes the gravest and most imminent peril facing cetaceans in the region. IWC, *Report of the Scientific Committee,* 53rd Meeting of the International Whaling Commission (2001), at 68; United Kingdom, Department of the Environmental, Transport and the Regions, *A UK Conservation Strategy for the Harbour Porpoise (Phocoena phocoena)* (July, 2000), at 6; J.C.D. Gordon, et al., *Passive Acoustic Investigations of Harbour Porpoises on fishing Grounds,* 11 EUR. RESEARCH CETACEANS 37, 37 (1997). Despite this, the Parties have been chary to adopt substantive measures to reduce bycatch rates almost a decade after the agreement came into force, opting instead for research programs that will likely delay action until the middle of this decade or beyond. ASCOBANS, *Report of the 9th Meeting of the Advisory Committee to ASCOBANS* (2002), at 8 & Annex 5.

There is some hope that the Parties to ASCOBANS may be moving to a commitment to more substantive measures to protect harbour porpoises with the adoption of recovery plans for the North and Baltic Seas. ASCOBANS, 4th Meeting of the Parties, 19-22 Aug. 2003, Resolution No. 10, *Recovery Plan for Harbour Porpoise in the North Sea,* <http://www.service-board.de/ascobans_neu/files/finalres10.pdf>, site visited on Jan. 3, 2005; ASCOBANS, *Recovery Plan for Baltic Harbour Porpoises (Jastarnia Plan),* July, 2002, <http://www.ascobans.org/index0401.html>, site visited on Jan. 3, 2005. However, it is by no means assured that the Parties will effectively address the bycatch question in the recovery plans, especially in light of their likely failure to implement the recommendations from the Third Meeting of the Parties "to reduce bycatch to below 'unacceptable interaction' levels. ASCOBANS, 4th Meeting of the Parties, 19-22 Aug. 2003, Resolution No. 6, *Incidental Take of Cetaceans,* <http://www.service-board.de/ascobans_neu/files/finalres6.pdf>, site visited on Jan. 3, 2005.

[737] 1MOP, *supra* note 61, Resolution 1.6, Annex I, at 30.

conservation initiatives will only amount to a little over €310,000 in 2002, €388,000 in 2003 and €393,000 in 2004.[738]

The amount allocated for specific programs appears to be wholly inadequate on its face. For example, the €60,000 allocated for training programs over the next three years is unlikely to cover the needs of more than a very small percentage of the requisite personnel in current and prospective Member States. Moreover, limited funding ensures that critical surveys for most species will not begin until 2005 at the earliest, and in many cases probably much later in the decade, increasing the danger that some species may suffer irreversible declines before the Parties could even tenably respond.

If the contribution scale adopted by the Parties at 1MOP is carried through in the future, it is highly unlikely that there will be nearly enough funding to move beyond the planning phase of the proposed conservation plans for species of special concern,[739] the initial phase of the proposed Mediterranean sperm whale survey,[740] or implementation of long-term training programs for cetacean research, monitoring and conservation management.[741] This poses the specter of ACCOBAMS ultimately becoming little more than a cetacean research organization, and not a particularly well funded one at that.

4.8.3 Reporting Requirements

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[738] *Id.*
[739] *Id.*, Resolution 1.9, Action No. 4, Action No. 7, Action No. 8.
[740] *Id.*, Action No. 9.
[741] *Id.*, Action No. 12.

As is true in many other multilateral environmental agreements (MEAs),[742] ACCOBAMS includes a Party communication and reporting provision.[743] This constitutes the Parties' primary System of Implementation Review.[744] Depending on how they are structured, and the resources devoted thereto, reporting provisions in an MEA can facilitate one or more of the following functions:

1. Assessment of Party *implementation* of the treaty, i.e. "the process of putting international commitments into practice: the passage of domestic legislation, promulgation of regulations, creation of institutions (both domestic and international) and enforcement of rules,[745] as well as activities undertaken by NGOs or groups targeted by treaties for regulation;[746]
2. Assessment of Party *compliance* with the treaty, i.e. "the position of a Party with regard to the fulfillment of its [procedural and substantive] obligations under a multilateral agreement;"[747]
3. Assessment of the *effectiveness* of the treaty, i.e. "[i]s the quality of the environment or resource better because of the institution?"[748]

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[742] Convention on Biological Diversity, Intergovernmental Committee for the Cartagena Protocol on Biosafety, First Meeting of the Parties, *Development of Compliance Procedures and Mechanisms under the Cartagena Protocol on Biosafety,* UNEP/CBD/ICCP/1/7, Sept. 19, 2000, at 3.

[743] ACCOBAMS, *supra* note 1, at art. VIII.

[744] "SIRs can generally be described as Institutions through which parties share information, compare activities, review performance, handle non-compliance and adjust commitments." Matthijs Hisschemöller, *Balancing Ambitions towards a Research Agenda for Evaluating International Environmental Agreements,* Proceedings of the Final Conference within the EU-financed Concerted Action Programme on the Effectiveness of International Environmental Agreements and EU Legislation (2000), at 3.

[745] Kal Raustiala, *Compliance and Effectiveness in International Regulatory Cooperation*, 32 CASE W. RES. J. INT'L L. 387, 391 (2000).

[746] Geir Hønneland & Anne-Kristin Jørgensen, *Implementing International Environmental Agreements in Russia: Lessons from Fisheries Management, Nuclear Safety and Air Pollution Control,* 3(1) GLOBAL ENVTL. POL. 72, 73 (2003).

[747] UNEP Working Group of Experts on Enforcement and Implementation of Environmental Conventions, *Revised Draft Guidelines on Compliance with MEAs and National Environmental Enforcement of MEAs, March 2001 Version,* <http://www.unep.org/DEPI/Compliance-and Enforcement/Complaincepercent20Draftpercent20Guidelinespercent20.doc>, site visited on July 22, 2002, at sec. III.

[748] Robert O. Keohane, Peter M. Haas & Marc A. Levy, *The Effectiveness of International Environmental Institutions, in* INSTITUTIONS FOR THE EARTH: SOURCES OF EFFECTIVE INTERNATIONAL ENVIRONMENTAL PROTECTION 7 (Peter Haas, et al. eds., 1993). Some researchers have opted to focus upon proxy measurements of effectiveness, such as "observable political effects of institutions" because there is frequently a paucity of data on regime impacts, *see* Frank Biermann & Klaus Dingwerth, *Global Environmental Change and the Nation State,* 4(1) GLOBAL ENVTL. POL. 1, 10 (2004); Detlef Sprinz & Carsten Helm, *The Effects of Global Environmental Regimes: A*

More broadly, SIRs perform a number of functions that can strengthen the prospects for regime effectiveness. First, "[a]ccountability . . . is a critical rule- and norm-enforcement mechanism."[749] SIRs facilitate this by ensuring an ongoing "discursive elaboration and application of treaty norms."[750] The process of reviewing compliance with, and implementation of, agreements is a dynamic one, marked by efforts to justify actors' respective actions. Since the Parties have participated in each stage of this process, there is a powerful pull to conform to the judgments that are arrived at.[751] Moreover, "the process by which egoists learn to cooperate is at the same time a process of reconstructing their interests in terms of shared commitments to social norms."[752]

Second, SIRs help to foster "covergent intersubjective understandings of institutional legitimacy,"[753] fostering a sense among actors that regime institutions

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Measurement Concept, 20(4) INT'L POL. SCI. REV. 359, 360 (1999); Le Prestre, *supra* note 15, at 61 (indicators of regime effectiveness include its scope, its ability to resist entropic pressure, the persistence of goals of the regime and maintenance of the regime even when initial conditions that motivated its creation are no longer extant); Robert O. Keohane, *The Analysis of International Regimes: Towards a European-American Research Programme, in* Rittberger, *supra* note 9, at 33 (one measure of regime impact is "resilience" of regime, i.e. ability of regime to maintain its viability "when faced with a deterioration of overall relations among the participants"). However, given the scarcity of resources and political capital that may be expended to address the threats facing cetaceans, the most critical measure of effectiveness of the ACCOBAMS regime must be its success in conserving cetaceans within the region. I believe that it is possible in the context of ACCOBAMS to conduct a more direct, and hence probably more accurate, assessment, as to whether the regime contributes to the achievement of its overarching objective, i.e. establishing a "favorable conservation status" for cetaceans in the region. The contours of a system to assess the effectiveness of the regime is developed in sec. 7.5.4, *infra.*

[749] Philip E. Tetlock, Linda Skitka & Richard Boettger, *Social and Cognitive Strategies for Coping with Accountability: Conformity, Complexity and Bolstering,* 57(4) J. PERSONALITY & SOC. PSYCHOL. 630, 632 (1989).

[750] ABRAMS CHAYES & ANTONIA CHAYES, THE NEW SOVEREIGNTY 123 (1995).

[751] *Id.*

[752] Wendt, *supra* note 25, at 417.

[753] Le Prestre, *supra* note 15, at 80.

are fair and equitable. This can, in turn, bolster prospects for Party compliance. As Franck avers:

> [Legitimacy] exerts a pull toward compliance on those addressed normatively because those addressed believe that the rule or institution has come into being and operates in accordance with generally accepted principles of right process
> . . . Legitimacy exerts a pull to compliance which is powered by the quality of rule . . . Furthermore, a norm's legitimacy is indicated by rule clarity, symbolic validation by ritual and other formalities, conceptual coherence, and adherence to the 'organized normative hieracy' in the international system called 'right process.'[754]

Third, such mechanisms can help to engender cooperation under the pervasive circumstances where regime actors may suspect that others are seeking to "free ride" on regime accomplishments:

> [B]y making national actions more transparent, SIRs often help assure reluctant participants that others are complying with shared obligations . . . Where choices are interdependent – that is, where where actors are likely to comply conditionally based on others' behavior – this can foster compliance by making clear other actors' compliance.[755]

Thus, the Party's decision to create mechanisms to facilitate monitoring of compliance is salutary. Unfortunately, the reporting scheme established by Parties at 1MOP is unlikely to accomplish any of these objectives very well. First, the historical record of reporting mechanisms is discouraging. Parties to MEAs, including wildlife conservation regimes, have consistently failed to communicate critical compliance and implementation information in a timely, adequate or

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[754] THOMAS FRANCK, THE POWER OF LEGITIMACY AMONG NATIONS 24, 26 (1990).
[755] Raustiala, *supra* note 745, at 415; *See also* Bas Arts, *Regimes, Non-State Actors and the State System: A 'Structurational' Regime Model,* 6(4) EUR. J. INT'L REL. 515, 517 (2000).

accurate manner to treaty regimes.[756] Moreover, Parties to regimes "are generally unwilling or unable to question the reporting activities of other sovereign states."[757]

Reporting is particularly inadequate in countries with extremely limited resources and scientific capability,[758] such as many of the current or prospective

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[756] ROSALIND REEVE, POLICING INTERNATIONAL TRADE IN ENDANGERED SPECIES 64-65 (2002). In assessing trade data reporting under the Convention on International Trade in Endangered Species of Wild Flora and Fauna, *infra* note 780, Reeve recently concluded that "[m]any parties have not taken the issue seriously enough, variously failing to submit reports, or submitting them late, or failing to comply with the guidelines on reporting, rendering data 'more or less useless,' or submitting incomplete or inaccurate data . . . UNEP-WCMC's analysis shows a trend towards a reduced number of parties reporting." *See also* Giselle Vigneron, *Compliance and International Environmental Agreements: A Case Study of the 1995 United Nations Straddling Stocks Agreement,* 10 GEO. INT'L ENVTL. L. REV. 581, 605 (1998); M.J. Peterson, *International Organizations and the Implementation of Environmental Regimes, in* GLOBAL GOVERNANCE (O.R. Young ed., 1997), at 126; David M. Dzidzornu, *Coastal State Obligations and Powers Respecting EEZ Environmental Protection Under Part XII of the UNCLOS: A Descriptive Analysis,* 8 COLO. J. INT'L ENVTL. L. & POL'Y 283, 312 (1997) ("The historical record . . . indicates that coastal, port, and especially flag states seldom inform the [International Maritime Organization] about violations of shipping rules and regulations or enforcement actions taken"). Reporting problems have also plagued regimes in other sectors, including human rights. Mara S. Bustelo, *The Committee on the Elimination of Discrimination Against Women at the Crossroads, in* THE FUTURE OF UN HUMAN RIGHTS TREATY MONITORING 110 (Philip Alston & James Crawfords eds., 2000).

[757] Konrad von Moltke, *Whither MEAs? The Role of International Environmental Management in the Trade and Environment Agenda,* International Institute for Sustainable Development (2001), at 43. *See also* John H. Knox, *A New Approach to Compliance with International Environmental Law: The Submissions Procedure of the NAFTA Environmental Commission,* 28 ECO. L. Q. 1, 8 (2001) ("A state whose own performance of international obligations is inadequate may hesitate to proceed against others for fear of calling attention to itself or establishing undesirable precedents").

[758] John Lanchberry, *Long-Term Trends in Systems for Implementation Review in International Agreements on Fauna and Flora, in* THE IMPLEMENTATION & EFFECTIVENESS OF INTERNATIONAL ENVIRONMENTAL COMMITMENTS: THEORY & PRACTICE 66-76 (David G. Victor, Kal Raustiala & Eugene B. Skolnikoff eds., 1998); T. SWANSON & S. JOHNSON, GLOBAL ENVIRONMENTAL PROBLEMS & INTERNATIONAL ENVIRONMENTAL AGREEMENTS: THE ECONOMICS OF INTERNATIONAL INSTITUTION BUILDING 247 (1999). Examples of regimes that have suffered from poor reporting by member States include:

- The Convention on International Trade in Endangered Species, *infra* note 780. Parties to CITES have consistently submitted critical species trade reports in an untimely manner, and often with incomplete information. *Id.* at 70; CITES, *Annual Reports and Monitoring of Trade,* Ninth Meeting of the Conference of the Parties, Conf. 9.4 (1994), at 41;
- The Convention on the Conservation of Migratory Species, *supra* note 4. Most of reports submitted by the Parties to the CMS "are late and few are sufficiently comprehensive to be useful." Lanchberry, *supra,* at 73;

member States to ACCOBAMS. Thus, there is every reason to believe that the regime will be beset with the same problems as many other regimes in this context.[759]

Second, the reporting scheme does not provide for independent assessment of the information provided by the Parties by either the Secretariat or other Parties. Given the proclivity of Parties to MEAs to submit self-serving and incomplete information,[760] this may severely denude the value of information submitted by the member States of ACCOBAMS.

Moreover, regimes research has demonstrated that States are "strongly conditioned by the fear of unreciprocated policies and hence fail to adopt new policies which would threaten competitiveness."[761] Inadequate reporting procedures may contribute to this phenomenon by making it difficult for regime members to assess the commitments undertaken by other Parties, engendering mistrust and a hesitation to effectively implement treaty commitments.

- London Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 11 I.L.M. 1291 (1972). The Convention has been hobbled by low levels of reporting and little opportunity for independent assessment. Olav Schram Stokke, *Nuclear Dumping in Arctic Seas: Russian Implementation of the London Convention,* THE IMPLEMENTATION & EFFECTIVENESS OF INTERNATIONAL ENVIRONMENTAL COMMITMENTS: THEORY & PRACTICE 482-485 (1998);
- International Convention for the Prevention of Pollution from Ships, Nov. 2, 1973, 12 ILM 1319 (1973), *as amended* Feb. 17, 1978, S. EXEC. DOC. E, 95-1 (1978), 1340 UNTS 184 (MARPOL Convention). The Parties to the Convention have a poor record in terms of reporting to the International Maritime Organisation on actions to address violations of MARPOL standards by flagged vessels or on efforts to reduce marine pollution. PATRICIA BIRNIE & ALAN BOYLE, INTERNATIONAL LAW & THE ENVIRONMENT 367 & 369 (2d ed. 2002).

[759] Jacob Werksman, *Designing a Compliance System for the UN Framework Convention on Climate Change in* IMPROVING COMPLIANCE WITH INTERNATIONAL ENVIRONMENTAL LAW 119 (James Cameron, Jacob Werksman & Peter Roderick eds., 1996); Mary Ellen O'Connell, *Enforcement and the Success of International Environmental Law,* 3 IND. J. GLOBAL L. STUD. 47, 55 (1995).

[760] *Id.*

[761] Haas, *supra* note 9, at 186.

Third, the ACCOBAMS reporting scheme suffers from a lack of specificity in terms of the information requested, as well as an absence of metrics (both static and longitudinal) to facilitate meaningful assessment of Party compliance and implementation. For example, while the reporting forms adopted at 1MOP require each Party to list "Relevant International Conventions and Agreements to which the country is Party,"[762] they are not required to provide an assessment of compliance with specific mandates of these agreements, or to track over time the impacts of compliance with these agreements vis-à-vis the conservation of cetaceans. Similarly, instead of establishing performance benchmarks or timelines for progress in complying with the Agreement's provisions on cetacean strandings or emergency plans, the reporting forms merely request that the Parties record "changes" in these contexts.[763] This will likely preclude a meaningful review of progress made on these programs.

The same is true in terms of Party reporting on implementation of the Agreement. The reporting forms merely request that the Parties list their respective "main national legislative and regulatory texts pertinent to cetaceans" and responsible authorities.[764] There is no requirement to assess the adequacy of these legislative and regulatory provisions in achieving compliance with ACCOBAMS, or even any metrics that would help to facilitate this assessment, such as baseline performance standards.

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[762] *Id.*, Resolution 1.8, Forms I & II, *First Report of Riparian Parties of the Agreement Area, supra* notes 657 & 659.
[763] *Id.*
[764] *Id.*

Finally, perhaps the most egregiously vague language is reserved for one of the most important aspects of the assessment process, the status of the Parties' respective domestic cetacean conservations programs. The reporting forms merely require the individual Parties to present a "scientific assessment of the state of cetacean conservation in the area under national jurisdiction" "based on scientific data."[765] No standards are set forth for the quality of data that must be generated for the reports, nor are the Parties required to demonstrate that the cetacean conservation programs further compliance with specific provisions of the Agreement or resolutions passed by the Parties at its meetings.

Perhaps the gravest shortfall of the reporting scheme formulated by the Parties at 1MOP is that it will not facilitate assessment of the problem-solving, or ecological effectiveness of the measures taken under the treaty. Instead, the assessment protocols established by the ACCOBAMS regime focus solely upon the *institutional* effectiveness of the regime, an unfortunate approach also embraced by many observers of regimes in recent years:

> A dominant theoretical focus within the literature on effectiveness concerns itself with the impact international arrangements have on modifying actor behavior (especially state-centric behavior) towards a given problem. Such a perspective seeks to answer the generic question of whether or not regimes "matter." To do so, emphasis is placed on the formation and/or operation of international institutions and the influence such arrangements have on actor behavior. What is often left out of the research program is an ecological component that assesses the actual impact such regimes are having on the natural environment.[766]

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[765] *Id.*

[766] Tom Cioppa & Hans Bruyninckx, *The Effectiveness of International Environmental Regimes: What About the Environment?,* paper presented at the 41st Annual Convention of the International Studies Association, Mar. 14-18, 2000, <http://www.earthscape.org/p1/cit01/cit01.html>, site visited on Feb. 4, 2004. *See also* Gabriela Kutting, *Assessing the Effectiveness of International*

While Party compliance with treaty provisions and resolutions passed at the MOP *may* serve as a useful proxy for assessing the regime's success in meeting its objectives (in the case of ACCOBAMS, ensuring a favorable conservation status for cetaceans found within the Agreement Area), "effectiveness is not necessarily correlated with compliance."[767] "[A]n international institution could very successfully change the behaviour of relevant actors in line with its rules but nevertheless have little, or even an adverse impact, on the environmental problem itself."[768] As Young explains:

> In endeavoring to solve . . . problems, however, actors ordinarily specify goals (for example, a 30 percent reduction in sulfur dioxide emissions or a phase-out of the production of CFCs) and then devise sets of rules and policy instruments intended to bring behavior into line with the attainment of these goals. No doubt, such responses can and sometimes do serve to solve the problems that provoke them. But there is no guarantee that this will be the case. A 30 percent reduction in sulfur dioxide emissions may accompany or even cause a rise in emissions of other substances that are equally disruptive to the natural environment. Irreparable damage to the ozone layer may occur before the consumption of CFCs ceases. Though the emphasis that students of effectiveness place on implementation and compliance is perfectly

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Environmental Agreements: New Dimensions of Analysis, paper presented at the 39th Annual Convention of the International Studies Association, Mar. 17-21 (1998), at 7. *See also* Thomas Höfer & Lutz Mez, *Effectiveness of International Environmental Protection Treaties on the Sea Transport of Mineral Oil and Proposals for Policy Revision, in* INTERNATIONAL MARINE ENVIRONMENTAL LAW 102 (Andree Kirchner ed., 2003):

> In the past, the mere existence of measures was often regarded as a success. In assessing the effectiveness of an environmental program, however, the question must be posed as to whether its implementation has in fact led to the intended results. The degree to which program goals have been met and the time frame in which this has taken place are of significance in this regard.

[767] Edith Brown Weiss, *Understanding Compliance with International Environmental Agreements: The Baker's Dozen Myths,* 32 U. RICH. L. REV. 1555, 1564 (1999).
[768] Owen Greene, *Environmental Regimes: Effectiveness and Implementation Review, in* THE ENVIRONMENT & INTERNATIONAL RELATIONS 199 (John Vogler & Mark F. Imber eds., 1996).

> understandable, therefore, the results should not be treated as a substitute for undertaking the more challenging task of investigating such matters as the causal links between process effectiveness and effectiveness as problem solving.[769]

Moreover, high levels of compliance with multilateral agreements are often simply a function of "shallow cooperation."[770] Environmental treaties frequently reflect the "law of the least ambitious program"[771] where "the lowest common denominator prevails."[772] As Victor concludes, "[a]lthough scores of agreements

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[769] YOUNG, *supra* note 17, at 151. *See also* Oran R. Young, *Regime Effectiveness: Taking Stock in* THE EFFECTIVENESS OF INTERNATIONAL ENVIRONMENTAL REGIMES 268 (1999) (Relatively high compliance with Barents Sea fisheries regime didn't improve status of fish stocks in region due to use of inappropriate management approach); Le Prestre, *supra* note 748, at 88 n. 11 (Mortality of South American parrots increased after decision to ban their capture because "smugglers captured more parrots in the wild and hid them in smaller spaces, which increased the overall mortality rate during transit").

[770] George W. Downs et al., *Is the Good News about Compliance Good News about Cooperation?*, 50 INT'L ORG. 379, 387-397 (1996).

[771] ARILD UNDERDAL, THE POLITICS OF INTERNATIONAL FISHERIES MANAGEMENT: THE CASE OF THE NORTHEAST ATLANTIC 17, 36 (1980).

[772] David G. Victor, *International Environmental Agreements: Compliance and Enforcement: Enforcing International Law: Implications for an Effective Global Warming Regime,* 10 DUKE ENVTL. L. & POL'Y 147, 153 (1999). In assessing the effectiveness of several MEAs, Churchill and Warren also provide an excellent example of the perils of equating treaty effectiveness with achievement of objectives set forth in treaty instruments:

> [I]n the case of the LRTAP's [Convention on Long-Rate Transboundary Air Pollution] first Sulphur Protocol, the choice of 30% as the figure for reduction in sulphur emissions and the choice of base year were entirely arbitrary and represented what the lead States thought others would accept. It bore no relation to the reduction which might be required to tackle the problems caused by acid rain.
>
> The same is true of the LCP directive [European Union's Directive on Large Combustion Plants], where the figures for reduction vary from State to State and simply represent what each State was prepared to accept, based on economic considerations, its energy policy, and the degree to which it saw itself a victim of acid rain. In the case of the Montreal Protocol the initial timetable for reducing consumption and production of CFCs and halons was not based on scientific considerations but chiefly on how far substitutes for CFCs and halons were available, or would be in the future.

Robin Churchill & Linda Warren, *Briefing: Effectiveness of Legal Agreements to Protect Global Commons,* ESRC Global Environmental Change Programme, <http://www.sussex.ac.uk/Units/gec/pubs/briefing/brief-9.htm>, site visited on August 7, 2003.

are in force, few of the issues on the environmental agenda seem to be solved; commitments reflect what countries are already doing rather than what is needed to address the problem at hand."[773] Additionally, compliance with a treaty may result in cessation of one hazardous activity but lead to an increase in another equally or even more hazardous activity, such as where efforts to regulate one form of pollutant results in a shift to another dangerous substance.[774] Thus, an assessment process that focuses solely on levels of compliance may ultimately tell us very little about the effectiveness of the measures taken by the parties to an agreement.

Unfortunately, the reporting protocols adopted by the Parties at 1MOP will fail to request information that will facilitate assessment of the impacts of measures taken under the Agreement, nor do they establish an evaluative methodology to conduct such as assessment. This raises the specter that the Parties may expend resources in a manner that ultimately does little to ensure that cetaceans are conserved in the region.

4.8.4 Conservation of Black Sea Bottlenose Dolphins

Given the threat that trade in Black Sea dolphins may pose to the viability of the species,[775] the Parties' call in Resolution 1.12 for strict enforcement of the treaty's prohibition against deliberate taking and keeping of cetaceans in the Agreement Area, as well as a ban on importation, exportation and re-exportation,

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[773] *Id. See also* Joseph F.C. Dimento, *Processes, Norms, Compliance, and International Environmental Law,* 18 J. ENVTL. L. & LITIG. 251, 252 (2003).
[774] Harold K. Jacobson & Edith Brown Weiss, *Strengthening Compliance with International Environmental Accords in* THE POLITICS OF GLOBAL GOVERNANCE 310 (1997).
[775] *See* sec. 2.2.3.3, *supra.*

is laudable. However, given evidence that some of the trade in the past has been illegal,[776] implementation of the resolution will require devotion of additional resources to ensure its enforcement. Unfortunately, given the history of inadequate enforcement of environmental measures in the region and extremely limited resources,[777] this is by no means assured. Moreover, one of the primary exporters of Black Sea dolphins in the region, Russia,[778] is not a Party to ACCOBAMS.

While the Parties' call for reporting of exports of Black Sea dolphins to CITES is also a positive development, it highlights the fact that some Black Sea nations have consistently failed to submit trade data to CITES,[779] despite the fact that they are required to do so under that treaty.[780] For example, Romania and Georgia have not submitted annual trade reports required under CITES since acceding to the treaty in 1994 and 1996 respectively.[781] Moreover, in 2001 the CITES Secretariat sent a Notification to the Parties requesting the information specified in Decision 11.91;[782] yet to date it has only received responses from Bulgaria and the Russian Federation.[783] As the Secretariat concluded recently, "the limited response to Decision 11.91 and to the request for tissue samples has

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[776] *Id.*
[777] *See* sec. 6.2, *infra.*
[778] *See supra* sec. 2.2.3.3
[779] IUCN, et al., *supra* note 373.
[780] Convention on International Trade in Endangered Species of Wild Fauna and Flora, Mar. 3, 1973, 27 U.S.T. 1087, T.I.A.S. No. 8249, 993 U.N.T.S. 243, ELR Stat. 40336, at art. VIII(7).
[781] *Id.*
[782] *See supra* note 720 and accompanying text.
[783] CITES, Eighteenth Meeting of the Animals Committee, *Progress on the Implementation of Decisions 11.91 and 11.139,* AC18 Doc. 16.1 (2002), at 1.

hampered progress on this issue."[784] It is questionable if the moral suasion of the ACCOBAMS regime will prove any more effective in securing compliance with critical information requests than have efforts by CITES, especially in terms of Black Sea States that are not yet Parties to ACCOBAMS.

Moreover, while Resolution 1.12 acknowledged that the Black Sea dolphin is "severely threatened . . . due to multiple anthropogenic pressures," the Parties failed to set forth substantive measures in the Resolution to address these other threats. There are currently no formal programs in place to monitor the status of the species in the region, or for protection of critical habitats, severely undercutting the prospects for the species given its imperiled status in many portions of the Agreement Area.[785] While the proposed five-year Implementation Priorities adopted at 1MOP calls for the establishment of a pilot conservation program for several priority species, including bottlenose dolphins in the Black Sea, it is far from clear whether this will result in effective protection of the species in the long term. The amount budgeted for the pilot program, €80,000,[786] is likely to prove wholly inadequate for establishing an effective model program, especially when divided between four projects. Moreover, half of the proposed budget for the pilot program is to be obtained from voluntary contributions that may never be obtained.[787] Finally, it is far from certain that the Parties in the

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[784] *Id.* at 4.
[785] CITES, *supra* note 370, at secs. 4.2.1 & 4.2.2. It is anticipated that Georgia will develop a monitoring program at its Biodiversity Activity Center in Bautami as part of the TACIS Black Sea Program. Georgia is also developing a park that will help to protect critical habitat for the species. *Id.*
[786] 1MOP, *supra* note 61, Resolution 1.6, Annex I, at 30.
[787] *Id.*

Black Sea region will subsequently deploy the resources necessary to establish a comprehensive conservation program given serious financial constraints.[788]

[788] *See* sec. 6.2, *infra*.

Chapter 5

Relationship of ACCOBAMS to Other Global & Regional Instruments

5.1 Overview

The Preamble to ACCOBAMS acknowledges the importance of other global and regional instruments for the conservation of cetaceans in the region, and lists several of particular relevance: the International Convention for the Regulation of Whaling; the Convention for the Protection of the Mediterranean Sea against Pollution, its related protocols and the Action Plan for the Conservation of Cetaceans in the Mediterranean Sea adopted under its auspices in 1991; the Convention on the Conservation of European Wildlife and Natural Habitats; the United Nations Convention on the Law of the Sea; the Convention on Biological Diversity; the Convention for the Protection of the Black Sea against Pollution; and the Global Plan of Action for the Conservation, Management and Utilization of Marine Mammals of UNEP, adopted in 1984; as well as initiatives of *inter alia* the General Fisheries Council for the Mediterranean, the International Commission for Scientific Exploration of the Mediterranean, and the International Commission for the Conservation of Atlantic Tunas.[789] The treaty text does not ascribe any order of precedence for these instruments, nor does it state that this list is exhaustive.

This chapter will outline the programmatic mission of each of these organizations, and several others, with a view to assessing the implications of

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[789] ACCOBAMS, *supra* note 1, at Preamble.

their work for the implementation of ACCOBAMS. The instruments are discussed in the order of importance that the author deems them for the effectiveness of ACCOBAMS.

5.2 Mediterranean Action Plan/Convention for the Protection of the Mediterranean Sea Against Pollution

5.2.1 Overview

In 1974, UNEP established the Ocean Program for Regional Seas (OPRS) to encourage regional initiatives to address critical threats to the world's oceans.[790] In the face of burgeoning population growth in the Mediterranean region during the 1960s and early 70s, and an attendant increased pressure on the marine environment, Mediterranean States requested that UNEP develop a program under OPRS to assess pollution impacts in the region and mechanisms to address the problem.[791]

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[790] UNEP, *Regional Seas*, <http://www.unep.ch/seas/>, site visited on Nov. 20, 2002; *Achievements and Planned Development of UNEP's Regional Seas Programme and Comparable Programmes Sponsored by Other Bodies,* 1 UNEP REGIONAL SEAS REPORTS & STUDIES (1982). The Regional Seas Program seeks to foster regional cooperation to protect marine and coastal environments. The cornerstone of the program is 14 regional action programs (in the Black Sea, Caribbean, East Africa, East Asia, Kuwait, Mediterranean, North-East Pacific, North-West Pacific, Red Sea and Gulf of Aden, South Asia, South-East Pacific, South Pacific, West and Central Africa, and one under development in the South-West Atlantic and three partner programs in the Arctic, North-East Atlantic, and the Baltic region. *Id.* "It may be estimated that the whole regional programme framework, leaving the Antarctic ocean out, has involved 149 States, equal to 95.5 per cent of the world's States. Most States, namely 146, face the open ocean while the remaining ones face an enclosed sea, namely the Caspian Sea." Aldalberto Vallega, *The Regional Seas in the 21st Century: An Overview,* 45 OCEAN & COASTAL MGMT. 925, 926 (2002).

[791] Jon Birger Skjærseth, *The Effectiveness of the Mediterranean Action Plan, in* ENVIRONMENTAL REGIME EFFECTIVENESS 311 (Edward L. Miles, et al. eds., 2002).

In 1975, the Executive Director of UNEP convened the Intergovernmental Meeting on the Protection of the Mediterranean,[792] attended by 16 Mediterranean states[793] plus the European Community. This culminated in the adoption of the Mediterranean Action Plan (MAP).[794] The plan consisted of three components: 1. Scientific: the Programme for the Assessment and Control of Pollution in the Mediterranean region (MED POL), which seeks to assist Mediterranean nations in the implementation of pollution assessment programmes, including biological effects monitoring, marine pollution trend monitoring and compliance monitoring;[795] 2. Integrated planning: through a program of sustainable development known as the Blue Plan and the Priority Action Program;[796] and 3. Legal: the Conference of Plenipotentiaries of the Coastal States of the Mediterranean Region for the Protection of the Mediterranean Sea adopted the Convention for the Protection of the Mediterranean Sea against Pollution (Barcelona Convention)[797] to implement the MAP's legal chapter.[798] The MAP

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[792] *See* A. Manos, *The Regional Approach to the Protection of the Marine Environment against Pollution and UNEP's Programme for the Mediterranean* in, LE CONVENZIONI INTERNAZIONALI SULLA PROTEZIONE DEL MEDITERRANEO CONTRO L'INQUINAMENTO MARINO (U. Leanza ed., 1992).
[793] Algeria, Cyprus, Egypt, France, Greece, Israel, Italy, Lebanon, Libya, Malta, Morocco, Spain, Syria, Tunisia, Turkey, Yugoslavia.
[794] UNEP, Mediterranean Action Plan, <www.unepmap.org>, site visited on Dec. 14, 2001; Arsen Pavasovic, *The Mediterranean Action Plan Phase II and the Revised Barcelona Convention: New Prospective for Integrated Coastal Management in the Mediterranean Region,* 31(2-3) OCEAN & COASTAL MGMT. 133, 140-44 (1996); D. De Hoyos, *The United Nations Environment Program: the Mediterranean Conferences*, 17 HARV. INT'L L.J. 639 (1976).
[795] UNEP, Global Network for the Monitoring of Chemicals in the Environment, <http://www.chem.unep.ch/gmn/014_map.htm>, site visited on Oct. 5, 2002.
[796] Skjærseth, *supra* note 130, at 47.
[797] Convention for the Protection of the Mediterranean Sea Against Pollution, *supra* note 531.
[798] *See* Edith Brown Weiss, *International Environmental Law: Contemporary Issues and the Emergence of a New World Order,* 81 GEO. L.J. 675, 679 n.27 (1993). The Barcelona Convention entered into force on February 12, 1978 and has 21 Parties: Albania, Algeria, Bosnia and Herzegovina, Croatia, Cyprus, Egypt, France, Greece, Israel, Italy, Lebanon, Libya, Malta, Monaco, Morocco, Slovenia, Spain, Syria, Tunisia, Turkey and the European Community, UNEP, *Mediterranean Action Plan,* <http://www.unepmap.org/>, site visited on Nov. 21, 2002.

was replaced by the Conference of the Plenipotentiaries in 1995 with the "Action Plan for the Protection of the Marine Environment and Sustainable Development of the Coastal Areas of the Mediterranean" (MAP Phase II).[799]

The following sections address all three components of the MAP framework, including those programs and provisions germane to the protection of cetaceans in the region.

5.2.2 Convention for the Protection of the Mediterranean Sea Against Pollution

The Barcelona Convention's overarching purpose is "to prevent, abate and combat pollution of the Mediterranean Sea area and to protect and enhance the marine environment in that area."[800] Under the Convention, the Parties' commitments include the following measures germane to cetacean conservation:

1. "[T]ake all appropriate measures to prevent and abate pollution of the Mediterranean Sea area caused by dumping from ships and aircraft;"[801]
2. "[T]ake all measures in conformity with international law to prevent abate and combat pollution of the Mediterranean Sea area caused by discharges from ships and to ensure the effective implementation in that area of the rules which are generally recognized at the international level relating to the control of this type of pollution;"[802]
3. "[T]ake all appropriate measures to prevent, abate and combat pollution of the Mediterranean Sea area caused by discharges from rivers, coastal establishments or outfalls, or emanating from any other land-based sources within their territories."[803]

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[799] UNEP, *Action Plan for the Protection of the Marine Environment and Sustainable Development of the Coastal Areas of the Mediterranean*, Informal Document, Athens (1997); UNEP-MAP, *Report of the IX Ordinary Meeting of the Contracting Parties to the Convention for the Protection of the Mediterranean Sea Against Pollution,* UNEP (OCA)/MED IG.5/16, UNEP, Athens (1995).

[800] Convention for the Protection of the Mediterranean Sea Against Pollution, *supra* note 531, at art. 3(1) & 3(3) (hereinafter *Barcelona Convention*).

[801] *Id.* at art. 5.

[802] *Id.* at art. 6.

[803] *Id.* at art. 8.

Additionally, the Parties agree to establish bilateral and/or multilateral pollution monitoring programs and to develop and coordinate national research programs.[804] The Convention also provides for the adoption of "Additional Protocols"[805] to ensure effective implementation of the treaty.[806] Several protocols germane to cetacean conservation will be discussed *infra*.

5.2.3 *Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean*

The Barcelona Convention was revised by the Parties in 1995 and renamed the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean.[807] The revised Convention has not yet come into force.[808]

The revised Convention reflects and applies many of the principles developed at the 1992 United Nations Conference on Environment and Development.[809] This includes requiring the Parties to the Convention to apply

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[804] *Id.* at art. 10.
[805] *Id.* at art. 15.
[806] *Id.* at art. 4(2).
[807] UNEP, Regional Seas, <http://www.unep.ch/seas/main/med/medconvii.html>, site visited on Nov. 23, 2002 (hereinafter *Convention for the Protection of the Marine Environment*).
[808] UNEP, Mediterranean Action Plan, <http://www.unep.org>, site visted on Jan. 3, 2005.
[809] Tullio Scovazzi, *The Updating of the Barcelona Convention and its Protocols, in* Proceedings of the Congress on Sustainable Development in the Islands and the Roles of Research and Higher Education, Rhodes, Greece (1997), at 209, available at: <http://www.fundp.ac.be/prelude/manifestations/rhodes/actes/scovazzi.pdf>, site visited on Nov. 21, 2002. The conference, informally known as the "Earth Summit, took place in June of 1992 in Rio de Janeiro. The primary documents that grew out of the conference were Agenda 21, "a comprehensive plan of action to be taken globally, nationally and locally by organizations of the United Nations System, Governments, and Major Groups in every area in which human impacts on the environment," United Nations Division for Sustainable Development, <http://www.un.org/esa/sustdev/documents/agenda21/index.htm>, site visited on June 30, 2003, and the 27 principles outlined in the Rio Declaration on Environment and Development (1992), A/CONF.151/26 (Vol. I), <http://www.un.org/documents/ga/conf151/aconf15126-1annex1.htm>, site visited on June 30, 2003.

the precautionary principle,[810] and the polluter pays principle,[811] to utilize the best available techniques and environmental practices,[812] and committing them to the promotion of integrated coastal management.[813]

The Convention also includes provisions for addressing major pollution threats in various sectors, including dumping from ships, aircraft and incineration at sea,[814] ship pollution,[815] exploration of the continental shelf,[816] and land-based sources.[817] In all cases, the revised Convention goes beyond the original agreement's mandate to reduce or abate pollution by also calling upon the Parties to seek to eliminate pollution from these sources where possible. Additionally, it requires the Parties to address two additional sources of pollution, those being incineration at sea,[818] and that resulting from transboundary movement of hazardous waste.[819]

Reflecting the increasing emphasis of ocean management regimes on the conservation of biodiversity and an ecosystem approach,[820] the revised

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[810] Convention for the Protection of the Marine Environment, *supra* note 807, at art. 4(3)(a). "[The Parties shall] apply, in accordance with their capabilities, the precautionary principle, by virtue of which where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation."
[811] *Id.* at art. 4(3)(b) & art. 16.
[812] *Id.* at art. 4(4)(b).
[813] *Id.* at art. 4(3)(e). In May of 2004, the Mediterranean Action Plan/Regional Activity Centre hosted the "Regional Stakeholders Forum on Integrated Coastal Management in the Mediterranean: Towards a Regional Protocol." The Forum initiated a process for drafting a protocol on integrated coastal management, which is scheduled to be submitted to the Contracting Parties in November of 2005.
[814] *Id.* at art. 5.
[815] *Id.* at art. 6.
[816] *Id.* at art. 7.
[817] *Id.* at 8.
[818] *Supra* note 814.
[819] *Id.* at art. 11.
[820] The ecosystem management approach emphasizes the need to maintain the viability of the ecological relationship between harvested, dependent, and related populations. *See* Convention

Convention also requires the Parties to "take all appropriate measures to protect and preserve biological diversity, rare or fragile ecosystems, as well as species of wild fauna and flora which are rare, depleted, threatened or endangered and their habitats, in the area to which this Convention applies."[821]

Finally, the revised Convention's geographical jurisdiction is expanded. While the original Convention applied only to the maritime waters of the

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on the Conservation of Antarctic Marine Living Resources, May 20, 1980, TIAS No. 10,240, 1329 UNTS 47 (hereinafter CCAMLR), at art. II(3)(b). It recognizes that "ecosystems function as whole entities and need to be managed as such," World Resources Institute, *What is an Ecosystem Approach?,* <http://www.wri.org/wr2000/ecosys_approach.html>, site visited on Jan 12, 2004, and that "ecosystem functioning and resilience depends on a dynamic relationship within species, among species and between species and their abiotic environment . . ." Convention on Biological Diversity, *Ecosystem Approach,* Fifth Meeting of the Conference of the Parties, Decisions V/6, UNEP/CBD/COP/5/23 (2000). The approach has been increasingly embraced at both the international and national level, CCAMLR, *id.* at art. II(3); European Union, Council Regulation (EC) No. 2371/2002 of 20 Dec. 2002 *on the Conservation and Sustainable Exploitation of Fisheries Resources Under the Common Fisheries Policy,* Official J. European Communities, L358/59 (2002), <http://europa.eu.int/eur-lex/pri/en/oj/dat/2002/l_358/l_35820021231en00590080.pdf>, site visited on Dec. 30, 2003; Fifth International Conference on the Protection of the North Sea, *Bergen Declaration,* 20-21 March 2002, at 8, <http://odin.dep.no/archive/mdvedlegg/01/11/Engel069.pdf>, (Helsinki Commission); Keith J. Sainsbury, et al., *Design of Operational Management Strategies for Achieving Fishery Ecosystem Objectives,* 57 ICES J. MARINE SCI. 731, 7731-32 (2000); D. Greenfield, C. Mintz & E. Bougeault, *Recent Legislative and Regulatory Developments of Interest to Oil and Gas Lawyers,* 36 ALBERTA L. REV. 539, 542 (1998); Mary Christina Wood, *Reclaiming the Natural Rivers: The Endangered Species Act as Applied to Endangered River Ecosystems,* 40 ARIZ. L. REV. 197, 213 (1997).

While this approach is now recognized as salutary by most marine scientists, it has proven difficult to implement for several reasons, including the imposing data requirements attendant to assessing often incredibly complex natural systems, the nebulous nature of the spatial boundaries of most marine ecosystems, and functional fragmentation among agencies that gravitates against effective application of the approach. Oran R. Young, *Environmental Governance: The Role of Institutions in Causing and Confronting Environmental Problems,* 3 INT'L ENVTL. AGREEMENTS: POLITICS, LAW & ECON. 377, 380 (2003); Bearzi, *supra* note 277, at 74; Karl-Hermann Kock, *Understanding CCAMLR's Approach to Management* 9 (2000), CCAMLR, <http://www.ccamlr.org/pu/E/e_pubs/am/toc.htm>, site visited on Apr. 15, 2005; Stuart B. Kaye, *Legal Approaches to Polar Fisheries Regimes: A Comparative Analysis of the Convention for the Conservation of Antarctic Marine Living Resources and the Bering Sea Doughnut Hole Convention,* 26 CAL. W. INT'L L.J. 75, 88 (1995). Development of ecosystem models capable of making accurate predictions will require a major new initiative by the marine science community. E.K. Pikitch, et al., *Ecosystem-Based Fishery Management,* 305 SCI. 346-47 (2004); L.A. Robinson & C.L.J. Frid, *Dynamic Ecosystem Models and the Evaluation of Ecosystem Effects of Fishing: Can We Make Meaningful Predictions?,* 13 AQUATIC CONSERVATION, MARINE & FRESHWATER ECOSYSTEMS 5–20 (2003).

[821] *Id.* at art. 10.

Mediterranean,[822] the amended Convention provides that the application of the Convention may be extended to coastal areas as defined by each Contracting Party within its own territory."[823] The Parties may also extend jurisdictional coverage for any Protocols that are established under the revised Convention.[824]

5.2.4 Protocols to the Barcelona Convention

The Parties to the Barcelona Convention have established several Protocols with provisions germane to the conservation of cetaceans in the region. The Protocol for the Prevention of Pollution of the Mediterranean Sea by Dumping from Ships and Aircraft,[825] which entered into force in 1978,[826] seeks to prevent and abate pollution caused by dumping of waste from ships and aircraft. The Protocol prohibits the dumping of certain substances, including an array of heavy metals, organohalogens, hydrocarbons and persistent plastics.[827] It requires the issuance of special permits for the dumping of substances classified as requiring "special care," including synthetic organic compounds, pesticides and byproducts not otherwise prohibited from dumping under the Protocol and non-toxic substances that may pose a danger to human life or marine organisms, interfere with navigation or which may become harmful owing to the quantities

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[822] Barcelona Convention, *supra* note 800, at art. 1.
[823] Convention for the Protection of the Marine Environment, *supra* note 807, at art. 1(2).
[824] *Id.* at art. 1(3).
[825] UNEP, Regional Seas, <http://www.unep.ch/seas/main/med/meddump.html>, site visited on Nov. 23, 2002.
[826] American Society of International Law – Wildlife Interest Group, *Status of Signatures and Ratifications of the Barcelona Convention for the Protection of the Mediterranean Sea Against Pollution and its Protocols,* <http://eelink.net/~asilwildlife/LINK_STATUSOFSIGNATURES.pdf>, site visited on Nov. 23, 2002.
[827] *Id.* at art. 4 & Annex I.

that are dumped.[828] The Protocol was amended in 1995 to extend its jurisdiction to coastal areas and incineration of waste at sea, as well as to expand the ambit of substances to be regulated.[829] The amendments have not yet entered into force.

The Protocol Concerning Co-operation in Combating Pollution of the Mediterranean Sea by Oil and Other Harmful Substances in Cases of Emergency,[830] which entered into force in 1978, seeks to foster cooperation "due to the presence of massive quantities of oil or other harmful substances resulting from accidental causes or an accumulation of small discharges which are polluting or threatening to pollute the sea . . ."[831] This includes the establishment of contingency plans in cases of emergency,[832] monitoring activities,[833] and information exchanges.[834] In cases of accidents related to oil or other harmful substances that are causing or likely to cause harm in the Mediterranean, the Parties are required to assess the nature and extent of an emergency, take measures to ameliorate impacts, and apprise potentially affected Parties.[835] In 2002, the Parties adopted a new Protocol in this context which has not yet come into force, The Protocol Concerning Co-Operation in Preventing Pollution from Ships and, in cases of Emergency, Combating Pollution of the Mediterranean

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[828] *Id.* at art. 5 & Annex II.
[829] Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (1995), <http://www.unep.ch/seas/main/med/mdconvii.html>, site visited on Nov. 23, 2002.
[830] UNEP, Regional Seas, <http://www.unep.ch/seas/main/med/medemer.html>, site visited on Nov. 23, 2002.
[831] *Id.* at art. 1.
[832] *Id.* at art. 3.
[833] *Id.* at art. 4.
[834] *Id.* at art. 6.
[835] *Id.* at arts. 8-10.

Sea.[836] As its name implies, the new Protocol emphasizes not only abatement of pollution associated with ships, but also reduction and prevention strategies.[837] This includes implementation of relevant international conventions, including national capacity building,[838] assessment of the environmental risks of recognized routes in maritime traffic, and measures to reduce the risk of accidents and their consequences.[839] The Protocol also provides for the establishment of bilateral or multilateral subregional agreements to facilitate its implementation, with the Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea[840] providing assistance in drafting and implementing such agreements.[841]

The Protocol for the Protection of the Mediterranean Sea Against Pollution from Land-Based Sources[842] entered into force in 1983. It was subsequently amended in 1996 and renamed the Protocol for the Protection of the Mediterranean Sea against Pollution from Land-Based Sources and Activities.[843] This Protocol has not yet entered into force.

Under the revised Protocol, the Parties agree to:

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[836] UNEP, Regional Seas, Protocol Concerning Co-Operation in Preventing Pollution from Ships and, in cases of Emergency, Combating Pollution of the Mediterranean Sea (2002), <http://www.unepmap.gr/pdf/newemergency.pdf>, site visited on Nov. 24, 2002.
[837] *Id.* at art. 3(1).
[838] *Id.* at art. 4(2).
[839] *Id.* at art. 15.
[840] *See* note 897 and accompanying text, *infra*.
[841] Protocol Concerning Co-Operation in Preventing Pollution from Ships and, in cases of Emergency, Combating Pollution of the Mediterranean Sea, *supra* note 836, at art. 15.
[842] UNEP, Regional Seas Program, Protocol for the Protection of the Mediterranean Sea Against Pollution from Land-Based Sources and Activities (1980), <http://sedac.ciesin.org/pidb/texts/acrc/mlandp.txt.html>, site visited on July 3, 2003.
[843] UNEP, Regional Seas Program, Protocol for the Protection of the Mediterranean Sea against Pollution from Land-Based Sources and Activities, <http://www.unep.ch/seas/main/med/mlbspii.html>, site visited on Nov. 30, 2002. The amendments to the Protocol have not yet entered into force.

> . . . take all appropriate measures to prevent, abate, combat and eliminate to the fullest possible extent pollution of the Mediterranean Sea Area caused by discharges from rivers, coastal establishments or outfalls, or emanating from any other land-based sources and activities within their territories, giving priority to the phasing out of inputs of substances that are toxic, persistent and liable to bioaccumulate.[844]

Specific obligations include eliminating pollution from land-based sources and activities, particularly by phasing out substances listed in an annex that are classified as toxic, persistent and liable to bioaccumulate,[845] strict regulation of point source discharges in the Protocol area,[846] and the establishment of monitoring programs.[847]

The Protocol for the Protection of the Mediterranean Sea against Pollution Resulting from Exploration and Exploitation of the Continental Shelf and the Seabed and its Subsoil[848] was adopted in 1994 but has not yet entered into force. The Protocol requires the Parties to authorize all activities in the Protocol area related to exploration for or exploitation of resources.[849] Authorization is to only be accorded to operations that meet international standards and are conducted by technically competent operators.[850] The Protocol also imposes

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[844] *Id.* at art. 1.
[845] *Id.* at art. 5(1) & Annex I.
[846] *Id.* at art. 6(1).
[847] *Id.* at art. 8.
[848] UNEP, Regional Seas, The Protocol for the Protection of the Mediterranean Sea against Pollution Resulting from Exploration and Exploitation of the Continental Shelf and the Seabed and its Subsoil (1994), <http://www.unep.ch/seas/main/med/medoffsh.html>, site visited on Dec. 1, 2002.
[849] *Id.* at sec. II(1).
[850] *Id.*

special obligations on operators regarding wastes and the use, storage and discharge of harmful or noxious substances and materials.[851]

The Protocol on the Prevention of Pollution of the Mediterranean Sea by Transboundary Movements of Hazardous Wastes and their Disposal (Hazardous Wastes Protocol)[852] was adopted in 1996 but has not yet entered into force. The Protocol requires the Parties to prevent, abate and eliminate pollution caused by transboundary movements and disposal of hazardous wastes, as defined in the Protocol's annexes.[853] Specific obligations include a requirement of regional scientific and technical cooperation, especially to develop clean production methods,[854] development of national legislation to combat illegal trafficking in hazardous wastes,[855] and the drafting of guidelines for liability and compensation for damages associated with transboundary movement and disposal of hazardous wastes.[856]

The Protocol Concerning Specially Protected Areas and Biological Diversity in the Mediterranean,[857] a revised version of the Protocol Concerning Mediterranean Specially Protected Areas,[858] was adopted in 1996 and entered into force in 1999. Unlike its predecessor, and in recognition of the needs of

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[851] *Id.* at sec. III.
[852] UNEP, Regional Seas Program, The Protocol on the Prevention of Pollution of the Mediterranean Sea by Transboundary Movements of Hazardous Wastes and their Disposal (Hazardous Wastes Protocol, <http://www.unep.ch/seas/main/hconlist.html#med>, site visited on Dec. 1, 2002.
[853] *Id.* at art. 6, Annexes I & II.
[854] *Id.* at art. 8(1).
[855] *Id.* at art. 9.
[856] *Id.* at art. 14.
[857] UNEP, Regional Seas Program, Protocol Concerning Specially Protected Areas and Biological Diversity in the Mediterranean Sea, <http://www.unep.ch/seas/main/med/medspaii.html>, site visited on Dec. 1, 2002.
[858] *Id.*, Protocol Concerning Mediterranean Specially Protected Areas, <http://www.unep.ch/seas/main/med/medspap.html>, site visited on Dec. 1, 2002.

highly migratory species, such as marine mammals, the revised Protocol is applicable to all marine waters regardless of their legal status.[859] The Protocol's general obligations include requiring the Parties "to protect, preserve and manage in a sustainable and environmentally sound way areas of particular natural or cultural value, notably by the establishment of specially protected areas;"[860] "to protect, preserve and manage threatened or endangered species of flora and fauna;"[861] and "to cooperate, directly or through the competent international organizations, in the conservation and sustainable use of biological diversity."[862]

The Protocol authorizes the Parties to establish specially protected areas (SPAs) within their respective marine and coastal zones[863] to, *inter alia*, protect representative types of coastal and marine ecosystems, habitats in danger of disappearing in their natural area and those critical for the survival, reproduction and recovery of endangered, threatened or endemic species of flora and fauna.[864] The Parties are required to formulate protective measures for SPAs, including the prohibition of the dumping of wastes and other substances that threaten the integrity of protected areas,[865] regulation of the introduction of non-indigenous or genetically modified species,[866] regulation or prohibition of

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[859] *Id.* at art. 2. Scovazzi, *supra* note 1021, at 140.
[860] *Id.* at art. 3(1)(a).
[861] *Id.* at art. 3(1)(b).
[862] *Id.* at art. 3(2).
[863] *Id.* at Sec. II, art. 5.
[864] *Id.* at Sec. II, art. 4 (a)-(c).
[865] *Id.* at Sec. II, art. 6(b).
[866] *Id.* at Sec. II, art. 6(d).

exploration or exploitation of the seabed or soils or subsoils,[867] and the regulation or prohibition of fishing, hunting, taking of animals, harvesting of plants or their destruction, as well as trade in flora and fauna species in specially protected areas.[868] The Parties have established more than 150 Marine and Coastal Protected Areas to date, though only Italy has special legislation for establishing such areas.[869]

The Protocol also provides for the establishment of a "List of Specially Protected Areas of Mediterranean Importance" (SPAMIs).[870] The list may include sites which:

- are of importance for conserving the components of biological diversity in the Mediterranean;
- contain ecosystems specific to the Mediterranean area or the habitats of endangered species;
- are of special interest at the scientific, aesthetic, cultural or educational levels.[871]

Parties making proposals for inclusion of areas in the SPAMI list are required to both justify their importance in the Mediterranean, and to formulate management plans and means for their implementation.[872] Once an area is added to the SPAMI list by the Parties to the Protocol, the area and measures adopted for its protection are accorded *erga omnes* status. That is, all Parties to the Protocol are required to comply with said measures and to refrain from activities that might contravene the objectives for which SPAMIs are

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[867] *Id.* at Sec. II, art. 6(g).
[868] *Id.* at Sec. II, art. 6.
[869] UNEP, *supra* note 175, at 27.
[870] *Id.* at Sec. II, art. 8(1).
[871] *Id.* at sec. II, art. 8(2).
[872] *Id.* at sec. II, art. 9(3) & art. 9(5).

established.[873] In the specific context of cetaceans, the Ligurian Cetacean Sanctuary[874] was designated as a SPAMI in 2002.[875]

The Protocol includes several provisions for the protection and conservation of Mediterranean flora and fauna species. The Parties are required to identify and compile lists of endangered and threatened flora and fauna species and accord protected status to such species.[876] This includes controlling, and where appropriate, prohibiting the taking, possession or killing of protected species, commercial trade and exhibition for commercial purposes and the disturbance of wild fauna.[877]

The Parties are also required to adopt cooperative measures to protect and conserve flora and fauna species classified as endangered or threatened in the Protocol's annexes.[878] This includes all cetacean species commonly found in the region.[879] To ensure the "maximum possible protection and recovery" of endangered and threatened species, the Parties are required to cooperate to

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[873] *Id.* at sec. II, art. 8(3). *See also* Tullio Scovazzi, *The Recent Developments in the "Barcelona System" for the Protection of the Mediterranean Against Pollution,* 11 INT'L J. MARINE & COASTAL L. 95, 99 (1996). However, as Gavouneli, points out, while the Protocol establishes *erga omnes* obligations, "the problem lies with the continued ability of third parties to disregard such convention protection measures, since they are in fact *pacta tertii.*" Maria Gavouneil, *New Forms of Cooperation in the Mediterranean System of Environmental Protection, in* THE STOCKHOLM DECLARATION & LAW OF THE MARINE ENVIRONMENT 227 (Myron H. Nordquist, John Norton Moore & Said Mahmoudi eds., 2003). The Parties have sought to address this problem by inviting non-parties and international organizations to cooperate in the Protocol's obligations. *Id.*

[874] *See* sec. 5.2, *supra.*

[875] *Proceedings of the First Session of the Meeting of the Parties of the Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area, supra* note 61, at 5.

[876] Protocol Concerning Specially Protected Areas and Biological Diversity in the Mediterranean Sea, *supra* note 857, at sec. III, art. 11.

[877] *Id.* at sec. III, art. 11(3).

[878] *Id.* at sec. III, art. 12(1)

[879] *Id.* at Annex II.

implement the measures outlined in the previous paragraph.[880] Additionally, they must cooperate to prohibit the destruction of critical habitat for endangered or threatened species.[881] It is contemplated that the establishment of SPAMIs may ultimately lead to the creation of a network of protected areas in the Mediterranean region.[882] Creation of such networks may prove critical in our efforts to protect ecosystems at the regional level,[883] which in turn may be critical for the conservation of cetacean species in the region.

5.2.5 Cetacean-Specific Measures and Activities under the Barcelona Convention

In 1991, the Parties to the Barcelona Convention adopted the Action Plan for the Conservation of Cetaceans.[884] The Plan calls for the Parties to take measures to protect cetaceans and their habitats through measures such as prohibition of deliberate taking, adoption of fisheries policies to avoid bycatch, and the creation of marine protected areas for cetaceans.[885]

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[880] *Id.* at Sec. III, art. 12(2). However, the Protocol does permit the exploitation of "species whose exploitation is regulated," as set forth in Annex III, provided that this is done in a way that "maintain[s] their favourable state of conservation." *Id.* at art. 12(4). No cetacean species are listed in this annex.
[881] *Id.* at Sec. III, art. 12(3).
[882] Giuseppe Notarbartolo di Sciara, *The List of Specially Protected Areas of Mediterranean Importance: Implementation and Perspectives for Development,* discussion paper prepapred for the Regional Action Centre – Specially Protected Areas, UNEP Mediterranean Action Plan, Contract No. 05/2003 (2003), at 3, <http://www.disciara.net/>, site visited on July 3, 2005.
[883] *Id.* at 5-6.
[884] Available on the Internet Guide to International Fisheries Law site, <http://www.oceanlaw.net/texts/cetacean.htm>.
[885] *Id.* at ¶ 11.

The Parties also approved a project for the preparation of a Strategic Action Plan for Biodiversity in the Mediterranean Region (SAP BIO[886]) to facilitate implementation of the Specially Protected Areas and Biological Diversity Protocol. SAP BIO outlined a plan of activities over a thirty-month period that culminated in the drafting of the Strategic Action Programme for the Conservation of Marine and Coastal Biodiversity in the Mediterranean Region. Several of the provisions of SAP BIO are especially pertinent to the conservation of cetaceans in the region. These include:

1. Establishment of systems to continuously monitor the primary threats to Mediterranean biodiversity;[887]
2. Preparation of National Action Plans for the conservation and/or management of specific species or groups of species;[888]
3. Strengthening existing marine and coastal protected areas;[889]
4. Assessment of the potential impact of climate change and other environmental change threats to coastal and marine biodiversity;[890]
5. Efforts to control and mitigate the effects of changes in land use, including coastal urbanization and the development of infrastructure;[891]
6. Development of strategies to prevent the negative impacts of fisheries on biodiversity;[892]
7. Development of strategies to enhance regional public awareness.[893]

SAP BIO was adopted at the Thirteenth Ordinary Meeting of the Contracting Parties to the Barcelona Convention in 2003.[894] The Secretariat of

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[886] UNEP, *13th Ordinary Meeting of the Contracting Parties to the Convention for the Protection of the Mediterranean Area Against Pollution and its Protocol, Strategic Action Plan for the Conservation of Biological Diversity (SAP BIO) in the Mediterranean Region,* UNEP(DEC)/MED IG.15/8, 8 Oct. 2003.
[887] *Id.* at 33, sec. 2.1.2.
[888] *Id.* at 33, sec. 2.2.2.
[889] *Id.* at 34, sec. 2.2.5.
[890] *Id.* at 35, secs. 2.3.1 & 2.3.2.
[891] *Id.* at 36, sec. 2.3.5.
[892] *Id.* at 37, sec. 2.3.9.
[893] *Id.* at 38, sec. 2.7.1.
[894] UNEP, *Report of the 13th Ordinary Meeting of the Contracting Parties to the Convention for the Protection of the Mediterranean Area Against Pollution and its Protocols*, UNEP(DEC)/MED

ACCOBAMS is a member of the Advisory Committee for the project,[895] and the Sub-Regional Coordination Unit for the Mediterranean has recommended that the marine mammals components of SAP BIO should be considered as a component of implementation of ACCOBAMS.[896]

5.2.6 The Regional Action Centers

Six Regional Action Centers are tasked with undertaking specific activities within the framework of the MAP and the Barcelona Convention: (Blue Plan RAC, France); (Priority Actions Programme (PAP) RAC, Croatia); (Specially Protected Areas RAC, Tunisia); (the Regional Marine Pollution Emergency Response Centre for the Mediterranean (REMPEC), Malta); (Environment Remote Sensing RAC, Italy); and (Cleaner Production RAC, Spain).[897] (*See also* Figures 15 & 16).

IG.15/11, 9 Dec. 2003, at 26; *A Key Step for Mediterranean Biodiversity,* 51 MEDWAVES 13 (2004); ACCOBAMS, First Meeting of the Scientific Committee, *The Preparation of a Strategic Action Plan for the Conservation of Biological Diversity in the Mediterranean Sea (SAP BIO),* Doc. CS1/Inf 2 (2002), at 1.

[895] UNEP, *supra* note 886, at 91.

[896] *Id.* at 2.

[897] Alexandra Holland & Nesrin Algan, *External Evaluation of the Priority Actions Programme Regional Activity Centre,* UNEP Mediterranean Action Plan (2001), at 5.

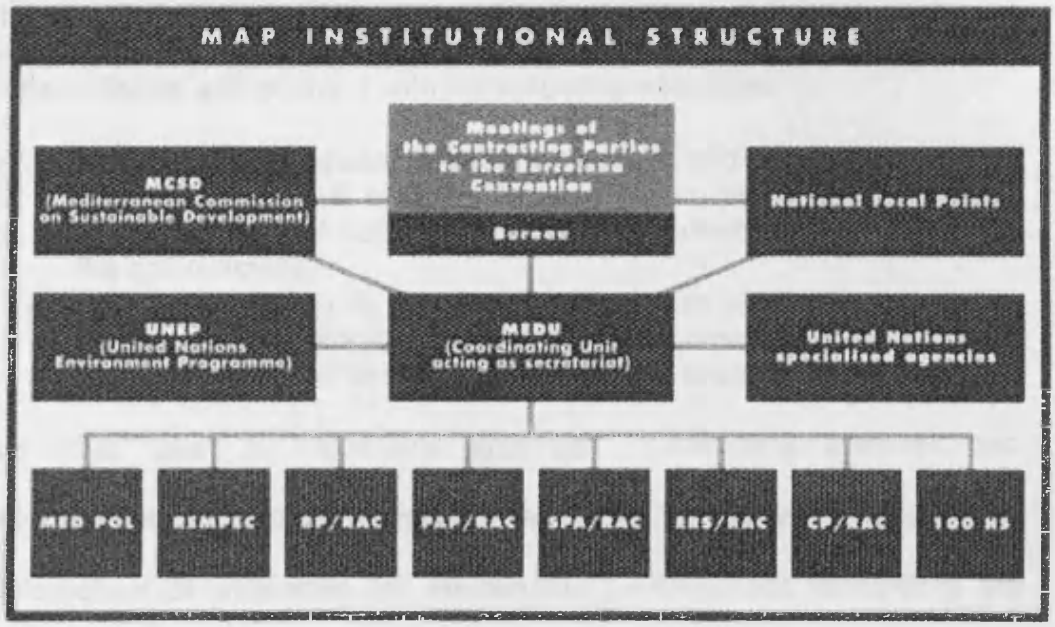

Figure 15

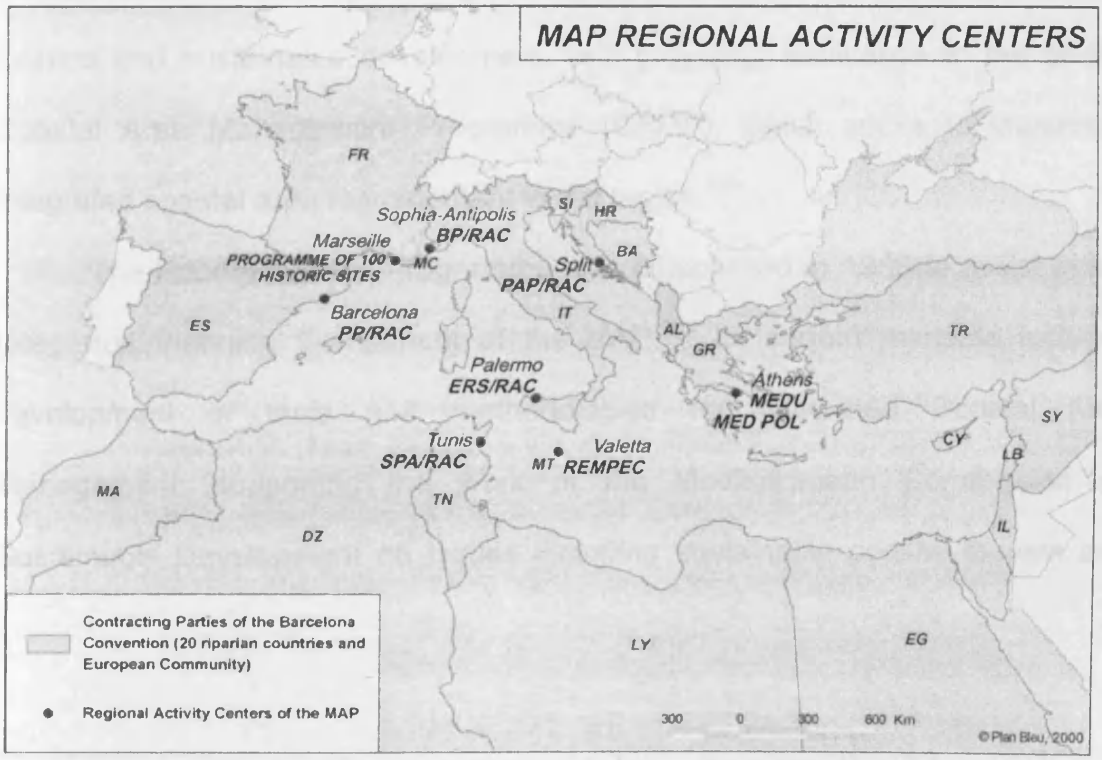

Figure 16

The Blue Plan was established in 1977 at an intergovernmental meeting of Mediterranean States and charged with the following mandates:

- Putting at the disposal of political leaders and decision-makers all information that will enable them to develop plans likely to ensure sustained optimal socio-economic development without degrading the environment;
- Helping governments of coastal states in the Mediterranean region to increase their knowledge of the joint problems they face, both in the Mediterranean Sea and in their coastal areas.[898]

The Blue Plan takes a "think-tank approach," conducting systemic and prospective studies, as well as advancing proposals for action.[899] Its activities include promotion of indicators for sustainable development, enhancing the capabilities of Southern and Eastern Mediterranean nations in the field of environmental statistics, providing assistance to States in the region to reconcile tourism and sustainable development, and providing assistance to the MAP's Coastal Area Management Programme (CAMP), which seeks to implement integrated coastal area management in the region.[900]

The Priority Actions Programme was established in 1980 to assist in the Integrated Planning Component of the MAP.[901] Its current mandate includes development of tools and methodologies for Integrated Coastal Area Management; supporting the work of the Mediterranean Commission on Sustainable Development on issues including sustainable coastal tourism and

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[898] UNEP, *The Blue Plan,* <http://www.planbleu.org/indexa.htm> (site visited on June 27, 2002).
[899] *Id.*
[900] *Id.* at <http://www.planbleu.org/vanglaise/1-5a.htm>, site visited on July 12, 2002.
[901] Holland & Algan, *supra* note 897, at 7.

water resources management in coastal areas, and continued implementation of CAMP projects.[902]

The Specially Protected Areas RAC was established by the Parties to the Barcelona Convention to assist Mediterranean States in implementing the Protocol Concerning Specially Protected Areas and Biological Diversity in the Mediterranean.[903] Specific responsibilities include: 1. Assisting the Parties in conducting programs of scientific and technical research, preparing management plans for protected areas and species, and preparing educational materials for various groups; 2. Creating and updating databases on specially protected areas and species; 3. Cooperating with regional and international governmental and non-governmental organizations concerned with specially protected areas and species.[904]

The REMPEC RAC was established in 1989 by the Parties to the Barcelona Convention.[905] Its objectives are:

1. To strengthen the capacities of the coastal States in the Mediterranean and to facilitate co-operation among them should a major marine pollution accident occur;
2. To assist coastal States of the Mediterranean region, which so request, in the development of their own capabilities for response to accidents;
3. To facilitate information exchange, technological co-operation and training;
4. To provide a framework for the exchange of information on operational, technical, scientific, legal and financial matters.[906]

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[902] *Id.* at 7-8. The Priority Actions Programme developed the Coastal Area Management Programme in the late 1980s. Aldo G. Manos & Backson Sibanda, *In-Depth Evaluation of the Regional Activity Centre for Priority Actions Programme (PAP-RAC),* UNEP (1999), at 2.
[903] UNEP, Regional Activity Centre for Specially Protected Areas, <http://www.rac-spa.org.tn/Sparac.htm>, site visited on June 27, 2002.
[904] *Id.*
[905] IMO/OMI & UNEP-PNUE, *About REMPEC,* <http://www.rempec.org/about_rempec.html>, site visited on June 27, 2002.
[906] *Id.*

Specific activities of REMPEC include development of a Regional Information System on oil and hazardous substances; provision of assistance to States in the region in the preparation of national contingency plans, and development of a regional communications network.[907]

The Environment Remote Sensing RAC conducts remote sensing of the Mediterranean terrestrial and marine environments.[908] Its activities include classification and observation of Mediterranean vegetation; monitoring of coastal change; modeling of dispersal of land-based pollution by coastal sea currents; and identification of remote sensing centers in the region.[909]

The Regional Activity Center for Cleaner Production was established in 1996 by the Parties to the Barcelona Convention. For the purposes of the Center's work, "Cleaner Production" is defined as "the continual application of an integrated environmental prevention strategy in processes, products and services, with the aim of reducing risks for humans and the environment, to increase the company's competitiveness and guarantee its economic viability."[910] The Center's primary objective is to disseminate information on pollution prevention and reduction of point source pollution in the industrial sector.[911]

5.3 Convention for the Protection of the Black Sea Against Pollution/Black Sea Environmental Program

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[907] *Id.*
[908] IMO-OMI & UNEP-PNUE, *supra* note 905.
[909] *Id.*, <http://www.rempec.org/racs.html#esrin>, site visited on June 27, 2002.
[910] The Regional Activity Center for Cleaner Production, *What Is It?*, <http://www.cipn.es/car/eng/index.htm>, site visited on June 27, 2002.
[911] *Id.*

5.3.1 Convention for the Protection of the Black Sea Against Pollution

5.3.1.1 History and General Objectives

The primary impetus for the establishment of a framework to confront the environmental threats to the Black Sea was a comprehensive package of international environmental initiatives put forth by the Gorbachev government in the former Soviet Union during the 1980s.[912] The four existing Black Sea States at the time convened in the summer of 1986 to discuss the possibility of drafting an agreement to address pollution issues in the region. After six years of negotiation, the six riparian States of the Black Sea (Bulgaria, Georgia, Romania, the Russian Federation, Turkey and Ukraine) signed the Convention for the Protection of the Black Sea Against Pollution (Bucharest Convention).[913] The Convention entered into force on January 15, 1994 and has been ratified by all six riparian nations.

"Determined to act with a view to achieve progress in the protection of the marine environment of the Black Sea and in the conservation of its living resources,"[914] the Parties to the Convention pledge to "take individually or jointly, as appropriate, all necessary measures consistent with international law and in accordance with the provisions of this Convention to prevent, reduce and control pollution thereof in order to protect and preserve the marine environment of the

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[912] Natalia Mirovitskaya, *Moving Toward International Cooperation in the Black Sea Region: Prospects of Sustainable Governance,* 42nd International Studies Association Annual Convention, 20-24 Feb. 2001, at 13.
[913] 32 I.L.M. 1110 (1993).
[914] *Id.* at Preamble.

Black Sea."[915] Moreover, the Parties are required to "pay particular attention to avoiding harm to marine life and living resources," especially by changing their habitats or imperiling fisheries.[916] The recommendations of "competent international organizations" are to be accorded consideration in this context.[917] The implementation of the Convention is managed by the Commission for the Protection of the Black Sea Again Pollution.[918]

The Parties generally pledge to prevent pollution of the marine environment of the Black Sea from any source or substance set forth in Annex I to the Convention. These substances are:

1. Organohalogen compounds e.g. DDT, DDE, DDD, PCB's;
2. Mercury and mercury compounds;
3. Cadmium and cadmium compounds;
4. Organotin compounds;
5. Persistent synthetic matter which may float, sink or remain in suspension;
6. Used lubricating oils;
7. Lead and lead compounds;
8. Radioactive substances and wastes, including used radioactive fuel.
9. Crude oil and hydrocarbons of any origin.[919]

As indicated above, virtually all of these pollutants are of great concern vis-à-vis cetaceans.

The Convention also provides for scientific and technical cooperation and monitoring by the Parties. The Parties pledge to cooperate in conducting scientific research germane to the Convention's objectives, including joint

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[915] *Id.* at art. V(2).
[916] *Id.* at art. XIII.
[917] *Id.*
[918] *Id.* at arts. XVII; XVIII.
[919] *Id.* at Annex I.

programs of scientific research and exchange of relevant scientific information and data.[920]

The Convention also contains provisions for controlling pollution from several specific sources, many of which have significant impacts on cetaceans in the region. These are described in the following sections.

5.3.1.1.2 Land-Based Pollution Sources

The Parties agree to prevent, reduce and control pollution of the marine environment by land-based sources in accordance with the Protocol on the Protection of the Black Sea Marine Environment Against Pollution from Land-Based Sources, which forms an integral part of the Convention.[921] The Protocol requires the Parties to prevent, reduce and control pollutant discharges from land-based sources, including rivers, canals, coastal establishments, other artificial structures, outfalls or run-off and the atmosphere.[922]

The Parties pledge to "prevent and eliminate" pollution from substances listed in Annex I of the Convention, which are:

1. Organohalogen compounds and substances which may form such compounds in the marine environment.
2. Organophosphorus compounds and substances which may form such compounds in the marine environment.
3. Organotin compounds and substances which may form such compounds in the marine environment.
4. Mercury and mercury compounds.
5. Cadmium and cadmium compounds.
6. Used lubricating oils.

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[920] *Id.* at art. XV(1).
[921] *Id.* at art. VII.
[922] Bucharest Convention, *supra* note 913, Protocol on the Protection of the Black Sea Marine Environment Against Pollution from Land-Based Sources, at art. 1.

7. Persistent synthetic materials which may float, sink or remain in suspension and which may interfere with any legitimate use of the sea.
8. Substances having proven carcinogenic, teratogenic or mutagenic properties in or through the marine environment.
9. Radioactive substances, including their wastes, when their discharges do not comply with the principles of radiation protection as defined by the competent international organizations, taking into account the protection of the marine environment.

The Protocol also calls upon the Parties to seek to reduce, and wherever possible eliminate, pollution from substances and matter listed in Annex II, which are deemed to be less harmful or more readily rendered harmless than Annex I substances.[923]

Annex II substances are:

1. Biocides and their derivatives not covered in Annex I;
2. Cyanides, fluorides, and elemental phosphorus;
3. Pathogenic micro-organisms;
4. Nonbiodegradable detergents and their surface-active substances;
5. Alkaline and acid compounds;
6. Substances which, though of a non-toxic nature, may become harmful to the marine biota owing to the quantities in which they are discharged e.g. inorganic phosphorus, nitrogen, organic matter and other nutrient compounds. Also substances that have an adverse effect on the oxygen content of the marine environment;
7. The following elements and their compounds:

Zinc	Selenium	Tin	Vanadium
Copper	Arsenic	Barium	Cobalt
Nickel	Antimony	Beryllium	Thallium
Chromium	Molybdenum	Boron	Tellurium
	Titanium	Uranium	Silver

[923] *Id.* at art. 4 & Annex II.

Additionally, the Parties seek to cooperate with other States with water courses that are tributaries to the Black Sea to achieve the Protocol's objectives.[924]

The Protocol also contemplates the establishment of common guidelines, standards and criteria to address the special characteristics of marine outfalls and the establishment of a research program on effluents necessitating separate treatment and the concentration of Annex I and II substances and matter in effluents and methods to discharge them.[925] Specific sector foci are to include:

1. Discharge from municipal sewage systems;
2. Industrial waste;
3. Cooling water from nuclear power plants or other industrial enterprises;
4. Pollution load from agricultural and forest areas affecting the water quality of the marine environment of the Black Sea.[926]

5.3.1.1.3 Pollution from Vessels

The Parties pledge themselves to take appropriate measures to prevent, reduce and control pollution of the marine environment from vessels in accordance with "generally accepted international rules and standards."[927]

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[924] *Id.* at art. 4.
[925] *Id.* at art. 6.
[926] *Id.*
[927] *Id.* at art. VIII.

5.3.1.1.4 Combating Pollution in Emergency Situations

The Convention requires the Parties to prevent, reduce and control pollution of the Black Sea marine environment resulting from emergency situations in accordance with the Protocol on Cooperation in Combating Pollution of the Black Sea by Oil and Other Harmful Substances in Emergency Situations. The Protocol forms an integral part of the Convention.[928]

Generally, the Protocol requires the Parties to take measures "in cases of grave and imminent danger to the marine environment of the Black Sea or to the coast of one or more of the Parties due to the presence of massive quantities of oil or other harmful substances resulting from accidental causes or from accumulation of small discharges that are polluting or constituting a threat of pollution."[929]

These measures include the following:

1. The establishment of bilateral or multilateral contingency plans to combat pollution of the sea by oil and other harmful substances;[930]
2. Establishment of monitoring systems to ensure detection of violations of the Protocol and enforcement of its provisions;[931]
3. Designation of focal points for transmitting and receiving reports on incidents that have resulted or may result in a discharge of oil or other harmful substances.[932]

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[928] *Id.* at art. IX.
[929] Bucharest Convention, Protocol on Cooperation in Combating Pollution of the Black Sea Marine Environment by Oil and other Harmful Substances in Emergency Situations, *supra* note 913.
[930] *Id.* at art. 2.
[931] *Id.* at art. 3.
[932] *Id.* at art. 5.

As indicated *infra*, the discharge of oil in the Black Sea poses a serious threat to cetaceans.[933]

5.3.1.1.5 Pollution by Dumping

The Parties are required to take measures and to cooperate to prevent, reduce and control pollution by dumping in accordance with the Protocol on the Protection of the Black Sea Marine Environment Against Pollution by Dumping. The Protocol forms an integral part of the Convention.[934]

Under the Protocol, dumping of substances set forth in Annex I of the Convention is prohibited,[935] and dumping of Annex II substances or matter is sanctioned only upon issuance of a special permit by national authorities.[936] Dumping of all other wastes or matters requires the issuance of a general permit by national authorities.[937]

These measures are to be taken by each State Party in respect to all of the following sectors:

1. Vessels flying its flag or aircraft registered in its territory;
2. Vessels and aircraft loading in its territory wastes or other matter that are to be dumped;
3. Platforms and other man-made structures at sea situated within its territorial sea and exclusive economic zone;
4. Dumping within its territorial sea and exclusive economic zone.[938]

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[933] *See* sec. 2.2.3.1, *infra*.
[934] Bucharest Convention, *supra* note 913, at art. X.
[935] *Id.*, Protocol on the Protection of the Black Sea Marine Environment Against Pollution by Dumping, at art. 2.
[936] *Id.* at art. 3.
[937] *Id.* at art. 4.
[938] *Id.* at art. 8.

The Parties are also required to exchange information, including informing other Parties that may be affected in cases of suspicion that contravention of the Protocol has or is about to occur.[939]

[939] *Id.* at art. 9.

5.3.1.1.6 Other Sources of Pollution

The Convention requires the Parties to adopt laws, regulations and measures to prevent, reduce and control pollution of the marine environment associated with activities on their respective continental shelves, including exploration and exploitation of natural resources.[940] Additionally, the Parties pledge to adopt laws, regulations and measures to prevent, reduce and control atmospheric pollution of the marine environment.[941]

5.3.2 The Black Sea Biodiversity and Landscape Conservation Protocol

The adoption of the Biodiversity and Landscape Conservation Protocol to the Bucharest Convention at the 9th Meeting of the Parties to the Convention in 2003 was the culmination of several years of work of the Advisory Group on the Conservation of Biological Diversity and was supported by the EU and the Assistance for the Commonwealth of Independent States (TACIS) program.[942] It was signed at the meeting by four Black Sea States: Bulgaria, Romania, the Russian Federation and Ukraine.[943]

The purpose of the Protocol "is to maintain the Black Sea ecosystem in the good ecological state and its landscape in the favourable conditions, to protect, to preserve and to sustainably manage the biological and landscape diversity of

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[940] Bucharest Convention, *supra* note 913, at art. XI.
[941] *Id.* at art. XII.
[942] *Minutes of the 9th Ministerial Meeting of the Black Sea Commission, supra* note 424, at 8. For a description of the TACIS program, *see infra* note 1234 and accompanying text.
[943] Personal communication from Oksana Tarasova, Pollution Monitoring and Assessment Officer, Black Sea Commission, Oct. 15, 2002.

the Black Sea in order to enrich the biological resources."[944] In seeking to effectuate this objective, the Parties pledge themselves to take, *inter alia,* the following measures:

1. Identify and compile inventories of the components of biological diversity in the Protocol area and identify components important for their conservation and sustainable use;
2. Adopt a "List of Species of Black Sea Importance That May Be Threatened, or Important by Reason of Their Role in Ecosystem Functioning or Other Significance for the Region"[945] subject to special conservation and management measures, including recovery plans, measures for habitat protection, including cross-border cooperation where necessary, and compilation of a list of threatened species critical to ecosystem functioning and accord protected status to these species within three years;[946]
3. Adopt measures to regulate intentional introduction of non-indigenous species or genetically modified organisms and prevent accidental introduction of such entities and prohibit those that may have harmful impacts on ecosystems, habitats or species in the Protocol area;[947]
4. Develop a Strategic Action Plan for the Protocol within three years of entry into force, to be reviewed every five years thereafter.[948] The Parties will also adopt national plans and programs to implement the Plan and integrate these plans into their respective national sectoral and intersectoral policies;[949]
5. Adopt national rules and regulations for liability by natural or juridical persons for damage to the biological and landscape diversity of the region.[950]

The Ministers in their Declaration on the Protection of the Black Sea

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[944] Black Sea Biodiversity and Landscape Conservation Protocol to the Convention on the Protection of the Black Sea Against Pollution, Draft, Revision 6 (2002), at art. 1(1). The text to the Protocol was provided to the author by the Black Sea Commission. Personal Communication with Oksana Tarasova, Pollution Monitoring and Assessment Officer, Black Sea Commission, Oct. 14, 2002.

[945] *Id.* at art. 4(3). The provisional list includes all three species of cetaceans commonly found in the region. *Id.* at Annex 2.

[946] *Id.* at Annex 3.

[947] *Id.* at art. 5(1).

[948] *Id.* at art. 4(6).

[949] *Id.* at art. 4(7).

[950] *Id.* at art. 11(2).

Ecosystem at the 9th Meeting of the Parties to the Convention called for "speeding up the ratification process for the Protocol . . . and its early enactment."[951]

5.3.3 Institutional Provisions

A Commission is established under the Convention, comprised of one Representative from each contracting Party.[952] The functions of the Commission include:

1. Promotion of the implementation of the Convention, including making recommendations to achieve the Convention's objectives, and recommendations for amendments to the Convention or its Protocols;[953]
2. Elaboration of criteria for prevention, reduction and control of pollution;[954]
3. Promulgation of relevant scientific, technical and statistic information to the Parties;[955]
4. Cooperation with competent international organizations, especially with a view to develop appropriate programs or to obtain assistance.[956]

Provision is also made for the establishment of a permanent Secretariat to assist the Commission in its duties.[957] After a protracted delay,[958] the Secretariat was finally established in 2000.[959]

5.3.4 Black Sea Environmental Program

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[951] 9th Meeting of the Contracting Parties to the Convention on the Protection of the Black Sea Against Pollution, *Declaration on the Protection of the Black Sea Ecosystem.*
[952] Bucharest Convention, *supra* note 913, at art. XVII(2).
[953] *Id.* at art. XVIII(1-3).
[954] *Id.* at art. XVIII(4).
[955] *Id.* at art. XVIII(5).
[956] *Id.* at art. XVIII(6).
[957] *Id.* at XVII(6).
[958] The delays were caused by resource constraints and disputes in formulating a headquarters agreement. Martin Sampson, *Black Sea Environmental Cooperation: Toward a Fourth Track, in* PROTECTING REGIONAL SEAS: DEVELOPING CAPACITY & FOSTERING ENVIRONMENTAL COOPERATION IN EUROPE 64 (Stacy D. VanDeveer & Geoffrey D. Dabelko eds., 1999).
[959] Commission of the European Communities, *supra* note 346, at 28.

In 1993, the six riparian Black Sea States signed the Ministerial Declaration on the Protection of the Black Sea Environment (Odessa Declaration),[960] modeled on Agenda 21,[961] adopted at the United Nations Conference for Environment and Development ("Earth Summit) in 1992.[962] The Declaration was intended to serve as a policy statement to set forth environmental goals for the region, and to establish a time frame for implementing and financing these goals.[963]

The Odessa Declaration noted the continuing deterioration of the Black Sea's ecosystems and natural resources despite measures taken by coastal States, as well as at the international level.[964] Thus, the Ministers called for "urgent, comprehensive, consistent and coordinated action" at all levels, guided by:

1. A precautionary approach;
2. The use of low and non-waste technologies;
3. Integration of marine environmental protection considerations into other policy areas;
4. Market mechanisms, including the development of economic incentives for using low and non-waste technologies, user fees, and the polluter pays principle;
5. Application of natural resource and environmental accounting and environmental impact assessment procedures to all sectors, including tourism;[965]

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[960] Black Sea Environmental Programme, <http://www.blacksea-environment.org/OdessaDeclaration.html> (site visited on May 19, 2002).
[961] United Nations Sustainable Development, Agenda 21, Ch. 17, *Protection of the Oceans, All Kinds of Seas, Including Enclosed and Semi-Enclosed Seas, and Coastal Areas and the Protection and Rational Use and Development of their Living Resources* (1992), <http://www.un.org/esa/sustdev/agenda21home.htm>, site visited on Aug. 21, 2000.
[962] DiMento, *supra* note 393, at 246.
[963] Laurence David Mee, *Can the Marine and Coastal Environment of the Black Sea be Protected?, in* POLITICS OF THE BLACK SEA (Tunç Aybak ed., 2000).
[964] *Id.* at Preamble.
[965] *Id.*

The Ministers adopted several actions to enhance the prospects for sustainable development in the region and effective implementation of the Bucharest Convention. These included:

1. Development of common environmental quality objectives and emission standards for substances listed in Annexes I and II of Land-Based Sources and Dumping Protocols to the Bucharest Convention;[966]
2. Construction of sewage systems and treatment plants in areas where local populations or tourism or fisheries might be threatened;[967]
3. Encouragement of the development of plans for restoration and conservation of Black Sea biodiversity;[968]
4. Elaboration and implementation of integrated coastal zone management policies;[969]
5. Selection of activity centers by the end of 1993 to provide technical support and coordinate national and regional actions.[970]

Also, in 1993, a three-year Black Sea Environmental Program (BSEP) was established under the auspices of UNEP and the Global Environment Facility (GEF) with $9.3 million funding from the GEF, and $5 million in collateral funding from the EU and several individual nations.[971] The program was subsequently extended for an additional two years.[972]

The BSEP's primary objectives were to improve national capacities to assess and manage the environment; support development and implementation of new environmental policies and laws; and promote sound environmental investments.[973] The Program also established several regional activity centers: the Center for Biodiversity and the Black Sea Ecology and Fishery Institute in

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[966] *Id.* at para. 1.
[967] *Id.* at para. 3.
[968] *Id.* at para. 8.
[969] *Id.* at para. 15.
[970] *Id.* at para. 17.
[971] Mirovitskaya, *supra* note 912, at 15.
[972] Black Sea Environmental Programme, <http://www.blacksea-environment.org/BSEP1.html>, site visited on May 19, 2002.
[973] DiMento, *supra* note 393, at 247.

Georgia; the Center for Environmental and Safety Aspects of Shipping in Bulgaria; the Center for Integrated Coastal Zone Management in Russia; the Center for Fisheries and Other Marine Living Resources in Romania; the Center for Pollution from Land Based Sources in Turkey; and the Center for Monitoring and Assessment in the Ukraine.[974]

One of the major outcomes of the BSEP was the adoption of the Black Sea Strategic Action Plan for the Rehabilitation and Protection of the Black Sea in 1996,[975] a binding undertaking in which the Parties reaffirmed "their commitment to the rehabilitation and protection of the Black Sea ecosystem and the sustainable development of its resources and the adoption of the spirit of the Rio Declaration and Agenda 21."[976] In addition to calling for increased cooperation between regional bodies that foster sustainable development and environmental protection of the Black Sea basin, the Plan outlines a range of policy actions to reduce land-based[977] and vessel pollution,[978] pollution from dumping,[979] a framework for waste management,[980] provisions for the protection of fisheries, biodiversity and habitats,[981] and guidelines to engender public participation and transparency.[982]

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[974] *Id.*
[975] Available on Blackseaweb.net, at: <http://www.blackseaweb.net/action/content.htm>, site visited on May 19, 2002.
[976] *Id.* at Preamble.
[977] *Id.* at para. 28-35.
[978] *Id.* at para. 36-41.
[979] *Id.* at para. 42-45.
[980] *Id.* at para. 46-48.
[981] *Id.* at para. 57-66.
[982] *Id.* at para. 73-80.

The BSEP's provisions for controlling pollution are obviously germane to the protection of cetaceans in the region given the threat that pollutants pose. Moreover, as discussed in the following three sections, the Strategic Action Plan's provisions to protect biodiversity, fishing resources and habitats are also relevant to cetacean conservation.

5.3.4.1 Biodiversity Provisions

The Plan's biodiversity provisions called for development of a Protocol on Biological Diversity and Landscape Protection under the Bucharest Convention,[983] which as indicated above, has now come to fruition.[984] Additionally, it called for several measures to restore populations of marine mammals, including:

- A ban on the hunting of marine mammals;
- Regular population assessments of marine mammals, with the first assessment to be completed by 1998;
- Establishment of a marine mammal rehabilitation center and strengthening of national centers and sanctuaries for rehabilitation of marine mammals;
- Modification of fishing practices to avoid marine mammal bycatch.[985]

5.3.4.2 Protection of Habitat and Landscape

The Plan calls for the designation of new conservation areas and enhancement of existing conservation areas, especially wetlands. [986] It also calls for the establishment of a Regional Strategy for Conservation Areas to address issues such as designation of conservation areas, and standards and

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[983] *Id.* at para. 60.
[984] *See* sec. 5.5.2, *supra.*
[985] *Id.* at para. 62.
[986] *Id.* at para. 65(a).

measurements for protection of conservation areas.[987] Each Black Sea State also agreed to adopt national laws, regulations and planning instruments for the protection of conservation areas by 2000 and to adequately staff authorities that manage these areas.[988] Public awareness campaigns are to be developed for conservation areas and coordinated at the regional level where appropriate.[989]

5.3.4.3 Commercially Exploited Resources

Acknowledging that "fish are an integral part of the marine ecosystem," the Parties pledge themselves to accord special protection to spawning and nursery grounds,[990] and to rehabilitate critical ecosystems for fish.[991] The need to expedite the adoption of a proposed Fisheries Convention to develop an effective management system was also emphasized.[992]

5.4 International Convention for the Regulation of Whaling

The ICRW[993] was entered into fifty-eight years ago by fifteen States "in the face of precipitous declines in the stocks of most important whale species"[994] to "establish a system of international regulation for the whale fisheries to ensure proper and effective conservation and development of whale stocks."[995] The

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[987] *Id.*
[988] *Id.* at para. 65(b).
[989] *Id.* at para. 66.
[990] *Id.* at para. 57.
[991] *Id.* at para. 58.
[992] *Id.* at para. 59.
[993] ICRW, *supra* note 560.
[994] William C.G. Burns, *The International Whaling Commission and the Future of Cetaceans: Problems and Prospects*, 8 COLO. J. INT'L ENVTL. L. & POL'Y 31, 33 (1997).
[995] ICRW, *supra* note 560, at Preamble.

International Whaling Commission (IWC) was established to implement the provisions of the treaty.

While the IWC's primary focus in its first 25 years was on the regulation of commercial whaling, as the Parties noted at their meeting in 2003, its ambit has gradually expanded "to address the multitude of threats that cetaceans face and will be facing to an increasing degree."[996] Many of these threats, and the IWC's responses, are germane to the cetaceans of the Black and Mediterranean seas. For example, the IWC and its Scientific Committee are engaged in research germane to several of the major threats to Mediterranean and Black Sea cetaceans. The Pollution 2000+ program is a five-year initiative to assess the impacts of pollution on cetaceans, with an emphasis on ensuring consistency of methodologies and interpretation of the importance of biological variables, such as age, sex and health.[997] The program is initially focused on the impacts of polychlorinated biphenyls (PCBs) on harbor porpoises and bottlenose dolphins, including bottlenose dolphins in the Mediterranean.[998] However, it is anticipated that the research will yield relevant information on a wide range of other organochlorines and establish a framework for studying other contaminants.[999]

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[996] 55th Meeting of the International Whaling Commission, *The Berlin Initiative on Strengthening the Conservation Agenda of the International Whaling Commission,* IWC/55/4 Rev (2003) (hereinafter *Berlin Initiative*).
[997] International Whaling Commission, *Pollutants and Cetaceans,* <http://ourworld.compuserve.com/homepages/iwcoffice/PollIntro.htm>, site visited on July 15, 2002.
[998] International Whaling Commission, *Report of the Scientific Committee,* 51st Meeting of the IWC, reprinted in 2(Suppl.) J. CETACEAN RES. & MGMT. 34-35 (2000). During June of 2001, three bottlenose dolphins were biopsied in the coastal waters of the southern Balearic Islands during a feasibility survey; the samples are now being analyzed. *Report of the Scientific Committee, supra* note 70, at 61.
[999] *Id.* at 35.

Additionally, the Scientific Committee's Standing Working Group on Environmental Change is tasked with assessing the impacts of several other threats that are relevant in the Black Sea and the Mediterranean, including climate change, noise, bycatch in fisheries operations and disease and mortality events.[1000] At its 55th Meeting, the Parties adopted the "Berlin Initiative on Strengthening the Conservation Agenda of the International Whaling Commission."[1001] The Initiative establishes a Conservation Committee and entrusts it with preparation of recommendations to the IWC for its future Conservation Agenda, implementation of portions of the Agenda tasked to it by the IWC, and the responsibility to make recommendations to IWC on how to update the Agenda on an ongoing basis.[1002] The resolution outlining the initiative sets forth several threats to cetaceans that are germane to species in the ACCOBAMS Agreement Area, including incidental catch of cetaceans, pollution, and habitat destruction.[1003]

Also, the IWC established the Subcommittee on Small Cetaceans in the 1970s,[1004] which in conjunction with the Scientific Committee, has conducted ongoing research on threats to small cetaceans. However, prior to the 55th Meeting of the Parties, the IWC had not asserted legal jurisdiction over small cetacean species because of serious resistance by many of the Parties to the

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[1000] International Whaling Commission, *Resolution on Environmental Change and Cetaceans,* Resolution 1997-7. *See also,* William C.G. Burns, *From the Harpoon to the Heat: Climate Change and the International Whaling Commission in the 21st Century,* 13(4) GEO. INT'L L. REV. 335, 348 (2001).
[1001] Berlin Initiative, *supra* note 996.
[1002] *Id.* at para. 1-4.
[1003] *Id.*, at Annex II.
[1004] 23rd REP. INT'L WHALING COMMISSION 26.

ICRW.[1005] Under the Berlin Initiative adopted at the 55th Meeting of the Parties, the Parties decided that the IWC will no longer draw a distinction between "large" and "small" cetaceans, but rather will bring its classification into line with UNCLOS's distinction between highly migratory species and other species.[1006] Further, it is contemplated that the IWC will "remain the primary organization for the management and conservation of highly migratory species ... [while] primary responsibility for the remaining species [will rest] with coastal States and regional organizations (such as those established under CMS)."[1007]

In making this decision, the IWC appears to now have asserted jurisdiction over the vast majority of cetacean species, including most small cetaceans, which comprise the great majority of species found in the ACCOBAMS Agreement Area. Annex I of UNCLOS, which lists those species classified as "highly migratory" under the treaty, encompasses the families of *Physeteridae*; *Balaenopteridae*; *Balaenidae*; *Eschrichtiidae*; *Monodontidae*; *Ziphiidae*; and *Delphinidae*.[1008] This excludes only one Mysticeti family, *Eschrichtiidae* (gray whales), and only two Odontoceti families, *Platanistidae* (river dolphins) and

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[1005] Gillespie, *supra* note 534, at 258; Burns, *supra* note 574, at 105. In approaching the issue of the IWC's role in the context of small cetaceans, it has sought to strike a balance between opposing factions by calling on the Parties to cooperate for the conservation of small cetacean species, and to support ongoing research, while emphasizing that such cooperation is "without prejudice to the views of Member States on the regulatory competence of the IWC in this regard." IWC, *Resolution on Addressing Small Cetaceans in the IWC,* App. 4 (1993), available at: <http://www.internationalwildlifelaw.org/45iwc.PDF>, site visited on Aug. 10, 2002. *See also* IWC, *Resolution on Small Cetaceans,* Resolution 2001-13 (2001), available at: <http://www.internationalwildlifelaw.org/53IWC.html>, site visited on Aug. 10, 2002; IWC, *Resolution on Dall's Porpoise,* Resolution 1999-9 (1999), available at: <http:www.internationalwildlifelaw.org/cet.txt.html>, site visited on Aug. 10, 2002.

[1006] Berlin Initiative, *supra* note 996, at 13.

[1007] *Id.*

[1008] United Nations Convention on the Law of the Sea, *supra* note 1050, at Annex I.

Phocoenidae (porpoises).[1009] In the context of ACCOBAMS, the only species regularly found in the Agreement Area that is not classified by UNCLOS as "highly migratory" is the *Phocoenidae* species, *Phocoena phocoena,* the harbor porpoise.[1010] Thus, it appears that the IWC, while acknowledging the role of regional organizations in conserving cetaceans, has sought to drastically circumscribe the *primary jurisdiction* of such bodies through the passage of the Berlin Initiative.Whether this will have any practical implications for the operation of regional regimes, such as ACCOBAMS, will remain to be seen.

At the same time, this may not mean that the IWC is seeing to interfere with the operation of regimes such as ACCOBAMS; indeed, the opposite appears to be the case. In 2000, the Secretariats of the IWC and the CMS signed a Memorandum of Understanding (MOU) "to establish a framework of information and consultation between UNEP/CMS and the IWC . . . with a view to identifying synergies and ensuring effective cooperation in joint activities . . ."[1011] The MOU called for the fostering of institutional linkages by participation as observers at the bodies' respective meetings and by seeking to promote consultation and cooperation among national focal points.[1012] Additionally, the Secretariats pledged to coordinate the work of the respective regimes to ensure "complementary and mutually supportive" implementation.[1013]

[1009] Jaap's Marine Mammal Page, *Classification of Whales*, <http://ourworld.compuserve.com/homepages/jaap/Cetacea.htm>, site visited on Feb. 6, 2004.
[1010] *See supra* note 356.
[1011] *Memorandum of Understanding Between the Secretariat of the International Whaling Commission and the Secretariat of the Convention on the Conservation of Migratory Species of Wild Animals (CMS)* (2000), copy supplied by the IWC Secretariat to the author.
[1012] *Id.* at art. III.
[1013] *Id.* at art. IV.

At its 53rd meeting in 2001, the Parties to the ICRW passed a resolution calling upon the IWC to pursue "complementary and mutually supportive actions in respect of small cetaceans" under the MOU.[1014] However, the MOU has yet to be translated into substantive cooperative measures between the Secretariats.

Finally, as indicated above, the Scientific Committee of the IWC nominates a representative to the Scientific Committee of ACCOBAMS and also sends an observer to the Meeting of the Parties meetings.[1015] ACCOBAMS also nominates an observer to IWC's Scientific Committee and Commission meetings.[1016]

5.5 Ligurian Cetacean Sanctuary

The Corso-Ligurian basin is characterized by high levels of nutrient upwelling, resulting in the highest levels of both chlorophyll biomass and zooplankton species, including krill (*Maganyctiphanes norvegica*), in the Mediterranean.[1017] As a consequence it is the most biologically diverse and productive area for whales and dolphins in the Mediterranean, supporting more

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[1014] IWC, *Resolution on Small Cetaceans,* Resolution 2001-13 (2001).
[1015] *Supra* note 630 and accompanying text.
[1016] IWC, *Overview of Existing Collaboration with Other Organizations,* 56th Meeting of the IWC, IWC/56/CC 2 (2004), at 4.
[1017] J.C.D. Gordon, et al., *Distribution and Relative Abundance of Striped Dolphins, and Distribution of Sperm Whales in the Ligurian Sea Cetacean Sanctuary: Results From a Collaboration Using Acoustic Monitoring Techniques,* 2(1) J. CETACEAN RES. & MGMT. 27, 35 (2000); Tethys Research Institute, *International Ligurian Sea Cetacean Sanctuary,* <http://www.tethys.org/sanctuary.htm>, site visited on Jan. 17, 2004

than two to four times more cetaceans than anywhere else in the region, including 2,000 fin whales.[1018]

In 1989, two NGOs, the Tethys Research Institute and Greenpeace, requested special protection for the area.[1019] Acknowledging the importance of this region for marine mammals, and its fragility, France, Italy and Monaco signed a declaration in 1993 calling for the establishment of a Mediterranean sanctuary for the protection and conservation of marine mammals.[1020] On November 25, 1999, the three nations signed an agreement for the establishment of a Mediterranean sanctuary.[1021] The agreement came into effect in 2001 after ratification by the three signatory parties.[1022] As indicated earlier, the Sanctuary has been designated in the List of Specially Protected Areas of Mediterranean Importance under the Barcelona Convention.[1023]

[1018] Stefano Aliani; Annalisa Griffa & Anne Molcard, *Floating Debris in the Ligurian Sea, north-western Mediterranean,* 46(9) MARINE POLLUTION BULL. 1142, 1143 (2003); Giancarlo Lauriano, *Preliminary Observations of Fin Whales (Balaenoptera Physalus) Off Northwest-Western Sardinia,* 11 EUR. RES. CETACEANS 122, 122 (1997); Paul Brown, *Whale Sanctuary Created in the Mediterranean,* THE GUARDIAN, Nov. 26, 1999, at 22. Thirteen species of cetaceans reside in the basin, seven of which can be found there year-round. In addition to 2,000 fin whales, the area is inhabited by between 25,000-45,000 dolphins during the summer months. *Sanctuary for Mediterranean Whales Found,* Environment News Service, Nov 25, 1999, <http://ens.lycos.com/ens/nov99/1999L-11-25-01.html>.

[1019] HOYT, *supra* note 69, at 136.

[1020] The sanctuary grew out of the "Pelagos Plan" proposal by the Tethys Institute, an NGO based in Italy that has been granted "Partner" status by ACCOBAMS, in 1990. *Cetaceans Sanctuary of the Mediterranean Sea,* <http://www.santuariodeicetacei.it/whales.nsf/EnglishHome!OpenFrameSet>, site visited on Jan. 17, 2004.

[1021] Tullio Scovazzi, *The Mediterranean Marine Mammals Sanctuary,* 16(1) INT'L J. MARINE & COASTAL L. 132, 132 (2001).

[1022] *Ligurian Sea: At Last Whales Find Sanctuary,* CIESM News, Dec. 17, 2001, <http://www.ciesm.org/newsroom/1712.html>, site visited on Jan. 2, 2002.

[1023] *See supra* note 875 and accompanying text.

The area of the sanctuary[1024] encompasses more than 96,000 square kilometers, approximately twice the area of Switzerland.[1025] It is delimited by two lines joining Pointe Escampobariou (continental coast of France) to Capo Falcone (north-west coast of the island of Sardinia), and Cape Ferro (north-east coast of Sardinia) to Fosso Chiarone (continental coast of Italy). (*See* Figure 14). The area includes waters with the legal status of maritime internal waters, territorial sea and high seas.[1026] Eight species of cetaceans regularly inhabit the area: fin whales, sperm whales, Cuvier's beaked whales, long-finned pilot whales, striped dolphins, common dolphins, bottlenose dolphins and Risso's dolphins.[1027]

[1024] The sanctuary is composed of maritime areas situated within the internal waters and territorial seas of the French Republic, the Italian Republic and the Principality of Monaco, as well as portions of adjacent high seas. The limits of the sanctuary are the following: - to the west, a line extending from Point Escampobariou (western point of the Giens peninsula: 43°01'70'N, 06°05"90"E) to Cape Falcone, situated on the western coast of the island of Sardinia (40°58'00"N, 008°12'00"E), - to the east, a line extending from Cape Ferro, situated on the north-eastern coast of Sardinia (41°09'18"N, 009°31'18"E) to Fosso Chiarone, situated on the western Italian coast (42°21'24"N, 011°31'00"E). Agreement relative to the creation of a Mediterranean sanctuary for marine mammals (1999), at art. 3 (English translation by the Instituto Centrale per la Ricerca Scientifica e Tecnologica Applicata al Mare (ICRAM; the official languages of the Agreement are Italian and French)), <http://www.tethys.org/sanctuary_text.htm>, hereinafter *Ligurian Sanctuary*, site visited on May 10, 2002.

[1025] Scovazzi, *supra* note 1021, at 132.

[1026] *Id.* at 133. 50% of the Sanctuary lies within the Mediterranean high seas "and is the first High Seas Marine Protected Area to have been established anywhere." IWC, 56th Meeting of the IWC, *Opening Statement of Italy,* IWC/56/OS Italy (2004).

[1027] *Id.*

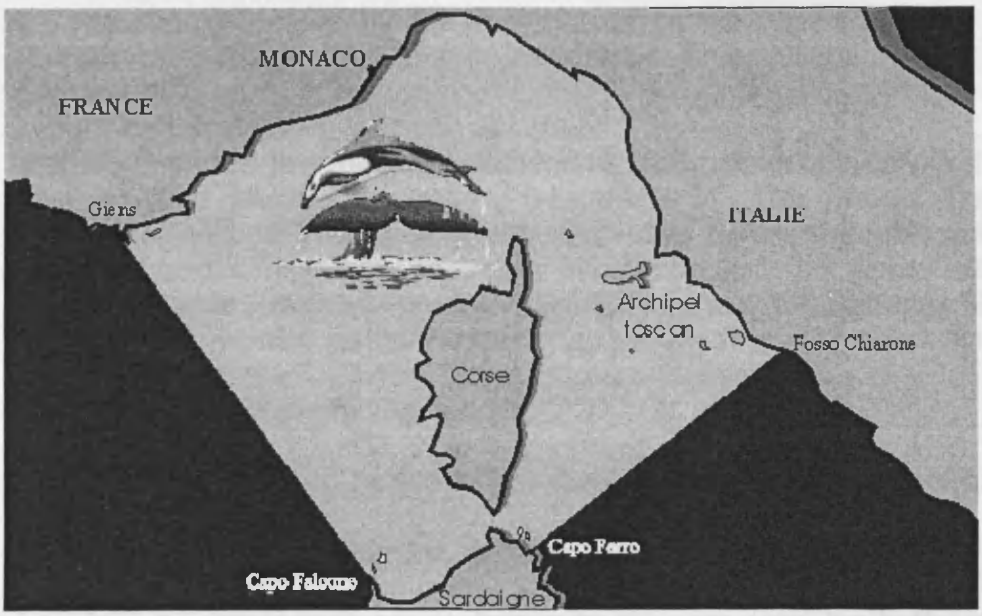

Figure 14

The parties to the Agreement pledge to adopt measures to "ensure the favourable conservation status of marine mammals"[1028] by protecting them and their habitats from negative direct or indirect impacts associated with anthropogenic activities."[1029] These measures include:

1. Prohibition of the deliberate take or intentional disturbance of marine mammals;[1030]
2. Compliance with international and EU regulations regarding the use of pelagic drift nets;[1031]
3. Adoption of regulations, if necessary, relating to the use of new fishing equipment that might result in the incidental capture of marine mammals or might endanger their prey;[1032]

[1028] "[A] conservation status is deemed to be "favourable" when the knowledge on the populations indicate that the marine mammal species of the region are maintaining themselves as a viable component of their ecosystem." *Id.* at art. 1(a).
[1029] Ligurian Sanctuary, *supra* note 1024, at art. 4.
[1030] *Id.* at art. 7(a).
[1031] *Id.* at art. 7(b).
[1032] *Id.* at art. 7(c).

4. An exchange of views by the Parties with a view to regulating, and perhaps forbidding, high-speed motorboat competitions within the Sanctuary;[1033]
5. Regulation of cetacean-watching activities;[1034]
6. Intensified efforts to reduce maritime and land-based pollution likely to have adverse impacts on marine mammals.[1035] This should include adoption of national strategies by the respective parties to phase out the release of toxic compounds, especially substances listed in Annex I of the Protocol against Pollution from Land Based Sources and Activities of the Barcelona Convention for the Protection of the Mediterranean Sea against Pollution;[1036]
7. Harmonization of national regulations.[1037]

It was originally envisaged by the NGOs that proposed the sanctuary that it would conform to the architecture for biosphere reserves,[1038] which are organized into three interrelated zones, known as the core area, the buffer zone, and the transition zone.[1039] Under this scheme, the sanctuary would have included highly protected core zones for cetacean critical habitat.[1040] However, no reference to the biosphere reserve idea were made in the 1999 designation of the sanctuary, thought the Parties might ultimately incorporate biosphere reserve zoning into the Sanctuary's management plan.[1041]

[1033] *Id.* at art. 9.
[1034] *Id.* at art. 8.
[1035] *Id.* at art. 6(1). The limited width of the Liguria region's coastal zone results in a high concentration of civil populations and industrial activities, posing the threat of high concentrations of pollution. R.M. Bertolotto, et al., *Polycyclic Aromatic Hydrocarbons in Surficial Coastal Sediments of the Ligurian Sea,* 46 MARINE POLLUTION BULL. 907, 907 (2003).
[1036] *Id.* at art. 6(2).
[1037] *Id.* at art. 10.
[1038] Hoyt, *supra* note 69, at 136.
[1039] UNESCO, *Frequently Asked Questions on Biosphere Reserves,* <http://www.unesco.org/mab/nutshell.htm>, site visited on Feb. 4, 2005.
[1040] Hoyt, *supra* note 69, at 136. This zone would have conformed to the IUCN's Category 1 for protected areas, its most protective category. *Id. See* Australian Government, Dept. of the Environment & Heritage, *Six IUCN Protected Area Categories,* <http://www.deh.gov.au/parks/iucn.html>, site visited on Feb. 4, 2005.
[1041] *Id.*

The parties also agree to undertake relevant research to further the objectives of the agreement, including the following:

1. Periodic assessment of marine mammal population status, the causes of mortality, and threats to habitat, especially those that may adversely affect cetacean food resources or reproduction;[1042]
2. Applying the precautionary principle,[1043] studies on other issues relevant to implementation of the Agreement, including the possible impacts of seismic and acoustic prospecting and mining for minerals, and the impacts of high-speed motorboat races.[1044]

While the Agreement does not establish an institutional framework for the management of the Sanctuary, it does provide for regular meetings between the Parties.[1045] Within this framework, the Parties agree to encourage national and international research programs and awareness-building campaigns aimed at professional and other marine users, as well as non-governmental organizations. The focus of the campaigns is to prevent vessel collisions with marine mammals and communication of the presence of dead or distressed animals to competent local authorities.[1046]

An outstanding legal issue is the authority of the Parties to regulate activities that occur in the high seas portion of the sanctuary. Article 14 of the Agreement provides:

1. In the part of the sanctuary located within the waters subject to its sovereignty or jurisdiction, each of the State Parties to the present Agreement is responsible for the application of the relevant provisions

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[1042] *Id.* at art. 5.
[1043] For an explanation of the precautionary principle and its contours, *see* sec. 7.2., *infra.*
[1044] *Id.* at Declaration.
[1045] *Id.* at art. 12(1).
[1046] *Id.* at art. 12.

2. In the other parts of the sanctuary, each of the State Parties is responsible for the application of the provisions of the present Agreement with respect to ships flying its flag as well as, within the limits provided for by the rules of international law, with respect to ships flying the flag of third States.[1047]

As indicated *infra,* Mediterranean nations have been chary to establish exclusive economic zones in the region.[1048] However, Article 14(2) of Sanctuary agreement, which provides for application of the Agreement's provisions "within the limits provided for by the rules of international law," may encourage Member States to at least invoke a limited right to exercise their rights under Article 65 of the Law of the Sea Convention[1049] to implement the Agreement's protection within the EEZs they would be entitled to create under the United Nations Convention on the Law of the Sea (UNCLOS).[1050]

5.6 Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention)

The Parties to the Convention on the Conservation of European Wildlife and Natural Habitats[1051] agree to promote national policies to conserve wild flora and fauna species in their natural habitats.[1052] Additionally, they are required to

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[1047] *Id.* at art. 14.
[1048] *See infra* notes 1317-1318 and accompanying text.
[1049] *See infra* note 1321 and accompanying text.
[1050] Scovazzi, *supra* note 1021, at 138; United Nations Convention on the Law of the Sea, *opened for signature* Dec. 10, 1982, 1833 UNTS 397 (hereinafter UNCLOS).
[1051] 1284 U.N.T.S. 209.
[1052] *Id.* at art. 3(1).

take into account the conservation needs of wild flora and fauna in planning and development policies and measures against pollution.[1053] Four of the six Black Sea riparian States (Bulgaria, Romania, Turkey and Ukraine) are parties to the Bern Convention, as are 10 Mediterranean States (Albania, Croatia, Cyprus, France, Greece, Italy, Malta, Slovenia, Spain, Turkey).[1054]

Appendix II of the Bern Convention, denominated "Strictly Protected Fauna Species," includes all cetacean species set forth in the "indicative list of cetaceans to which this agreement applies" in Appendix I of ACCOBAMS. Under Article 6 of the Convention, the Parties are required to "take appropriate and necessary legislative and administrative measures to ensure the special protection of the wild fauna species specified in Appendix II."[1055] This includes the prohibition of several activities that may threaten cetaceans: 1. all forms of deliberate capture and keeping and deliberate killing;[1056] 2. deliberate damage to or destruction of breeding or resting sites;[1057] 3. deliberate disturbance of wild fauna, particularly during breeding, rearing or hibernation;[1058] and 4. possession or internal trade of animals included in the Appendix.[1059] The Parties are also required to coordinate their protection efforts for migratory species specified in Appendix II.[1060]

[1053] *Id.* at art. 3(2)&(3).
[1054] Council of Europe Online, Parties to the Convention on the Conservation of European Wildlife and Natural Habitats, <http://www.nature.coe.int/english/cadres/bern.htm>, site visited on Jan. 18, 2004.
[1055] *Id.* at art. 6.
[1056] *Id.* at art. 6 (a).
[1057] *Id.* at art. 6(b).
[1058] *Id.* at art. 6(c).
[1059] *Id.* at art. 6(e).
[1060] *Id.* at art. 10(1).

In 1995, the Convention's Standing Committee, which is responsible for monitoring the application of the Convention,[1061] adopted a recommendation for the conservation of threatened mammals in Europe. Recommendation 43 calls on the Parties to accord special conservation attention to all small populations of mammal species that are endangered or vulnerable at the European or regional level.[1062] It further calls on the Parties to the Convention to carry out extensive monitoring programs of threatened mammal populations and to consider the establishment or enhancement of recovery plans for species listed in Appendix A to the Recommendation. Appendix A includes many cetacean species in the Black Sea and Mediterranean Sea regions.[1063]

Reflecting its concern about trade in Black Sea cetaceans, the Standing Committee adopted Recommendation 86 in 2001. The Recommendation calls on the Parties to the Convention to consider the establishment of recovery plans for the Black Sea bottlenose dolphin and to strictly enforce the prohibition under the Bern Convention of the capture and keeping of Black Sea bottlenose dolphins. It also calls for support of regional coordination efforts to conserve the species.[1064]

[1061] *Id.* at art. 14.
[1062] Convention on the Conservation of European Wildlife and Natural Habitats, Standing Committee, *Recommendation 43 on the Conservation of Threatened Mammals in Europe* (1995).
[1063] *Id.* at Appendix A. Cetaceans listed in the Appendix A of the Recommendation are: *Tursiops truncatus, Delphinus delphis* (Mediterranean and Black Seas), *Physeter catodon* (Mediterranean), *Grampus griseus* (Mediterranean), *Globicephala melas* (Mediterranean), *Phocoena phocoena* (Black and Baltic Seas), *Ziphius cavirostris* (Mediterranean), *Balaenoptera physalus* (Mediterranean). Appendix B of the Recommendations is reserved for "taxa to be evaluated as candidates for conservation or recovery plans" and includes one Mediterranean cetacean species, *Stenella coeruleoalba*.
[1064] Convention on the Conservation of European Wildlife and Natural Habitats, Standing Committee, *Recommendation 86 on the Conservation of Threatened Mammals in Europe* (2001).

At the *Conserving Europe's Natural Heritage: Towards a European Ecological Network* conference in 1993, participants from thirty-one European states and twenty-six international organizations concluded that there was a clear need for a European Biological and Landscape Diversity Strategy, with Pan-European application.[1065] In 1994, the Council of Europe, in cooperation with other national and intergovernmental organizations, began drafting the Pan-European Biological and Landscape Diversity Strategy.[1066] The Strategy was endorsed by 55 States at the *Environment for Europe Conference* in 1995 in Sofia, Bulgaria.[1067] Among other objectives, the twenty-year Strategy "aims to strengthen the application of the Bern Convention in relation to the Convention on Biological Diversity."[1068]

Several provisions of the Strategy are germane to the conservation of cetaceans in the ACCOBAMS Agreement Area, including:

- Water management initiatives to, *inter alia,* reduce discharges and pollution runoff;[1069]
- Development of a European coastal and marine ecological network, including critical Mediterranean ecosystems;[1070]
- Establishment of programs to control exotic species in the Mediterranean and Black Seas;[1071]
- Establishment of a conservation program for the Danube River system.[1072]

[1065] LYNX, *The EECONET Declaration,* Sec. 1.1,
< http://www.ecnc.nl/doc/lynx/publications/eecodecl.html>, site visited on Apr. 10, 2002.
[1066] UNEP, *Pan-European Biological and Landscape Diversity Strategy*,
<http://www.strategyguide.org/fulltext.html>, site visited on Apr. 10, 2002.
[1067] UNEP, *Endorsement of the Pan-European Biological and Landscape Diversity Strategy*,
<http://www.strategyguide.org/straendo.html>, site visited on April 10, 2002.
[1068] UNEP, *supra* note 1066, at sec. 1.3.
[1069] *Id.* at sec. 2.3.
[1070] *Id.* at secs. 5.1 & 5.4.
[1071] *Id.* at sec. 5.9.
[1072] *Id.* at sec. 6.3.

5.7 General Fisheries Commission for the Mediterranean

The activities of the General Fisheries Commission for the Mediterranean (GFCM) (formerly the General Fisheries Council for the Mediterranean) are germane to cetacean conservation efforts because of the threats posed to cetaceans by bycatch and diminution of prey species as a consequence of overexploitation by the commercial fishing industry.[1073] The GFCM was established by an agreement drafted in 1949 under Article 14 of the Constitution of the Food and Agriculture Organization (FAO).[1074] There are currently 24 members in the Mediterranean and Black Sea region, including one international organization (the European Community) and one country outside the Mediterranean and Black Sea region (Japan).[1075]

The Agreement for the Establishment of a General Fisheries Council for the Mediterranean (Agreement)[1076] was established to further the Members' (Parties') interest "in the development and proper utilization of the resources of the Mediterranean and contiguous waters."[1077] The Council created by the Parties is charged with several responsibilities and functions, the focus of which is on research and information dissemination. This includes encouraging and coordinating research on improved fishing methods, conducting studies of the

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[1073] *See secs.*2.1.2.2; 2.1.2.3; 2.2.3.2; 2.2.3.4, *supra.*
[1074] Oct. 16, 1945, art. 17, 12 U.S.T. 986, 996).
[1075] Parties to the GFCM are: Albania, Algeria, Bulgaria, Croatia, Cyprus, the European Community, Egypt, France, Greece, Israel, Italy, Japan, Lebanon, Libya, Malta, Monaco, Morocco, Romania, Slovenia, Serbia and Montenegro, Spain, Syria, Tunisia, and Turkey, <http://www.fao.org/fi/body/rfb/GFCM/gfcm_mapandmem.htm>, site visited on Jan. 18, 2004.
[1076] FAO Agreement for the Establishment of a General Fisheries Council for the Mediterranean, Sept. 24, 1949, 126 U.N.T.S. 237, art. IV(a).
[1077] *Id.* at Preamble.

fisheries legislation of member States to facilitate enhanced coordination, assembling and disseminating oceanographic and technical information related to aquatic resources in the region, and reporting on its activities to its member States.[1078]

In 1997, the Agreement was amended by the Council at its Twenty-Second Session, and renamed the Agreement for the Establishment of a General Fisheries Commission for the Mediterranean.[1079] The amended text is not yet in force.

Reflecting advances in fisheries management, and the world's experience with overexploitation of fisheries resources in the ensuing five decades, the amended Agreement notes the objectives and purposes of Chapter 17 of Agenda 21 in 1992,[1080] and the FAO's Code of Conduct for Responsible Fisheries.[1081]

[1078] *Id.* at art. IV.

[1079] Agreement for the Establishment of the General Fisheries Commission for the Mediterranean, FAO, <http://www.fao.org/Legal/TREATIES/003t2-e.htm>.

[1080] United Nations Sustainable Development, Agenda 21, *supra* note 961, at <http://www.un.org/esa/sustdev/agenda21chapter17.htm>. Chapter 17 calls for "new approaches to marine and coastal area management and development, at the national, subregional, regional and global levels, approaches that are integrated in content and are precautionary and anticipatory in ambit." *Id.* at sec. 17.1. This includes integrated management and sustainable development of coastal areas, marine environmental protection, sustainable use of marine living resources in coastal areas under national jurisdiction and on the high sea, and addressing critical uncertainties for the management of marine living resources under conditions of climate change. *Id.* at sec. 17.1.

[1081] FAO, Code of Conduct for Responsible Fisheries, http://www.fao.org/fi/agreem/codecond/ficonde.asp. The FAO Code of Conduct for Responsible Fisheries was adopted by consensus at the Twenty-Eighth Session of FAO Conference in 1995. FAO, Fisheries, <http://www.fao.org/fi/agreem/codecond/ficonde.asp#BAC>. The Code grew out of a call for the establishment of a Code of Conduct by the Nineteenth Session of the FAO Committee on Fisheries in 1991 in recognition of distressing signs of overexploitation of fish stocks, damage to ecosystems and economic losses to the fishing industry. FAO, Code of Conduct for Responsible Fisheries, <http://www.fao.org/fi/agreem/codecond/ficonde.asp#BAC>, site visited on Jan. 18, 2004. While the Code is voluntary, certain elements are based on relevant rules of international law, including UNCLOS. Code of Conduct for Responsible Fisheries, at sec. 1.1.

The Code "sets out principles and international standards of behaviour for responsible practices with a view to ensuring the effective conservation, management and development of

The Agreement's Commission, which replaces the Council, continues to be responsible for conducting research on fish stocks in the Mediterranean and Black Sea regions. However, the emphasis in the amended Agreement is on the Commission's role in monitoring the status of living marine resources and formulating recommendations for "appropriate measures" for the conservation and management of such resources in the region.[1082] These measures may include the regulation of fishing methods and fishing gear, establishment of open and closed fishing seasons, regulation of total catches and fishing efforts and prescription of the minimum size for individuals of specified species.[1083] Recommendations made by the Commission come into effect upon the adoption by a two-thirds majority of the Members of the Commission.[1084]

To date, the GFCM has primarily exercised a scientific and consultative function.[1085] It has issued only three recommendations to date, the first in 1995 which set size limits, effort levels and fishing seasons for bluefin tuna and proposed joint management of large pelagics,[1086] and two in 1997, which, respectively, limited the length of driftnets that could be used in the region,[1087]

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living aquatic resources, with due respect for the ecosystem and biodiversity." *Id.,* at Introduction. It seeks to, *inter alia,* establish principles for responsible fishing, implementation of national policies for responsible conservation of fisheries resources and fisheries management and development, promote research on fisheries and associated ecosystems, and promote protection of aquatic resources and their environments. *Id.* at sec. 2.

[1082] *Id.* at art. III.

[1083] *Id.* at art. III(1)(b).

[1084] *Id.* at art. V(1). A Member making a timely objection to a recommendation is not obligated to give effect to it. *Id.* at art. V(3).

[1085] Tullio Scovazzi, *ACCOBAMS and Relevant Provisions of Domestic and International Law,* First Meeting of the Parties, ACCOBAMS, MOP 1/inf. 9 (2002), at 34.

[1086] GFCM, Resolution 95/1, *Management of Fisheries for Large Pelagic Stocks* (1995).

[1087] GFCM, Report of the Twenty-Second Session of the General Fisheries Council for the Mediterranean, 13-16 Oct., 1997, Resolution 97/1. The resolution banned the possession by vessels flying the flag of member states of driftnets longer than 2.5 kilometers.

and imposed further regulations on the harvesting of bluefin tuna.[1088] The Members subsequently adopted all three of these recommendations.[1089]

However, in the past few years, the GFCM has also focused more on implementing scientific management principles that may ultimately benefit cetaceans by ensuring more sustainable exploitation of commercial marine species that are also consumed by cetaceans, as well as ensuring the health of the region's ecosystem as a whole. For example, in the past few years the GFCM's Scientific Advisory Committee (SAC) and associated working groups have been developing a list of management units for targeted species and operational units within management units[1090] for vessels practicing the same types of fishing units.[1091] The SAC has been tasked by the GFCM to develop new or alternative conservation measures for threatened stocks, and clear quantitative indicators for identified management options.[1092] Further, the SAC's Sub-Committee on Statistics and Information and Information has been charged with developing a Mediterranean fishery statistics and information system (MEDIFSIS) and encouraging the establishment of compatible statistical systems throughout the region.[1093]

[1088] *Id.* at Resolution 97/3. The resolution prohibits the bluefin tuna purse seine fishery during August and prohibits the use of airplanes and helicopters in support of such fishing operations in June.
[1089] Scovazzi, *supra* note 1085, at 34.
[1090] The GFCM's Working Group on Management Units has recommended to the SAC that the GFCM geographical area be divided into thirty provisional management units. GFCM, *Report of the Fourth Session of the Scientific Advisory Committee* (2001), at para. 14.
[1091] GFCM, *Report of the Twenty-Sixth Session of the General Fisheries Commission for the Mediterranean* (2001), at para. 26.
[1092] *Id.* at Appendix G, para. 5.
[1093] *Report of the Twenty-Sixth Session of the General Fisheries Commission for the Mediterranean*, *supra* note 1091, at para. 27.

Efforts to assess and ameliorate the impacts of fisheries bycatch on other marine living resources have also intensified in the past few years. The GFCM has requested that the SAC investigate and update data on incidental catches of protected species in fishing activities[1094] and the ecosystem implications of bycatch.[1095]

Recognition in the mid-nineties that "excessive fishing effort or an inappropriate exploitation pattern can produce dramatic effects on the whole marine ecosystem"[1096] also led to establishment of a Sub-Committee on Marine Environment and Ecosystems (SCMEE). The SCMEE was established with a "broad mandate" that includes both monitoring of the impact on fisheries on marine ecosystems and the relationship between the marine environment and fisheries.[1097] The SCMEE has recommended that the GFCM establish an *ad hoc* working group to analyze the feasibility of an ecosystems-based management approach to fisheries in the region to: 1. examine existing and potential alternative ecosystem-based methodologies to assess and monitor Mediterranean fisheries; and 2. to discuss possible ecosystem-based management tools.[1098]

[1094] *Id. at* Appendix G, para. 8.
[1095] GFCM, *Report of the Third Session of the Scientific Advisory Committee* (2000), at para. 69.
[1096] J. Lleonart & L. Recasens, *Fisheries and the Environment in the Mediterranean Sea. Resource and Environmental Issues Relevant to Mediterranean Fisheries Management* (J.F. Caddy ed., 1996), <http://www.ua.es/copemed/en/virtlib/gfcm/sr66p2.htm>.
[1097] *Report of the Third Session of the Scientific Advisory Committee, supra* note 1095, at para. 31.
[1098] *Report of the Fourth Session of the Scientific Advisory Committee, supra* note 1090, at para. 47.

5.8 Danube River Protection Convention

As indicated, *supra*, two-thirds of the riverine input of pollutants to the Black Sea comes from the Danube River,[1099] making it the "main culprit" in demise of the Black Sea marine environment.[1100] In 1994, 11 Danube River riparian States[1101] and the EU signed the Convention on Cooperation for the Protection and Sustainable Use of the River Danube.[1102] The Convention came into force in 1998, and now has 14 parties.[1103]

As outlined in the Convention's objectives section, the Parties pledge themselves to "endeavor" to reduce pollutant loads to the Black Sea from sources in the catchment area.[1104] This is a decidedly pallid commitment in contrast to the mandatory language used in other instruments that seek to combat transboundary pollution, such as the Helsinki Convention on the Protection and Use of Transboundary Watercourses and International Lakes.[1105] The Parties also seek to achieve the goals of "sustainable and equitable water management," and control of hazards associated with accidents involving

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[1099] *See supra* note 410 and accompanying text.
[1100] Nilufer Oral, *The Black Sea: A Case Study in Regional Cooperation, in* Nordquist, Moore & Mahmoudi, *supra* note 873, at 245.
[1101] Austria, Bulgaria, Croatia, Czech Republic, Germany, Hungary, Moldova, Romania, Slovak Republic, Slovenia, Ukraine.
[1102] Available at: <http://ksh.fgg.uni-lj.si/danube/envconv/> (hereinafter Danube River Protection Convention), site visited on Jan. 18, 2004.
[1103] The Parties are: Austria, Bosnia-Herzegovina, Bulgaria, the European Union, Croatia, the Czech Republic, Germany, Hungary, Moldova, Romania, Serbia and Montenegro, Slovakia, Slovenia, Ukraine. International Commission for the Protection of the Danube River, <http://www.icpdr.org/pls/danubis/danubis_db.dyn_navigator.show>, site visited on Jan. 18, 2004.
[1104] Danube River Protection Convention, *supra* note 1102, at art. 2(1).
[1105] Oral, *supra* note 1100, at 246.

hazardous substances to water.[1106] As the goals of reducing pollution inputs to the Black Sea are most germane to Black Sea cetaceans, this section will focus on provisions relevant to this objective.

The Party's primary obligations to control pollution with transboundary impacts include the following:

1. Recording of conditions of natural water resources within the Danube River catchment area.[1107] This includes periodic inventories of point and non-point sources of pollution within the catchment area;[1108]
2. Adoption of legally binding wastewater discharge standards;[1109]
3. Adoption of legal provisions for the handling of substances hazardous to water;[1110]
4. Adoption of legal provisions for reduction of nutrients or hazardous substances from non-point sources, especially from the agricultural sector;[1111]
5. Adoption of appropriate measures to avoid the transboundary impacts of wastes and hazardous substances, especially originating from transport;[1112]
6. Elaboration and implementation of domestic and joint programs for monitoring riverine conditions in the Danube catchment area;[1113]

The Convention also establishes an International Commission for the Protection of the Danube River. The Commission will fulfill several responsibilities, including establishing cooperative relationships with other international and national organizations,[1114] reviewing implementation of the

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[1106] Danube River Protection Convention, *supra* note 1102, at art. 2(1).
[1107] *Id.* at art. 5(2)(a).
[1108] *Id.* at art. 8(1).
[1109] *Id.* at art. 5(2)(b).
[1110] *Id.* at art. 5(2)(c).
[1111] *Id.* at art. 5(2)(d).
[1112] *Id.* at art. 5(2)(f).
[1113] *Id.* at art. 9(1).
[1114] *Id.* at art. 18(6).

Convention,[1115] drafting proposals for emissions limits for individual industrial sectors;[1116] and assisting the Parties in harmonizing regulations.[1117]

The Convention's work is supported by the Environmental Programme for the Danube River Basin (EPDRB), established in 1991 by Danube nations with support from non-governmental organizations and the EU.[1118] The first phase of the EPDRB (1992-1996) concentrated on building regional cooperation for water management, implementing a basin-wide monitoring strategy, and establishing a warning system for accidental pollution incidents.[1119] The second phase (1997-2000) concentrated on implementation of the Strategic Action Plan Implementation Programme, which grew out of the first phase of EPDRB.[1120] The Action Plan has four overarching goals:

1. Reduction of the negative impacts of activities in the Danube River basin and on riverine ecosystems and the Black Sea;
2. Maintenance and improvement of the availability and quality of water in the Danube River basin;
3. Establishment of control over hazards from accidental spills;
4. Development of regional water management cooperation.[1121]

Short and medium-term targets are identified in National Action Plans. Short-term targets include establishment of integrated tributary river basin plans, wetland inventory conservation and management programs, and completion of a

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[1115] *Id.* at art. 18(5).
[1116] *Id.* at art. 7(1).
[1117] *Id.* at art. 5(2)(e).
[1118] Danube Environmental Programme – Fostering International Cooperation in the Basin, <http://www.rec.org/DanubePCU/news5/foster.html>.
[1119] *Id.*
[1120] *Id.*
[1121] International Information Centre for Terminology, *supra* note 410.

comprehensive system of information on the state of the riverine environment.[1122] Medium-term targets include: completion of pollutant emission inventories; adoption and implementation of hazardous substance control legislation; introduction of environmentally sound agriculture policy reforms; and rehabilitation and modernization of existing municipal waste water completion plans.[1123] The Plan establishes priority sectors for attention, including sewage and municipal waste water facilities, industrial plants and agriculture.[1124]

A Joint Ad-hoc Technical Working Group was established between the Bucharest Convention and the Danube Convention in 1998, comprised of representatives from Black Sea and Danube States. The Working Group recommended a series of short and long-term goals. In the short term, the Working Group called on basin countries to undertake reformation of agricultural policies, improvement of waste water treatment systems, rehabilitation of essential aquatic ecosystems and efforts to change consumer practices detrimental to the watersheds.[1125]

In the long term, the Working Group recommended that all States in the Black Sea basin should "take measures to reduce the loads of nutrients and hazardous substances to such levels necessary to permit Black Sea ecosystems to recover to conditions similar to those observed in the 1960s."[1126] It was also agreed that a review of the respective regimes' success in limiting discharges of

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[1122] *Id.* at sec. 2.4.1.
[1123] *Id.* at sec. 2.4.2.
[1124] *Id.* at sec. 2.3.1.
[1125] Mirovitskaya, *supra* note 912, at 16.
[1126] *Id.*

nutrients and hazardous substances will be conducted in 2007, with an eye to focusing on additional measures that might be appropriate.[1127] Finally, the Bucharest and Danube regimes also established a permanent coordinating task force, DANBLAS, which met for the first time in March of 2002.[1128]

The GEF has sought to facilitate the successful launch of the joint Black Sea-Danube Commission's efforts to reduce eutrophication by providing $90 million over five years, its biggest single investment in oceans ever. This has been supplemented by funds from several other donors, including the EU, bringing the total for the initiative to more than $100 million.[1129]

The International Commission for the Protection of the Danube River and the International Commission for the Protection of the Black Sea also signed a Memorandum of Understanding in 2001.[1130] The Memorandum is intended to serve as a framework for implementing common strategic goals, including taking measures to reduce the loads of nutrients and hazardous substances discharged into the Black Sea so as to foster ecosystem recovery; establishment of a common Analytical Quality Assurance system; and development of strategies for

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[1127] *Memorandum of Understanding between the International Commission for the Protection of the Black Sea (ICPBS) and the International Commission for the Protection of the Danube River (ICPDR) on Common Strategic Goals* (2001), at 2, <http://europa.eu.int/comm/environment/enlarg/danube_memorandum.pdf>, site visited on Sept. 12, 2001.

[1128] Mee, *supra* note 485, at 7.

[1129] *Id.* at 8. Negotiations have also ensued between Belarus, Ukraine and Russia for the establishment of a Dnieper Commission. *Id.* at 10.

[1130] Memorandum of Understanding between the International Commission for the Protection of the Black Sea (ICPBS) and the International Commission for the Protection of the Danube River (ICPDR) on Common Strategic Goals, <http://europa.eu.int/comm/environment/enlarg/pdf/danube_memorandum.pdf>, site visited on June 29, 2004.

economic development that help limit discharge of nutrients and hazardous substances.[1131]

Unfortunately, one of the Parties to the Danube River Protection Convention, Ukraine, has sorely tested the young agreement recently with its opening of a controversial new canal between the Danube and the Black Sea. The Bystroye canal runs through a UNESCO World Heritage area in the Danube Delta and was constructed without an environmental impact assessment.[1132] Calls for consultation by the EU to the Ukrainian government have fallen on deaf ears to date.[1133]

5.9 EU Legislation and Support Programs

5.9.1 Overview

Two ACCOBAMS Parties, Spain and Malta, are currently members of the EU, and are thus subject to EU legislation that may help further the conservation of cetaceans in the ACCOBAMS Agreement Area. Additionally, several Mediterranean and contiguous Atlantic States that may ultimately become Parties to ACCOBAMS are currently members of the EU.[1134] Moreover, the EU enlargement process will ultimately bring several other States in the Agreement Area under its regulatory umbrella. The European Council launched the accession process for EU enlargement in 1997 for 10 Central and Eastern

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[1131] *Id.*

[1132] EUObserver.com, *EU Criticises Ukraine Over Canal,* Aug. 25, 2004, <http://euobserver.com/?aid=17140&rk=1>, site visited on Nov. 13, 2004.

[1133] *Id.*

[1134] These are: Cyprus, France, Portugal, Greece, Italy, Slovenia, and the United Kingdom.

European States[1135] (including the Black Sea nations of Romania and Bulgaria) and the Mediterranean States of Cyprus and Slovenia.[1136] This process was subsequently expanded to include Malta, a party to ACCOBAMS, and another potential party, Turkey.[1137] Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia became members of the EU in 2004,[1138] while Bulgaria and Romania are now slated for accession in 2007.[1139] While acknowledging that Turkey has made important progress in meeting the EU's political criteria for accession, the European Commission concluded in 1997 that the nation must continue to "pursue the reform process to strengthen democracy and the protection of human rights, in law and in practice."[1140] The EC recommended that the EU enhance support for Turkey's pre-accession strategy, including increased funding; however, it did not set a date for accession at the time.[1141] In late 2004, the EU offered to begin talks on

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[1135] The candidate States in Eastern and Central Europe are: Estonia, Latvia, Lithuania, Poland, the Czech Republic, Slovakia, Hungary, Slovenia, Romania and Bulgaria. SAIS, *European Union Enlargement*, <http://www.eue.org/>, site visited on July 27, 2002.
[1136] European Council, *Presidency Conclusions,* DOC/97/24, Dec. 12-13, 1997.
[1137] European Council, *Presidency Conclusions,* DOC/98/12, Dec. 13, 1998. For a detailed history of the enlargement process, *see* Paul Lewis, *The Enlargement of the European Union, in* GOVERNING EUROPE: GOVERNING THE EUROPEAN UNION 236-244 (Simon Bromley ed., 2001).
[1138] *EU Welcomes 10 New Members,* CNN.com, May 1, 2004, <http://www.cnn.com/2004/WORLD/europe/04/30/eu.enlargement/index.html>, site visited on May 1, 2004. Turkey "will have to wait even longer before its European neighbors agree to membership, if at all." Simon Serfaty, *Testimony on U.S. European Relations,* House Committee on International Relations, FEDERAL DOCUMENT CLEARINGHOUSE CONGRESSIONAL TESTIMONY, Apr. 25, 2001, LEXIS-NEXIS, News Group File. *See also* EU/Romania: *Bucharest Has Big Ambitions for Danish Presidency*, EUR. REP. July 6, 2002, LEXIS-NEXIS, News Group File.
[1139] Commission of the European Communities, *Communication from the Commission to the Council and the European Parliament: Roadmaps for Bulgaria and Romania,* COM(2002) 624 final (2002), at 2, <http://europa.eu.int/comm/enlargement/docs/pdf/roadmap-br-ro-2002_en.pdf>, site visited on July 4, 2003.
[1140] Commission of the European Communities, *supra* note 1138.
[1141] *Id. See also* Dexter Filkins, *Turks Look West; Will It Look Away?,* N.Y. TIMES, Dec. 13, 2002, at A12; Simon Serfaty, *Testimony on U.S. European Relations,* House Committee on International Relations, FEDERAL DOCUMENT CLEARINGHOUSE CONGRESSIONAL TESTIMONY, Apr. 25,

Turkish accession in October, 2005. While this could result in Tukey joining the EU within a decade, this is by no means assured given substantial resistance in many current member States.[1142]

Even if accession is delayed in Black Sea nations, the influence of the EU on the national policies of Black Sea nations will assuredly grow profoundly over this decade:

> The EU is set to become a major Black Sea actor, whose future member states account for half of its coastline. It is not a question of whether, but when the EU enters the Black Sea, with much EU legislation and policy due to be adopted by the accession candidate states even before accession. As these states become EU members, their interests become axiomatic.[1143]

2001, LEXIS-NEXIS, News Group File ([Turkey] "will have to wait even longer before its European neighbors agree to membership, if at all").

[1142] Susan Sachs, *Europe Bloc Says Turks Can Apply; Long Road Seen,* N.Y. TIMES, Dec. 18, 2004, at A1. Opinion polls show substantial majorities in several EU States oppose Turkish membership, and the leaders of Austria and France have already expressed their intention to put Turkey's EU entry to a vote by referendum. *Id.* at A8. Moreover, given the difficulties that Turkey may face in conforming to the requirements for accession given its economic and social problems, membership may be up to twenty years away. *Id.*

[1143] Michael Emerson & Marius Vahl, *Europe and the Black Sea – Model Regionalism in* TERRY ADAMS, et al., *supra* note, 340, at 21. A good example of pre-accession efforts to implement EU legal and policy instruments by candidate countries is in the context of the Water Framework Directive:

> For those countries seeking accession, Bulgaria and Romania have already been modifying their environmental laws to comply with some of the directives covered by the WFD. Turkey is now following suit. Interestingly, Ukraine, on its own account has decided to follow the provisions of the WFD when reforming its own laws and regulations. Mee, *supra* note 340, at 119.

Overall, the EU recently reported that the 10 candidate countries have already transposed 80% of the EU's environmental laws and that EU funding of environmental projects in the candidate countries will rise three-fold as they become eligible for cohesion and structural funds. *Eastern States Pressed to Apply Green Laws,* ENV'T DAILY, Jan. 21, 2003. However, this level of funding will not in itself be sufficient to ensure effective implementation of EU environmental laws. The Commission estimates that accession countries will have to devote 2-3% of their respective GDPs to achieve this objective. *Id.*

A recent study by Selin & VanDeveer demonstrated the influence that the prospect of EU membership can have on domestic environmental efforts of candidate States. The study concluded that several Central and Eastern European States have substantially expanded and strengthened their environmental laws and regulations in the past decade, in part to improve their prospects to become EU members.[1144] A recent study by the EU cataloged substantial environmental improvements in the area, concluding that "air pollutants have declined by 60-80% and toxic metals by 50%, while organic matter pollution of water has decreased by as much as 80%" in new member States.[1145] However, it must be emphasized that a substantial portion of these reductions are attributable to economic restructuring.[1146]

5.9.2 Common Fisheries Policy

While the Treaty of Rome made provision for a Common Fisheries Policy (CFP), serious negotiations to establish such a management framework did not ensue until the 1970s.[1147] The Common Fisheries Policy (CFP) was adopted as a Community Regulation in 1983,[1148] repealed and replaced in 1992,[1149] and

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[1144] Henrik Selin & Stacy D. VanDeveer, *Baltic Sea Hazardous Substances Management: Results and Challenges,* AMBIO (forthcoming issue in 2004, advanced manuscript supplied to the author). *See also* LILIANA B. ANDONOVA, TRANSNATIONAL POLITICS OF THE ENVIRONMENT 183-195 (2004); Stacy D. VanDeveer, *European Politics with a Scientific Face: Transition Countries, International Environmental Assessment, and Long-Range Transboundary Air Pollution*, ENRP Discussion Paper E-98-09 (1998).

[1145] European Union, *Questions and Answers on Enlargement and Environment,* MEMO/04/86, 19 Apr. 2004, at 5.

[1146] Sandra O. Archibald, Luana E Banu & Zbigniew Bochniarz, *Market Liberalisation and Sustainability in Transition: Turning Points and Trends in Central and Eastern Europe,* 13(1) ENVTL. POL. 266-289 (2004).

[1147] JOHN MCCORMICK, ENVIRONMENT POLICY IN THE EUROPEAN UNION 249 (2001).

[1148] Council Regulation (EEC) No 170/83 of 25 January 1983 establishing a Community system for the conservation and management of fishery resources, Official Journal L 024, 27/01/1983 p. 0001.

replaced again in 2002.[1150] Its provisions are relevant to cetaceans because it seeks to ensure the sustainability of exploitation of fishing resources in EU waters, some of which are both exploited by humans and serve as prey for cetaceans. To ensure "the rational and responsible exploitation of living aquatic resources,"[1151] the CFP provides for measures to control access to waters and resources, including limitation of exploitation rates of fish species, technical measures for fishing gear, and establishment of no-fishing zones.[1152]

The CFP has clearly failed to protect many overexploited demersal fish species in EU waters in the past 20 years.[1153] As Symes observed, "when scientific advice has been refracted through the political process, it may appear to shed little light on the final [management] decisions."[1154] The Council of Ministers has frequently set Total Allowable Catches (TACs) far higher than

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[1149] Council Regulation (EEC) No 3760/92 of 20 December 1992 establishing a Community system for fisheries and aquaculture, Official Journal L 389 , 31/12/1992 P. 0001 – 0014. *See also* Council Regulation 2847/93 Establishing a Control System Applicable to the Common Fisheries Policy, 1993 O.J. (L 261) 1.

[1150] European Union, Council Regulation (EC) No. 2371/2002 of 20 Dec. 2002 *On the Conservation and Sustainable Exploitation of Fisheries Resources Under the Common Fisheries Policy,* Official J. European Communities, L358/59 (2002), <http://europa.eu.int/eur-lex/pri/en/oj/dat/2002/l_358/l_35820021231en00590080.pdf>, site visited on Dec. 30, 2003.

[1151] Council Regulation (EEC) No 3760/92, *supra* note 1149, at Preamble.

[1152] *Id.* at art. 4.

[1153] Commission of the European Communities, *Green Paper on the Future of the Common Fisheries Policy,* COM(2001) 135 Final, Volume 1 (2001), at 7; Sara Galley, *Progress in EU Fisheries Policy,* 1997 COLO. J. INT'L ENVTL. L. Y.B. 102, 102. "In most sub-sections of the Northeast Atlantic, the share of commercially important stocks that are outside safe biological limits is higher than 60%; west of Ireland the figure rises to 100%." Olav Schram Stokke & Clare Coffey, *Precaution, ICES and the Common Fisheries Policy: A Study of Regime Interplay,* 28 MARINE POL'Y 117, 121-22 (2004). Under the former CFP, member States frequently set the Total Allowable Catch at levels higher than that recommended by the European Commission. *EU Outlines Fisheries Policy Reform,* 6(4) BRIDGES 13 (2002). On average, the chosen TACs have been about 30% above the scientifically advised levels. For a single year, 2000, the average deviation was about 50%, reflecting the inevitable compromise between scientific advice and political pressure." Royal Commission on Environmental Pollution, *Turning the Tide: Addressing the Impact of Fisheries on the Marine Environment* (2004), at 73, <http://www.rcep.org.uk/fisheries/Turningthetide.pdf>, site visited on Dec. 23, 2004.

[1154] D. Symes, *The European Union's Common Fisheries Policy,* 35 OCEAN & COASTAL MGMT. 137, 145 (1997).

scientific recommendations, and technical and structural measures have also been scuppered by political considerations.[1155] However, the record has been better in terms of managing small pelagic stocks,[1156] (including herring, sprat, mackerel, horse mackerel, anchovy, and sardine), many of which are exploited by cetaceans in European waters, including in the ACCOBAMS Agreement Area.

Moreover, the Council adopted a revised CFP in December, 2002 that contains a number of provisions that may ultimately benefit cetaceans in the ACCOBAMS Agreement Area by establishing a better framework to: 1. Foster sustainable exploitation of targeted fish species, some of which are important prey species of cetaceans; and 2. Embraces the ecosystem approach,[1157] emphasizing the need to ensure that fishing activities do not imperil other marine species, including cetaceans.[1158] More specifically, the pertinent provisions include the following:

- Establishment of a robust precautionary approach to ensure the sustainability of European fisheries, including the formulation of recovery plans for exploited stocks outside safe biological limits,[1159] and multi-annual management plans that seek to maintain stocks within safe biological limits on the basis of the best scientific information,[1160] a potentially marked departure from the "annual political horse-trading"[1161] that characterized CFP deliberations in the past;
- A mandate that Member States adjust their fishing capacity to ensure a balance between fishing capacity and stocks, [1162] and to

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[1155] Tim Daw & Tim Gray, *Fisheries Science and Sustainability in International Policy: A Study of Failure in the European Union's Common Fisheries Policy*, 29 MARINE POL'Y 189, 190 (2005).
[1156] Commission of the European Communities, *supra* note 1153, at 7.
[1157] For a definition of the ecosystem approach, *see* note 820, *supra*.
[1158] Council Regulation (EC) No. 2371/2002, *supra* note 1150.
[1159] *Id.* at art. 5.
[1160] *Id.* at art. 6.
[1161] *EU Outlines Fisheries Policy Reform, supra* note 1153, at 13.
[1162] *Id.* at art. 11.

ensure that the entry of new capacity into their respective fleets is compensated by the withdrawal of commensurate capacity;[1163]

- Adoption of an ecosystems approach that seeks to ensure "that the impact of fishing activities on marine eco-systems is kept at sustainable levels;"[1164]
- Establishment of Regional Advisory Councils to provide advice on fisheries management issues for specific sea areas or fishing zones.[1165]

Upon the invitation of the Fisheries Council, the Commission also developed an Action Plan[1166] setting forth objectives and principles, methods and targets and timetables to integrate environmental protection principles into the new CFP. The Commission established several priority measures to effectuate this integration, including several potentially germane to the protection of associated species in the ecosystem:

1. Reduction of fishing pressure within the framework of multi-annual plans that have adverse effects on the sustainability of fish stocks and "the favourable conservation status of non-commercial species and habitats;"[1167]
2. Improvement of fishing methods to, *inter alia,* reduce incidental bycatch and damage to habitats;[1168]
3. The establishment of long-term management plans for the most important and vulnerable fish stocks;[1169]
4. Improvement of scientific assessments of fish stocks.[1170]

Additionally, the Commission developed an Action Plan for the conservation and sustainable exploitation of fisheries resources in the

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[1163] *Id.* at art. 13.
[1164] *Id.* at art. 6(3).
[1165] *Id.* at art. 31.
[1166] Commission of the European Communities, *Communication from the Commission Setting Out a Community Action Plan to Integrate Environmental Protection Requirements into the Common Fisheries Policy,* COM(2002) 186 Final (2002).
[1167] *Id.* at 4.
[1168] *Id.*
[1169] *Id.*
[1170] *Id.*

Mediterranean Sea under the CFP.[1171] The Plan calls for, *inter alia,* the following measures by EU States:

1. Establishment of Fishery Protection Zones of up to 200 miles by Member States in the Mediterranean;[1172]
2. Adoption of measures to reduce and control fishing efforts;[1173]
3. Establishment of catch limitations and quotas for certain fish species;[1174]
4. Improvement of fishing methods to enhance conservation;[1175]
5. Improvement of control and enforcement measures;[1176]
6. Improvement of scientific knowledge about Mediterranean fisheries;[1177]
7. Establishment of a Regional Advisory Council for the Mediterranean.[1178]

In 2004, the European Council adopted Regulation 812/2004, establishing measures to reduce incidental catches of cetaceans in fisheries and amending Regulation (EC) No. 88/98.[1179]

The eventual membership of two Black Sea nations, Bulgaria and Romania, in the EU will not have a substantial impact on the new CFP because their share of the Black Sea fisheries is currently quite small.[1180] However, this picture will change radically if Turkey ultimately enters the EU since it currently

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[1171] Commission of the European Communities, *Communication from the Commission to the Council and European Parliament Laying Down a Community Action Plan for the Conservation and Sustainable Exploitation of Fisheries Resources in the Mediterranean Sea Under the Common Fisheries Policy,* COM(2002) 535 final (2002), <http://europa.eu.int/eur-lex/en/com/cnc/2002/com2002_0535en01.pdf>, site visited on July 4, 2003.
[1172] *Id.* at sec. 3.1.
[1173] *Id.* at sec. 3.2.
[1174] *Id.* at sec. 3.3.
[1175] *Id.* at sec. 3.4.
[1176] *Id.* at sec. 3.5.
[1177] *Id.* at sec. 3.6.
[1178] *Id.* at sec. 3.7.
[1179] *Council Regulation (EC) No 812/2004 of 26.4.2004 laying down measures concerning incidental catches of cetaceans in fisheries and amending Regulation (EC) No 88/98*, L150/12 (2004), <http://europa.eu.int/eur-lex/pri/en/oj/dat/2004/l_150/l_15020040430en00120031.pdf>, site visited on Mar. 18, 2005.
[1180] Mee, *supra* note 340, at 124.

accounts for 90 per cent of the revenue in the Black Sea fisheries and suffers from substantial fleet overcapacity.[1181]

5.9.3 The "Habitats Directive"

The "Habitats Directive"[1182] is an integral element in Europe's implementation of the Convention on Biological Diversity.[1183] The Directive's overarching objective is to ensure biodiversity "through conservation of natural habitats and of wild fauna and flora in the European territory of the Member States to which the Treaty applies."[1184] It functions, in effect, as a "no-net-loss" policy by requiring protection of designated areas from deterioration or damage.[1185]

[1181] *Id.*

[1182] Council Directive 92/43/EEC of 21 May 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora, [1992] OJ L 206, full text available at the European Commission's nature conservation homepage, <http://europa.eu.int/comm/environment/nature/home.htm>, site visited on Jan. 18, 2004 (hereinafter *Habitats Directive*).

[1183] Mette Palitzsch Lund, *Performance of the Species Listed in the European Community 'Habitats' Directive as Indicators of Species Richness in Denmark,* 5 ENVTL SCI. & POL'Y 105, 109 (2002). Other European policy initiatives to implement the Convention include the European Community Biodiversity Strategy, Communication of the European Commission to the Council and to the Parliament (4 Feb. 1998), http://europa.eu.int/comm/environment/docum/9842en.pdf; the European Community Biodiversity Clearing House Mechanism, <http://biodiversity-chm.eea.eu.int>,and Biodiversity Action Plans in the areas of Conservation of Natural Resources, Agriculture, Fisheries, and Development and Economic Cooperation, Commission Communication of 27 March 2001 to the Council and the European Parliament: Biodiversity Action Plan for the Conservation of Natural Resources (Volume II), Agriculture (Volume III), Fishing (Volume IV), and Development and Economic Cooperation (Volume V), COM(2001)162. The basic document for these action plans is the Communication from the Commission to the Council and the European Parliament of 5 February 1998 on a European Community Biodiversity Strategy, COM(98)42. For all of these documents, *see* the European Commission website at <http://europa.eu.int/scadplus/leg/en/s15006.htm>, or the EC Biodiversity Clearing House Mechanism website at <http://biodiversity-chm.eea.eu.int/convention/cbd_ec/strategy/>.

[1184] Habitats Directive, *supra* note 1182.

[1185] Laure Ledoux, *Implementing EU Biodiversity Policy: UK Experiences,* 17 LAND USE POL'Y 257, 257 (2000).

The Directive seeks to facilitate this objective in several ways. First it establishes a framework for the establishment of an "ecological network of special areas of conservation," denominated "Natura 2000."[1186] The network is to be comprised of sites hosting "natural habitat types of community interest whose conservation requires the designation of special areas of conservation," as set forth in Annex I of the Directive (which includes approximately 200 habitat types) and habitats of species listed in Annex II (which includes approximately 700 species of mammals, reptiles, amphibians, fish, invertebrates, and plants).[1187] These sites are to be designated by the Member States on the basis of criteria set forth in Annex III to the Directive.[1188] "The [European Court of Justice] has held that only ornithological . . . or ecological . . . interests may play a role when deciding on the designation of sites. Economic considerations may not be taken into account."[1189]

In exceptional cases, the European Council may also designate a site not included on a national list.[1190] The Commission is now engaged the process of determining which proposed sites will be designated as "of Community

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[1186] *Id.* at art. 3(1).
[1187] *Id.* "[A]lthough site selection is not yet complete, existing and proposed sites already represent some 18 % of the Union's territory (over 60 million hectares)," WWF, *Progress on Preparation for Natura 2000 in Future EU Member States* 3 (2003), <http://www.panda.org/downloads/europe/n2000progressmailing20030122.pdf>.
[1188] *Id.* at art. 3.
[1189] Jonathan M. Verschuuren, *Legal Basis of Land Use and Conservation under the EC Habitats Directive and the US Endangered Species Act,* 16th Annual Meeting of the Society for Conservation Biology, University of Kent at Canterbury, 15 July 2002, at 10, <http://rechten.uvt.nl/verschuuren/paper_Verschuuren.pdf>, site visited on Feb. 29, 2004.
[1190] *Id.* at art. 5.

importance."[1191] The list of foreseen sites in the Habitats Directive is divided into seven bio-geographic regions, one of which is the Mediterranean.[1192] The Commission designated sites in the Macronesian, Alpine and Atlantic Continental bio-geographic regions in the past few years. It will now commence work on designating sites in the Mediterranean and Boreal bio-geographic regions and establishment of the Natura 2000 network in the new Member States.[1193]

Thereafter, Member States will be obliged to designate such sites as special areas of conservation and to implement measures to attain a favorable conservation status for Annex I habitats, Annex II species and the Natura 2000 network.[1194] Member States are required to establish appropriate conservation measures for special areas of conservation. This includes the drafting of management plans and statutory, administrative and contractual measures to protect natural habitat types in Annex I and species from Annex II that are present on these sites.[1195] Member States are also required to take steps to avoid deterioration of natural habitats and significant disturbance of species for which the areas have been designated.[1196] Sites can only be subsequently

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[1191] *Id.* at art. 4(2). The first decision was published on 28 Dec. 2001, adopting the list of sites of Community importance for the Macronesian biogeographical region, *see* <http://europa.eu.int/comm/environment/nature/natura.htm>.
[1192] Europa, *Nature Protection: Commission Establishes Largest Ever List of Protected Areas in the EU,* Dec. 8, 2004, <http://europa.eu.int/rapid/pressReleasesAction.do?reference=IP/04/1449&format=HTML&aged=0&language=EN&guiLanguage=en>, site visited on Dec. 25, 2004. The seven regions are: Macaronesian, Alpine, Atlantic, Continental, Mediterranean, Pannonian and Boreal. *Id.*
[1193] *Id.*
[1194] Habitats Directive, *supra* note 1182, at art. 4(4).
[1195] *Id.* at art. 6(1).
[1196] *Id.* at art. 6(2).

damaged or destroyed for "imperative reasons of overriding public interest, including those of a social or economic nature."[1197]

Additionally, Member States must take measures to establish a system of strict protection for animal species listed in Annex IV of the Directive. This includes prohibition of:

(a) all forms of deliberate capture of killing of specimens of these species in the wild;
(b) deliberate disturbance of these species, particularly during periods of breeding, rearing, hibernation and migration;
(c) deliberate destruction or taking of eggs from the wild;
(d) deterioration or destruction of breeding sites or resting places.[1198]

Member States are also required to establish a system to monitor the incidental capture and killing of animal species. The Directive further requires Member States to conduct additional research and enact additional conservation measures that may be required to ensure that incidental capture and killing does not have a significant negative impact on Annex IV species.[1199] The European Commission has been very aggressive recently in seeking compliance with the Directive's mandates, referring several cases of alleged non-compliance to the European Court of Justice, as well as issuing Reasoned Opinions and warning letters to several Parties.[1200]

Several provisions of the Habitats Directive are germane to the conservation of European cetaceans, many of which are found within the scope

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[1197] *Id.* at art. 6(4).
[1198] *Id.* at art. 12(1).
[1199] *Id.* at art. 12(4).
[1200] European Union, *Commission Acts Against Ten Member States for Non-implementation of Wild Birds and Habitats Directives*, IP/02/1060, <http://europa.eu.int/rapid/start/cgi/guesten.ksh?p_action.gettxt=gt&doc=IP/02/1060|0|RAPID&lg=EN>, site visited on July 17, 2002; Verschuuren, *supra* note 1189, at 17-19.

of the Agreement Area of ACCOBAMS. First, Annex I includes several habitats critical to cetacean species, including estuaries and coastal lagoons.[1201] Second, Annex II, reserved for "Animal and Plant Species of Community Interest Whose Conservation Requires the Designation of Special Areas of Conservation," includes both bottlenose dolphins and harbor porpoises. Finally, Annex IV includes all cetacean species found in European waters.

The European Union recently reaffirmed its commitment to Natura 2000 in the "El Tiede Declaration."[1202] Recognizing that the EU was moving toward finalization of the designation of Natura 2000 areas and anticipating extension of the network pursuant to enlargement plans for the Union,[1203] the Members committed themselves to finalize implementation of the Natura 2000 network in the shortest period possible, promote development of partnerships among stakeholders in the conservation and management of Natura 2000 sites, and to recognize the need for targeted resources to effectuate program objectives.[1204]

However, the Directive suffers from a number of problems. First, as the attendees at a recent meeting of the EU's Nature and Forest directors cautioned that it is critical to widen funding sources for the program, especially through the Common Agricultural Policy. "Without such co-financing instruments," the President of the EU's Council concluded, "the ambitions of Natura 2000

[1201] Habitats Directive, *supra* note 1182, at Annex I (Natura 2000 codes 1130 & 1150).
[1202] European Union, *Natura 2000: A Partnership for Nature,* El Tiede Declaration, May 9, 2002, <http://www.europa.eu.int/comm/environment/nature/el_teide/el_teide_en.pdf>, site visited on July 13, 2002.
[1203] *See* sec. 5.1, *supra;* Mee, *supra* note 340, at 86.
[1204] *Id.*

management will not be fulfilled."[1205] Moreover, as Vershuuren recently noted, many of the specially protected areas and special areas of conservation "are small islands in areas where large-scale economic activities are dominant."[1206] Thus, the long-term viability of these areas may depend on the establishment of contiguous ecological corridors to prevent habitat fragmentation.[1207] Finally, sites designated under the EC Directives often are poorly protected from destructive fishing practices,[1208] one of the primary threats to cetaceas in the ACCOBAMS Agreement Area.

5.9.4 Water Framework Directive

The EU's Water Framework Directive[1209] was agreed to in 2000 and member States were required to transpose it into national legislation by the end of 2003.[1210] Recognizing the need for an integrated policy on water for the Community,[1211] the Directive seeks to protect the quality of water resources, including "taking into the account the vulnerability of aquatic ecosystems located near the coast and estuaries or in gulfs or relatively closed seas, as their

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[1205] Danish EU Presidency, *Presidency Conclusion of the Meeting: Nature and Forest Director,* <http://www.eu2002.dk/news/news_read.asp?iInformationID=23177>, site visited on Oct. 8, 2002.
[1206] Verschuuren, *supra* note 1189, at 30.
[1207] *Id.*
[1208] Royal Commission, *supra* note 1153, at 193.
[1209] 2000/60/EEC of the European Parliament and of the Council of 23 October 2000 Establishing a Framework for Community Action in the Field of Water Policy (hereinafter *Water Framework Directive*). For an overview of the Directive, *see* Paul Logan & Mike Furse, *Preparing for the European Water Framework Directive – Making the Links Between Habitat and Aquatic Biota,* 12 AQUATIC CONSERVATION: MARINE AND FRESHWATER ECOSYSTEMS 425-437 (2002).
[1210] Europa, *Timetable for Implementation of that Water Framework Directive,* <http://europa.eu.int/comm/environment/water/water-framework/timetable.html>, site visited on Jan. 18, 2004.
[1211] *Id.* at Preamble, para. 9.

equilibrium is strongly influenced by the quality of inland waters flowing into them."[1212] Coastal pollution threats are to be addressed by an emphasis on river basin management, taking into account the activities of all relevant national, regional and local stakeholders.[1213] Additionally, it seeks to enhance the ability of Member States to meet their obligations under various international marine pollution agreements, including the Barcelona Convention.[1214]

Several provisions of the Directive may ultimately benefit cetaceans in the Mediterranean and Black Sea, especially when Black Sea and Mediterranean nations that are candidates for membership in the EU under its enlargement plan become Member States. These provisions include:

- Establishment of individual river basin districts within national boundaries, or international river basin districts for rivers that cross borders;[1215]
- Establishment of water monitoring programs;[1216]
- Implementation of pollution emissions controls based on best available techniques and emission limit values;[1217]
- Adoption by the European Parliament and the Council of specific measures against water pollution by individual pollutants presenting a significant risk to or via the aquatic environment.[1218] This includes the Nitrates Directive[1219] and provisions in other directives to control

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[1212] *Id.* at Preamble, para. 17. "The inclusion of explicit ecological targets makes the Directive unique in its implementation and delivery, and the first time that ecological information has had such a high profile in European Community Law." Paul Logan & Mike Furse, *Preparing for the European Water Framework Directive — Making the Links Between Habitat and Aquatic Biota,* 12 AQUATIC CONSERVATION: MARINE & FRESHWATER ECOSYSTEMS 425, 427 (2002).
[1213] Yves Henocque & Bruno Andral, *The French Approach to Managing Water Resources in the Mediterranean and the New European Water Framework Directive,* 47 MAR. POLLUTION BULL. 155, 155 (2003).
[1214] *Id.* at Preamble, para. 21.
[1215] *Water Framework Directive, supra* note 1209, at art. 3(1). Fifteen pilot river basins have been proposed to date. European Commission, WFD Newsletter, Sept., 2003, at 3, <http://europa.eu.int/comm/environment/water/water-framework/pdf/wfd_newsletter_2.pdf>, site visited on Jan. 18, 2004.
[1216] *Id.* at art. 8(1). This is to occur by 2006, Europa, *supra* note 1210.
[1217] *Id.* at art. 10(1).
[1218] *Id.* at art. 16(1).
[1219] Council Directive 91/676/EEC of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources, Official Journal L 375, 31/12/1991

phosphorus[1220] to achieve the nutrient controls negotiated between the Danube and Black Sea Commissions.[1221]

5.9.5 EU Institutional Support to Mediterranean and Black Sea States

The PHARE program is one of three pre-accession instruments established by the European Community to assist applicant States in central and eastern Europe in their preparations to join the EU.[1222] The program was originally created to provide assistance to Poland and Hungary to consolidate democratic reforms and market economies.[1223] It was subsequently reoriented in the late 1990s to focus on the pre-accession priorities set forth in the Accession Partnership instruments for enlargement candidates.[1224]

P. 0001 – 0008. The Nitrates Directive seeks to reduce and prevent water pollution from agricultural sources through implementation of measures by Member States, including establishment of codes of good agricultural practice, implementation of monitoring programs and the establishment of action programs to limit the application of fertilizers on agricultural lands. *Id.* at art. 4, art. 5, Annex III.

[1220] Council Directive 91/271/EEC of 21 May 1991 concerning urban waste-water treatment Official Journal L 135 , 30/05/1991.

[1221] Mee, *supra* note 340, at 120. However, it needs to be emphasized that most Member States have failed to implement these agreements. *Id.*

[1222] European Union, *What is PHARE?,* <http://europa.eu.int/comm/enlargement/pas/phare/intro.htm#1.per cent20Introduction>, sited visited on July 20, 2002. *See also* Barbara Connolly, Tamar Gutner & Hildegard Bedarff, *Organizational Inertia and Environmental Assistance to Eastern Europe, in* INSTITUTIONS FOR ENVIRONMENTAL AID 302-303 (Robert O. Keohane & Marc A. Levy eds., 1996). The other two programs are the Special Accession Programme for Agriculture and Rural Development (SAPARD), which seeks to assist enlargement candidate countries in making structural adjustments in the agricultural sector and rural areas, European Union, *SAPARD,* <http://europa.eu.int/comm/enlargement/pas/sapard.htm>, site visited on July 20, 2002, and the Instrument for Structural Policies for Pre-Accession (ISPA), <http://www.cec.org.uk/info/pubs/funding/sg/ispa.htm>, site visited on July 20, 2002, which seeks to assist candidate countries in the development of transportation infrastructure and the environmental sector, Rural Europe, *Community Measures,* <http://www.rural-europe.aeidl.be/rural-en/euro/p15-2.htm>, site visited on July 20, 2002.

[1223] Connolly, Gutner & Bedarff, *supra* note 1223, at 302.

[1224] European Union, *supra* note 1222. 70 per cent of PHARE's budget is devoted to strengthening the regulatory infrastructure to ensure compliance with accession instruments for candidate States in areas such as the environment, nuclear safety, transport safety, working conditions, marketing of food products, consumer information, control of production processes, as

A portion of PHARE funding in recent years has been devoted to environmental programs in Black Sea countries, including some that may benefit cetaceans. These include the following:

- Funding for a study of environmental issues associated with port reception facilities in Romania, Bulgaria and Turkey;[1225]
- Chemical monitoring technical assistance for focal points in Romania and Bulgaria; [1226]
- Funding for a program to support the development of sustainable fisheries and to preserve fish biodiversity in Bulgaria;[1227]
- Funding of initiatives under the Danube River Protection Convention;[1228]
- Establishment of the Regional Environmental Accession Project (REAP) to enhance compliance with European Union environmental legislation.[1229]

Since 8 of the 10 countries eligible for PHARE funding became EU members in 2004, 2003 was the final year of pre-accession assistance for these States.[1230] However, it is anticipated that contracting will continue through 2005 and payment of funds through 2006.[1231] Moreover, Bulgaria, Romania and Turkey will remain eligible under the program.[1232]

The TACIS program was launched in 1991 to provide grant-financed technical assistance to 13 Eastern European and Central Asian countries that were

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well as investment in economic and social cohesion and business-related infrastructure. European Union, *General Presentation of the PHARE Program,* <http://europa.edu.int/comm./enlargement/pas/twinning.index.htm>, site visited on July 21, 2002.

[1225] Black Sea Environmental Program, *The Black Sea Environmental Programme,* <http://www.blacksea-environment.org/Background.html>, site visited on July 2, 2002.

[1226] *Id.*

[1227] European Union, National and Multi-Beneficiary Programmes, Bulgaria, *Restructuring of Fisheries and Aquaculture,* BG 0101.05 (2001), <http://europa.eu.int/comm/enlargement/pas/phare/programmes/national/bulgaria/2001/bg0101-05-fisheries.pdf>, site visited on July 21, 2002.

[1228] Commission of the European Communities, *supra* note 346, at 15.

[1229] European Union, *The Phare Program, Annual Report 2000* (2001), <http://europa.eu.int/comm/enlargement/pas/phare/pdf/phare2000.pdf>, site visited on July 21, 2002.

[1230] European Union, *Enlargement, Financial Assistance,* <http://europa.eu.int/comm/enlargement/financial_assistance.htm>, site visited on Jan. 22, 2005.

[1231] *Id.*

[1232] *Id.*

previously part of the Soviet Union[1233] to facilitate economic recovery and reform.[1234] The budget for 2000-2006 is approximately €3 billion.[1235] The program's ambit includes both national and multi-country environmental projects.[1236] In recent years, it has provided funding for Georgia, Russia and Ukraine to participate and implement the Bucharest Convention and the Black Sea Environmental Program,[1237] as well as support for the drafting of the Protocol on Biological and Landscape Diversity.[1238] Particular emphasis has been placed on strengthening the Regional Action Centers of the Bucharest Convention.[1239]

In 1995, the European Union and twelve 12 Mediterranean partners[1240] launched the Euro-Mediterranean Partnership or "Barcelona Process."[1241]

[1233] Eligible States are: Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Mongolia, Russia, Tajikistan, Turkmenistan, Ukraine and Uzbekistan, European Union, *TACIS,* <http://europa.eu.int/comm/external_relations/ceeca/tacis/index.htm>, site visited on July 21, 2002.

[1234] Council of the European Union, Council Regulation (EC, EURATOM) No. 99/2000 of 29 Dec. 1999 Concerning the Provision of Assistance to the Partner States in Eastern Europe and Central Asia, Official J. Eur. Communities, L 12/1 (1999).

[1235] European Union, *The EU's Relationship with the Countries of Eastern Europe & Central Asia,* <http://europa.eu.int/comm/external_relations/ceeca/index.htm>, sited visited on July 22, 2002.

[1236] Commission of the European Communities, *The Tacis Programme Annual Report 1999,* COM(2000) 835 final (2000), at 4.

[1237] Commission of the European Communities, *supra* note 346, at 16.

[1238] *See supra* note 942.

[1239] European Union, *TACIS Regional Action Programme 2000 – Terms of Reference for TA to the Black Sea Environment Programme* 5 (2001). The present TACIS regulation, Council Regulation 99/2000, is due to expire at the end of 2006. It is envisaged that the program will be extended through a new regulation, with the focus being on poverty reduction for the developing countries of the Caucasus and Central Asia, and cooperation with the EU for the remaining countries. European Union, *Towards a New Tacis Concept and Regulation: Outline of Issues for Web-Based Consultation,* <http://europa.eu.int/comm/external_relations/consultations/cswp_tacis.htm#III.%20Towards%20a%20new%20Tacis%20concept>, site visited on Jan. 22, 2005.

[1240] Morocco, Algeria, Tunisia, Egypt, Turkey, Israel, Jordan, Lebanon, Syria, Cyprus, Malta and the Palestinian Authority.

[1241] European Union, Euro-Mediterranean Partnership, <http://europa.eu.int/comm/external_relations/euromed/index.htm>, site visited on July 13, 2002.

Among the objectives of the Partnership is the establishment of an environmental program, coordinated by the European Commission, to address pressing environmental problems in the region, including several issues germane to the conservation of cetaceans, integrated management of water resources and coastal zones, and combating pollution in the Mediterranean Sea.[1242] Financing for the Partnership is provided through the MEDA program, which has been allocated approximately €5.3 billion from the European Community budget for the period of 2000-2006.[1243] European Union and Mediterranean Ministers have also recently called for the development of environmental integration strategies to be prepared for key economic sectors, mirroring a program already underway in the European Union known as the "Cardiff process."[1244]

The Short and Medium-Term Environmental Action Programme (SMAP) was established at the Euro-Mediterranean Ministerial Conference on the Environment in 1997.[1245] To facilitate the implementation of short and medium-term programs under the Partnership, SMAP seeks to establish priorities, create political incentives for the Mediterranean Partners and to promote cross-sectoral actions.[1246] The priorities established in the SMAP include several germane to cetacean conservation, including integrated water management, designation of

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[1242] European Union, *Euro-Mediterranean Partnership, Barcelona Declaration*, adopted at the Euro-Mediterranean Conference - 27-28/11/95, <http://europa.eu.int/comm/external_relations/euromed/bd.htm>, site visited on July 13, 2002.
[1243] European Union, *The MEDA Programme,* <http://europa.eu.int/comm/external_relations/euromed/meda.htm>, site visited on July 13, 2002.
[1244] *Euro-Med Environmental Integration Urged,* ENDS ENV'T DAILY, July 11, 2002, Issue No. 1255.
[1245] European Union, *Euro-Mediterranean Partnership,* <http://europa.eu.int/comm/environment/smap/program.htm#foot1>, sited visited on July 12, 2002.
[1246] *Id.*

pollution hotspots in the region and mitigation projects, and integrated coastal zone management.[1247]

The European Community established the LIFE financial instrument in 1992[1248] for financing of environmental initiatives, protection of nature ("actions aiming at the conservation of natural habitats and of wild fauna and flora of EU interest") and technical assistance in the establishment of environment administrative structures, nature conservation actions and demonstration actions to promote sustainable development in "third countries."[1249] Eligible "third countries" are: Albania, Algeria, Bosnia-Herzegovina, Croatia, Cyprus, Egypt, Israel, Jordan, Lebanon, Malta, Morocco, Syria, Tunisia, Turkey, the West Bank and Gaza and the Baltic shoreline of Russia.[1250] In 1999, the LIFE program expanded its purview to accession countries.[1251]

LIFE has funded, or is slated to fund, a number of wildlife protection projects in Black Sea and Mediterranean nations directly germane to ACCOBAMS, including a soon to be launched cetacean conservation program in Romania,[1252] a project to develop management models regarding cetaceans covered by the Habitats Directive in the Andalusia and Murcia region,[1253] and a

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[1247] *Id.*
[1248] European Union, Council Regulation 1973/92 (1992).
[1249] European Union, *LIFE Homepage: What is LIFE?,* <http://europa.eu.int/comm/life/whatis.htm>, site visited on July 16, 2002.
[1250] European Union, *LIFE Third Countries,* <http://europa.eu.int/comm/life/3countr/count.htm>, site visited on July 16, 2002.
[1251] European Union, *LIFE Nature: A Brief History of Nature Conservation Funding,* <http://europa.eu.int/comm/life/nature/history.htm>, site visited on July 16, 2002.
[1252] *Minutes of the 9th Ministerial Meeting of the Black Sea Commission, supra* note 424, at 20. The program, entitled "Conservation of the Dolphins from the Romanian Black Sea Waters" will last 3 years and cost about €400,000. *Id.*
[1253] Second Meeting of the Scientific Committee of ACCOBAMS, *supra* note 45, at Annex VIII.

project to enhance the prospects for co-existence between cetaceans and humans within the Ligurian Sanctuary.[1254] The LIFE program has also funding other programs pertinent to the conservation of cetaceans, including a project on surface longline bycatch of marine mammals in the Alboran Sea and the Atlantic area off Gibraltar,[1255] a program to enhance nature parks in Croatia,[1256] protection of wetland habitats in Bosnia and Herzegovina,[1257] and capacity building to prevent land degradation in coastal areas in Syria.[1258]

5.10 CITES

The Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES)[1259] was established in 1973 in the face of burgeoning illegal trade in endangered and threatened wildlife species.[1260] There are currently 167 parties to the agreement.[1261]

CITES "has two essential goals: first, to reduce the harmful effects of commercial trade on threatened or endangered species of flora or fauna; and

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[1254] *Id.*
[1255] General Fisheries Commission for the Mediterranean, Scientific Advisory Committee, Seventh Session, *Report of the Seventh Ad Hoc Joint GFCM-ICCAT Meeting on Stocks of Large Pelagic Fishes in the Mediterranean,* GFCM:SAC7/2004/Mad.5 (2004), at sec. 2.2.
[1256] European Union, *Financial Instruments for the Environment (LIFE) Third Countries,* <http://europa.eu.int/comm/life/3countr/projects2000-2001.pdf>, site visited on July 16, 2002.
[1257] *Id.*
[1258] *Id.*
[1259] CITES, *supra* note 780.
[1260] SIMON LYSTER, INTERNATIONAL WILDLIFE LAW 239 (1985); U.S. Dept. of State Publication 8729, General Foreign Policy Series (279) (June 1973).
[1261] CITES, *List of Parties,* <http://www.cites.org/eng/disc/parties/chronolo.shtml>, site visited on Jan. 22, 2005.

second, 'to establish a worldwide system for ensuring that trade in other species is conducted on a sustainable basis for the future.'"[1262]

Endangered species[1263] and specimens[1264] of these species are placed in one of three appendixes. Appendix I of the treaty is reserved for "all species threatened with extinction which are or may be affected by trade." "Trade in specimens of these species must be subject to particularly strict regulation in order not to endanger further their survival and must only be authorized in exceptional circumstances."[1265] As a consequence, CITES prohibits trade in Appendix I species except in very limited circumstances.[1266]

A flora or fauna species may be listed in Appendix II when the species "although not necessarily now threatened with extinction may become so unless trade in specimens of such species is subject to strict regulation in order to avoid utilization incompatible with their survival."[1267] CITES allows commercial trade in Appendix II specimens if scientific authorities in the exporting state certify that trade will not be "detrimental to the survival of the species."[1268] Finally, Appendix

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[1262] Shennie Patel, *The Convention on Trade in Endangered Species: Enforcement and the Last Unicorn,* 18 HOUSTON J. INT'L L. 157, 163 (1995), quoting Mollie Beattie (Director, U.S. Fish & Wildlife Service), speech presented at the Ninth Meeting of the Conference of the Parties, unpublished manuscript.

[1263] "Species" is defined under the treaty as "any species, subspecies, or geographically separate population thereof." CITES, *supra* 1259, at art. I(a).

[1264] "Specimen" is defined in the treaty as (1) any animal or plant, whether alive or dead; (ii) in the case of an animal: for species included in Appendices I and II, any readily recognizable part or derivative thereof; and for species included in Appendix III, any readily recognizable part or derivative thereof specified in Appendix III in relation to the species; and (iii) in the case of a plant: for species included in Appendix I, any readily recognizable part or derivative thereof: and for species included in Appendices II and III, any readily recognizable part or derivative thereof specified in Appendices II and III in relation to the species. *Id.* at I(b).

[1265] CITES, *supra* note 1259, at art. II(1).

[1266] *Id.* at art. III.

[1267] *Id.* at art. II(2)(a).

[1268] *Id.* at art. IV(2)(a).

III is reserved for species that individual Parties protect through domestic regulation but that also require international controls to ensure their proper protection.[1269]

All cetacean species commonly found in the Mediterranean and Black Sea are listed on the CITES appendices. As indicated in an earlier chapter, the issue of trade in Black Sea bottlenose dolphins has been addressed by the Conference of the Parties to CITES.[1270]

5.11 OSPAR

The Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR Convention)[1271] is the successor treaty[1272] to the Convention for the Prevention of Marine Pollution by Dumping from Ships and Aircraft (Oslo Convention)[1273] and Convention for the Prevention of Marine Pollution from Land-based Sources (Paris Convention).[1274] The treaty "is relevant

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[1269] *Id.* at art. II(3). *See also,* CITES Secretariat, *Recommendations Concerning the Interpretation and Implementation of Certain Provisions of the Convention,* PROC. OF THE FIRST MEETING OF THE CONFERENCE OF THE PARTIES, Conf. 1.5 (Nov. 2-6 1976).
[1270] *See* sec. 4.7, *supra.*
[1271] Convention for the Protection of the Marine Environment of the North-East Atlantic, Sept. 22, 1992, 32 I.L.M. 1069 (1993) [hereinafter OSPAR], available at: <http://www.ospar.org/eng/html/welcome.html>.
[1272] *Id.* at art. 31.
[1273] *Reprinted in* 11 ILM 262, 264 (1972).
[1274] *Reprinted in* 13 ILM 352 (1974). However, recommendations and other agreements adopted under the Oslo or Paris Convention continue to be applicable to the extent they are compatible with or not explicitly terminated by the OSPAR Convention or any of its decisions or current recommendations. *Id.* at art. 31(2).

for a part of the contiguous Atlantic Area falling under the geographical scope of ACCOBAMS."[1275]

The OSPAR Convention's overarching objective is to prevent and eliminate pollution in the marine environment in the region,[1276] including from land-based sources,[1277] dumping or incineration,[1278] and offshore sources.[1279] In this pursuit, the Parties pledge to adopt programs to prevent and eliminate pollution, utilizing best available techniques and environmental practices.[1280] They also agree to apply the precautionary[1281] and the polluter pays principles.[1282]

[1275] Scovazzi, *supra* note 1085, at 28. The geographic scope of the OSPAR Convention is set out in Article 1:

> (a) "Maritime area" means the internal waters and the territorial seas of the Contracting Parties, the sea beyond and adjacent to the territorial sea under the jurisdiction of the coastal state to the extent recognised by international law, and the high seas, including the bed of all those waters and its sub-soil, situated within the following limits:
> (i) those parts of the Atlantic and Arctic Oceans and their dependent seas which lie north of 36° north latitude and between 42° west longitude and 51° east longitude, but excluding:
> (1) the Baltic Sea and the Belts lying to the south and east of lines drawn from Hasenore Head to Gniben Point, from Korshage to Spodsbjerg and from Gilbjerg Head to Kullen,
> (2) the Mediterranean Sea and its dependent seas as far as the point of intersection of the parallel of 36° north latitude and the meridian of 5° 36' west longitude;
> (ii) that part of the Atlantic Ocean north of 59° north latitude and between 44° west longitude and 42° west longitude.

Several of the Parties to OSPAR could ultimately become Parties to ACCOBAMS, including France, Portugal, and the European Community.

[1276] Convention for the Protection of the Marine Environment of the North-East Atlantic, *supra* note 1271, at Preamble.

[1277] *Id.* at art. 3.

[1278] *Id.* at art. 4.

[1279] *Id.* at art. 5.

[1280] *Id.* at art. 2(3)(b)(i)&(ii).

[1281] For an overview of the precautionary principle, *see* sec. 7.2.1, *infra*.

[1282] Convention for the Protection of the Marine Environment of the North-East Atlantic, *supra* note 1271, at art. 2(2)(a)&(b). The polluter pays principle was developed by the Organization for Economic Cooperation & Development. "The principle holds that the price of a good or service should fully reflect its cost of production and the cost of resources used, including environmental

The Convention's Commission is charged, *inter alia,* with supervising implementation of the Convention and formulating programs and measures for prevention and elimination of pollution.[1283] It also may adopt decisions that are binding upon the Parties if accepted by a three-quarters majority, as well as non-binding recommendations.[1284] Additionally, on the basis of periodic reports and other information provided by the Parties, the Commission can call for steps by a Party to "bring about full compliance with the Convention, and decisions adopted thereunder ..."[1285]

The Parties have taken several actions that are specifically germane to the protection of cetaceans in the region. In 1998, OSPAR adopted the *Strategy with Regard to Hazardous Substances* to move towards the target of the cessation of discharges, emissions and losses of a list of candidate hazardous substances by the year 2020.[1286] Additionally, OSPAR has developed a more limited list of Chemicals for Priority Action.[1287] This list includes several chemicals of particular concern for cetaceans, including: 1. polychlorinated biphenyls (PCBs); 2. polyaromatic hydrocarbons (PAHs); 3. mercury; 4. cadmium; and 5.

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resources. *See, e.g.*, OECD, Guiding Principles Concerning International Economic Aspects of Environmental Policies (May 26, 1972), *reprinted in* 11 ILM 1172 (1972); OECD, Council Recommendation on the Implementation of the Polluter Pays Principle (Nov. 14, 1974), *reprinted in* 14 ILM 234 (1975).

[1283] Convention for the Protection of the Marine Environment of the North-East Atlantic, *supra* note 1271, at art. 10(2).

[1284] *Id.* at art. 10(3) & 13(1) & (5).

[1285] *Id.* at art. 23.

[1286] OSPAR, *Strategy with Regard to Hazardous Substances,* <http://www.ospar.org/eng/html/welcome.html>, site visited on Sept. 23, 2002.

[1287] OSPAR Commission, *Annual Report 2000-2001* (2001), <http://www.ospar.org/v_publications/dowload.asp/?v1=p00142>.

lead.[1288] Under the Strategy with Regard to Hazardous Substances, the Commission is charged with conducting research on the sources of these hazardous substances and their pathways to the marine environment, developing risk assessments of the impacts of these substances, and identifying relevant measures to address these impacts, including measures to reduce discharges, emissions and losses of these substances.[1289]

In the context of PCBs, OSPAR has called for the European Community to establish cut-off values for PCB content of electrical and electronic waste, and for the establishment of a strategy to control dioxins and PCBs.[1290] Additionally, it called for reporting on implementation of PARCOM 92/3, a decision taken by the Paris Commission in 1992 for the phasing out of PCBs by Parties to the agreement by 2010.[1291] In terms of PAHs, OSPAR in 2001 supported their inclusion by the European Community in the European Community Water Framework Directive,[1292] support for the work of the European Committee for Standardization (CEN) on standards for domestic combustion appliances, review of OSPAR controls for PAHs on the iron, steel and aluminum industries, and development of a monitoring strategy.[1293] OSPAR has also published

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[1288] *Strategy with Regard to Hazardous Substances, supra* note 1286, at Annex 2. For the potential impacts of the substances on cetaceans, *see* sec. 2.1.3.2, *supra.*
[1289] *Strategy with Regard to Hazardous Substances, supra* note 1286, at 5.3.
[1290] *Annual Report 2000-2001, supra* note 1287, at 10.
[1291] *Id.*
[1292] 2000/60/EC, Official Journal (OJ L 327), 22 Dec. 2000, available at: <http://europa.eu.int/eur-lex/en/lif/dat/2000/en_300L0060.html>.
[1293] *Annual Report 2000-2001,supra* note 1287, at 11.

descriptions of Best Environmental Practices for preventions of emissions or releases from domestic combustion appliances and creosote-treated lumber.[1294]

"OSPAR is also an ecosystem protection Convention."[1295] Annex V to the Convention, *The Protection and Conservation of the Ecosystems and Biological Diversity of the Maritime* Area, entered into force in 2000.[1296] The Annex calls on the Parties to OSPAR to "take the necessary measures to protect and conserve the ecosystems and the biological diversity of the maritime area, and to restore, where practicable, marine areas which have been adversely affected;" and to cooperate in programs and measures to reduce adverse human impacts on marine biodiversity.[1297] In this context, OSPAR has called for the closer integration of fisheries management and protection of the marine environment within the framework of an ecosystems approach and protection of sensitive coastal areas through the adoption of codes of good practice in Coastal Zone Management.[1298] This commitment was amplified in its 2003 Strategies document, which called for additional measures to implement Annex V, including: 1. further assessment of which species and habitats need to be protected in the agreement area; 2. assessment of adversely affected marine areas and identification of practicable restoration programs; 3. continued assessment of the

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[1294] *Id.* at 11.
[1295] Rainer Lagoni, *Monitoring Compliance and Enforcement of Compliance Through the OSPAR Commission, in* MARINE ISSUES FROM A SCIENTIFIC, POLITICAL & LEGAL PERSPECTIVE, *supra* note 402, at 158
[1296] *Id.* at 25. Annex V has entered into force for 12 Parties to OSPAR. *Id.*
[1297] OSPAR, *supra* note 1276, at Annex V.
[1298] *Annual Report 2000-2001,supra* note 1287, at 25.

impacts of pollution and the taking of additional actions to combat such pollution under the Convention.[1299]

It was also suggested at the First Meeting of the Parties of ACCOBAMS that OSPAR could be used to establish protected areas for cetaceans in the contiguous Atlantic Area of the ACCOBAMS Agreement Area.[1300] This could be effectuated under Annex V of OSPAR. Additional impetus for this initiative was provided in 1998 when 15 ministers of North East Atlantic States and the European Commission called on the OSPAR Commission to promote "the establishment of a network of marine protected areas to ensure the sustainable use and protection and conservation of marine biological diversity and its ecosystems."[1301] Further development of a strategy to effectuate this goal has ensued, with a goal of designating areas for the network by 2010.[1302]

5.12 Law of the Sea Convention

The United Nations Convention on the Law of the Sea (UNCLOS)[1303] "effects a comprehensive allocation of powers and responsibilities for the governance of

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[1299] OSPAR, *2003 Strategies of the OSPAR Commission for the Protection of the Marine Environment of the North-East Atlantic*, <http://www.ospar.org/eng/html/welcome.html>, site visited on Jan. 22, 2005.
[1300] Remarks of Professor Tullio Scovazzi, ACCOBAMS 1MOP, *supra* note 61 (transcribed by the author).
[1301] OSPAR, *Sintra Statement* (1998), <http://www.ospar.org/eng/html/md/sintra.htm>, site visited on July 2, 2002.
[1302] *2003 Strategies of the OSPAR Commission for the Protection of the Marine Environment of the North-East Atlantic, supra* note 1299, at sec. 4.4.
[1303] *Supra* note 1050.

all uses of over two-thirds of the planet."[1304] The LOSC has come into force in all but one of the riparian Black Sea States[1305] and all but five Mediterranean basin States.[1306] The treaty has come into force in 11 of the current 13 Parties to ACCOBAMS.[1307] Moreover, ACCOBAMS expressly requires its Parties to implement the Agreement in a manner that is consistent with their rights and obligations under UNCLOS.[1308]

Several UNCLOS provisions are germane to protection of cetaceans and some of the prey species on which they are dependent. Under Part V of the Convention, the parties are authorized to establish Exclusive Economic Zones (EEZs) up to 200 nautical miles from the baselines from which the breadth of the territorial sea is measured.[1309] "[T]he establishment of EEZs has granted coastal states jurisdiction over approximately 11 percent of the world's oceans and most marine living resources."[1310]

In the context of living resources, coastal states may determine the allowable catch within their EEZs.[1311] However, this discretion is subject to the requirement

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[1304] Bernard H. Oxman, *Complementary Agreements and Compulsory Jurisdiction,* 95 AM. J. INT'L J. 277, 278 (2001).
[1305] Turkey is the only riparian Black Sea State that has not ratified the LOSC. United Nations, Oceans and Law of the Sea, *Status of the Law of the Sea as of 23 December 2003,* <http://www.un.org/Depts/los/reference_files/status2003.pdf>, site visited on Jan. 18, 2004.
[1306] These States are: Israel, Libya, Morocco, Syria, and Turkey. Libya and Morocco are signatories to the treaty. *Id.*
[1307] The LOSC has not come into force in Morocco or Syria. Morocco is a signatory to the Convention. *Status of the Law of the Sea as of May 21, 2002, supra* note 1305.
[1308] ACCOBAMS, supra note 1, at art. XI(2).
[1309] United Nations Convention on the Law of the Sea, *supra* note 1303, at arts. 55 & 57.
[1310] Oran R. Young, *Institutional Interplay: The Environmental Consequences of Cross-Scale Interactions, in* THE DRAMA OF THE COMMONS 273 (Elinor Ostrom, et al. eds., 2002). "[T]he world's 200-mile limits now encompass more than 90 per cent of the major commercial resources." Joon—Suk Kang, *The United Nations Convention on the Law of the Sea and Fishery Relations Between Korea, Japan and China,* 27 MARINE POL'Y 111, 111 (2003).
[1311] *Id.* at art. 61(1).

that coastal States must implement conservation and management measures to ensure that these resources are not endangered by over-exploitation.[1312] "Such measures shall also be designed to maintain or restore populations of harvested species at levels which can produce the maximum sustainable yield, as qualified by relevant environmental and economic factors . . ."[1313] However, these obligations are strongly weakened by the caveat that individual States are only required to take those measures to combat environmental damage "using . . . the best practicable means at their disposal and in accordance with their capabilities."[1314]

Moreover, reflecting the ecosystem-based approach of the Convention, coastal States are required to take into consideration "the effects on species associated with or dependent upon harvested species with a view to maintaining or restoring populations of such associated or dependent species above levels at which their reproduction may become seriously threatened."[1315] Thus, in the context of cetaceans, if coastal states in the Mediterranean and Black Sea region and contiguous Atlantic region establish EEZs, they are required under the Convention to: 1. ensure that levels of fish species are harvested at sustainable levels, and in establishing these levels; 2. must take into account the impact of fish harvests on cetaceans.

With the exception of Georgia, all riparian states in the Black Sea and the contiguous Atlantic area within the scope of ACCOBAMS have established 200-

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[1312] *Id.* at art. 61(2).
[1313] *Id.* at art. 61(3).
[1314] *Id.* at art. 194(1).
[1315] *Id.* at art. 61(4).

mile EEZs.[1316] By contrast, the Mediterranean has been characterized as an "absential sea" because the States in the region have for the most part refrained from establishing EEZs,[1317] primarily as a consequence of protracted disagreements as to maritime boundaries.[1318]

The LOSC also imposes special conditions of cooperation on States bordering closed and semi-enclosed seas such as the Mediterranean and Black Seas.[1319] States so situated are required, "directly or through an appropriate regional organization" to:

> (a) to coordinate the management, conservation, exploration and exploitation of the living resources of the sea;
> (b) to coordinate the implementation of their rights and duties with respect to the protection and preservation of the marine environment;
> (c) to coordinate their scientific research policies and undertake where appropriate joint programmes of scientific research in the area;

[1316] Division for Ocean Affairs and the Law of the Sea (DOALOS), Office of Legal Affairs, United Nations, *Summary of National Claims to Maritime Zones,* <http://www.un.org/Depts/los/convention_agreements/convention_agreements.htm>, site visited on May 30, 2002; Churchill, *supra* note 451, at 245.

[1317] Scovazzi, *supra* note 859, at 137. Only Morocco (1981), Syria (2003) and Cyprus (2004) have established EEZs in the Mediterranean. Scovazzi, *supra* note 238, at 8. "France and Spain, whose coasts also border the Atlantic Ocean, have established EEZs which are applicable only to their non-Mediterranean coasts." Stefano Belfiore, *The Role of the European Community in the Mediterranean Coastal Zone Management,* 31(2-3) OCEAN & COASTAL MGMT. 219, 242 (1996).

[1318] Scovazzi, *supra* note 859, at 137. Difficulties in delimiting maritime boundaries is by no means restricted to the Mediterranean region. According to one study, only 34.5% of potential maritime boundaries have been resolved, leaving 65.5% awaiting delimitation. Sun Pyo Kim, *The UN Convention on the Law of the Sea and New Fisheries Agreements in North East Asia,* 27 MARINE POL'Y 97, 97 n.2 (2003). However, this has not deterred most coastal States outside the Mediterranean region from declaring EEZs, with 131 of 151 coastal states now claiming 200-mile zones. Kang, *supra* note 1310, at 111.

[1319] "For the purposes of this Convention, "enclosed or semi-enclosed sea" means a gulf, basin or sea surrounded by two or more States and connected to another sea or the ocean by a narrow outlet or consisting entirely or primarily of the territorial seas and exclusive economic zones of two or more coastal States." United Nations Convention on the Law of the Sea, *supra* note 1303, at art. 122.

(d) to invite, as appropriate, other interested States or international organizations to cooperate with them in furtherance of the provisions of this article.[1320]

5.12.1 Article 65 Obligations

Article 65 of the Convention imposes special obligations in the context of marine mammals and cetaceans, providing:

> Nothing in this Part restricts the right of a coastal State or the competence of an international organization, as appropriate, to prohibit, limit or regulate the exploitation of marine mammals more strictly than provided for in this Part. States shall cooperate with a view to the conservation of marine mammals and in the case of cetaceans shall in particular work through the appropriate international organizations for their conservation, management and study.[1321]

Moreover, Article 120 of Convention provides that "[a]rticle 65 also applies to the conservation and management of marine mammals in the high seas."[1322] In the context of ACCOBAMS, an interesting question is whether the second sentence of Article 65 imposes an obligation on LOSC parties within the ACCOBAMS Agreement Area to either join or cooperate with ACCOBAMS to protect cetaceans found within their respective EEZs or on the high seas.

As McDorman suggests, interpretation of the scope of State obligations under the second sentence of Article 65 requires resolution of three questions:

1. What is (are) the appropriate international organization(s)?;
2. What is meant by a State being required to "work through" the appropriate organization(s)?;

[1320] *Id.* at art. 123
[1321] *Id.* at art. 65.
[1322] *Id.*

3. When [is] a State required to "work through" the appropriate organization(s)?[1323]

Each of these questions will be analyzed in turn in the context of ACCOBAMS.

5.12.1.1 "Appropriate Organizations"

The first question that must be answered is whether ACCOBAMS is an "appropriate organization" for States in the region to work through for the conservation, management and study of cetaceans Given the treaty's provisions for cetacean conservation, management and ongoing research, and the decision of many States in the region to become members already, ACCOBAMS clearly is an appropriate organization to effectuate the objectives of Article 65.

An associated foundational question at whether there are any potential alternative organizations that States could turn to in fulfilling their obligations under Article 65. There is only one potential alternative organization that could tenably assume this role in the region, the International Whaling Commission. However, while it has been argued *in abstracto* that the IWC is the most "appropriate organization" for cetacean management and conservation given its global scope and expertise,[1324] the continued resistance of many of its Parties to

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[1323] Ted L. McDorman, *Canada and Whaling: An Analysis of Article 65 of the Law of the Sea Convention,* 29 OCEAN DEV. & INT'L L. 179, 182 (1998).

[1324] Prideaux, *supra* note 5, at 231; Gillespie, *supra* note 534, at 284. The United Nations Conference on Environment and Development (UNCED) in interpreting Article 65 recognized "the responsibility of the International Whaling Commission for the conservation and management of whale stocks and the regulation of whaling pursuant to the 1946 International Convention for the Regulation of Whaling." United Nations Conference on Environment and Development, *Agenda 21*, ch. 17.61(a), *reprinted in* 22 ENVTL. POL'Y & L. 281, 285 (1992). The delegates to UNCED also recognized the "work" of other organizations "in the conservation, management and study of cetaceans and other marine mammals," including ASCOBANS. *Id.* at ch. 17.62(c). The use of the term "work" instead of "responsibility" in the context of these other organizations would appear to imply the delegate's intent to recognize the primacy of the IWC in cetacean research,

extending its regulatory purview to small cetaceans[1325] has rendered it impotent to protect most of the species found in the ACCOBAMS Agreement Area. As indicated above, under the Berlin Initiative, the IWC has recently expressed its intention to serve as the primary organization for conservation and management of all species classified as "high migratory" under UNCLOS.[1326]

In theory, this extends the IWC's remit to the conservation of all of the cetacean species found in the ACCOBAMS Agreement Area other than the harbor porpoise.[1327] However, the continued resistance of a large portion of the IWC's membership to address small cetacean issues will likely render the Berlin Initiative nugatory in this context, at least in the short term.[1328]

Thus, from a *functional perspective*, the IWC cannot be construed as an "appropriate" organization in the region if the objectives of Article 65 are to be effectuated. Under the Vienna Convention on the Law of Treaties and customary international law, a Party to the LOSC seeking to interpret its obligations under Article 65 must look to the provision's object and purpose.[1329] To the extent that

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conservation and management, while recognizing the contributions of other organizations to furthering these objectives.

[1325] *See supra* note 574 and accompanying text.

[1326] *Supra* notes 1006-1010.

[1327] *Supra* note 1010 and accompanying text.

[1328] A telling attestation to this fact was the decision by the drafters of a resolution to reduce cetacean bycatch to withdraw it before a vote ensued at IWC 55 in the face of substantial opposition to the proposal. Gesellschaft zur Rettung der Delphine.EV, *IWC on its Way to Strengthen Protection for Cetaceans,* <http://www.delphinschutz.org/english/2-03-berlin.htm>, site visited on Feb. 6, 2004.

[1329] Vienna Convention on the Law of Treaties, May 23, 1969, art. 53, 1155 U.N.T.S. 331 (entered into force Jan. 27, 1980), art. 31(1). Article 31 is recognized as a codification of pre-existing customary international law. Judith Hippler Bello, *Legality of the Use by a State of Nuclear Weapons in Armed Conflict, Advisory Opinion, International Court of Justice, July 8, 1996,* 91 AM. J. INT'L L. 134, 136 (1997); Steven P. Croley & John H. Jackson, *WTO Dispute Procedures, Standard of Review, and Deference to National Governments,* 90 AM. J. INT'L L. 193, 200 n. 34 (1996).

membership in or cooperation with the IWC would not achieve Article 65's purpose in the Mediterranean and Black Sea regions, which is to engender cooperation with international organizations capable of meeting the conservation, management and research needs of cetaceans, LOSC parties in the Mediterranean and Black Sea regions would fail to meet their legal obligations under the provision if they opted to work only through the IWC. As indicated above, the LOSC also imposes special conditions of cooperation on States bordering closed and semi-enclosed seas such as the Mediterranean and Black Seas.[1330]

To the extent that ACCOBAMS is the only regional organization focusing on cetacean research, conservation and management in the Black Sea and Mediterranean region, it could be argued that Parties to the LOSC in the region may be required to cooperate in some form.[1331] Of course, States in the region may contend that they can fulfill their obligations under Article 123 through membership in or cooperation with the Barcelona and Bucharest Conventions and their respective protocols given the provisions in these instruments for protection of species.[1332] However, given the comprehensive framework that ACCOBAMS establishes for cetacean conservation and management, it should be construed as the more "appropriate organization" for conserving cetaceans

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[1330] *Supra* note 1320.
[1331] To the extent that Article 123(a) permits States in the region to either engage in "direct" or "indirect" cooperation, presumably States in the region wouldn't be compelled to join ACCOBAMS. However, Article 123 does not specify what constitutes "cooperation," potentially vitiating the effectiveness of this provision.
[1332] *See supra* notes 569 & 884 and accompanying text, and Sec. 5.4.

under Article 123(a).[1333] It could also be argued that even if States in the ACCOBAMS Agreement Area can fulfill their obligations under Article 123(a) by joining the Barcelona or Bucharest Conventions, they would still be required to seek cooperation with ACCOBAMS to effectuate the objectives of Article 123(c).

5.12.1.2 The "Work Through" Requirement

The second sentence of Article 65 mandates that States "work through" appropriate organizations to effectuate cetacean research, conservation and management. The contours of this obligation have been subject to widely divergent interpretations. While some argue that this provision mandates State membership in an international management organization,[1334] or at least abiding by the regulations of such an organization,[1335] other commentators contend that the provision merely seeks to promote recourse and cooperation with such international organizations.[1336] For example, McDorman and others contend that Canada's obligations vis-à-vis cetaceans found within its 200 mile EEZ is limited to "participating in good faith in the work of the organization," such as by "contributing to the scientific work of an appropriate international

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[1333] Of course, since Article 123 calls upon States to cooperate with an "appropriate organization" to effectuate its purposes, as opposed to Article 65 which contemplates the possibility of States working with more than one organization, it could be argued that States in the region would be required to select the regional organization that most effectively addressed the objectives outlined in the provision in aggregate. In this case, the Barcelona Convention could be deemed the most "appropriate organization" given the fact that it both addresses species issues as well as the overall protection of the marine environment in the region.

[1334] SIMON LYSTER, INTERNATIONAL WILDLIFE LAW: AN ANALYSIS OF INTERNATIONAL TREATIES CONCERNED WITH THE CONSERVATION OF WILDLIFE 36 (1985).

[1335] Johanna Matanich, *A Treaty Comes of Age for the Ancient Ones: Implications of the Law of the Sea for the Regulation of Whaling,* 8 INT'L LEGAL PERSP. 37, 58 (1996); ALFRED H. A. SOONS (ed.), IMPLEMENTATION OF THE LAW OF THE SEA CONVENTION THROUGH INTERNATIONAL INSTITUTIONS 367 (1989).

[1336] McDorman, *supra* note 1323, at 184; WILLIAM T. BURKE, THE NEW INTERNATIONAL LAW OF FISHERIES 290 (1994).

organization."[1337] The Canadian government has even more narrowly construed Article 65, asserting that Canada may unilaterally determine when the "work through" obligation is even applicable.[1338]

The latter interpretation of Article 65 appears untenable on its face since the provision uses the mandatory word "shall," meaning that the Parties to LOSC are required to work through appropriate organizations in good faith.[1339] In terms of McDorman's interpretation of the scope of a State's obligations under Article 65, while working through a scientific body would appear to meet the "study" requirement of the provision, it would not fulfill their obligations in the context of conservation and management since the scientific/advisory bodies of cetacean regimes do not making binding decisions in either context.[1340] To fulfill these obligations would require States in the region to either agree to adhere to the decisions of ACCOBAMS in the context of conservation and management, or to join the regime for the purpose of deliberating and voting on such matters.

[1337] McDorman, *supra* note 1323, at 186.
[1338] *Id.*
[1339] *Id.* at 187.
[1340] *See* IWC, *The Scientific Committee,* <http://www.iwcoffice.org/Publications/Editorial.html> (Scientific Committee "reports and makes recommendations" to the Parties), site visited on Feb. 14, 2004; ACCOBAMS, *supra* note 1, at art. VII(1) (Scientific Committee "shall be established as an advisory body to the Meeting of the Parties; ASCOBANS, *supra* note 3, at art. 5.1 ("The Meeting of the Parties shall establish an Advisory Committee to provide expert advice and information to the Secretariat and the Parties on the conservation and management of small cetaceans and on other matters in relation to the running of the agreement . . .").

5.13 Convention on Biological Diversity

The Convention on Biological Diversity (CBD)[1341] was opened for signature at the United Nations Conference on Environment and Development in 1992 and entered into force in 1993. The Convention is one of the most widely accepted MEAs in the world, with 188 contracting Parties.[1342] All Mediterranean and Black Sea States are Parties to the Convention.[1343]

The CBD grew out of the recognition that while several existing treaties addressed specific biodiversity conservation issues, this piecemeal approach failed to adequately protect biodiversity globally.[1344] The CBD's overarching objectives are "the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources ..."[1345]

Several CBD provisions are germane to the conservation of cetaceans found in coastal regions of the ACCOBAMS Agreement Area. Contracting Parties to the Convention are required to identify and monitor "components of biological

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[1341] *Convention on Biological Diversity*, *supra* note 564.
[1342] Convention on Biological Diversity, *Parties to the Convention on Biological Diversity/Cartagena Protocol*, <http://www.biodiv.org/world/parties.asp>, site visited on Jan. 22, 2006.
[1343] Convention on Biological Diversity, *Parties to the Convention on Biological Diversity,* <http://www.biodiv.org/world/parties.asp>, site visited on Mar. 5, 2004.
[1344] Lyle Glowka, Françoise Burhenne-Guilmin & Huge Synge, *A Guide to the Convention on Biological Diversity,* Environmental Policy & Law Paper No. 30, IUCN Environmental Law Centre (1994), at 2.
[1345] CBD, *supra* note 1341, at art. 1.

diversity important for its conservation and sustainable use . . ."[1346] These components include ecosystems and habitats containing, *inter alia,* high diversity, large numbers of endemic or threatened species and those important to migratory species,[1347] as well as threatened species.[1348] Consistent with the Convention's prioritization of *in-situ* conservation initiatives,[1349] the Convention calls upon the Parties to establish a system of protected areas "where special measures need to be taken to conserve biological diversity,"[1350] and to regulate or manage biological resources important for the conservation of biodiversity whether within or outside these protected areas.[1351] Additionally, the Parties are to promote protection of ecosystems, natural habitats and viable populations of species in natural surroundings[1352] and environmentally sound and sustainable development in areas adjacent to protected areas.[1353] The Parties to the Convention are also required to establish procedures for environmental impact assessments for proposed projects that are likely to have significant adverse impacts on biodiversity, with a view to minimizing these impacts. [1354] Finally, the Parties agree to provide information to and consult with other States in cases where a Party's activities may adversely affect the biodiversity of other States or areas beyond the limits of national jurisdiction.[1355]

[1346] *Id.* at art. 7(a).
[1347] *Id.* at Annex I(1).
[1348] *Id.* at Annex I(2).
[1349] *Id.* at Preamble.
[1350] *Id.* at art. 8(a).
[1351] *Id.* at art. 8(c).
[1352] *Id.* at art. 8(d).
[1353] *Id.* at art. 8(e).
[1354] *Id.* at art. 14(a).
[1355] *Id.* at art. 14(c).

As Anton observes, the text of the CBD "adds little to the protection and preservation of marine biodiversity outside national jurisdiction except a duty to 'cooperate' in its conservation and sustainable use."[1356] However, the Parties substantially expanded their commitments in the so-called "Jakarta Mandate," a resolution adopted at the Second Meeting of the Conference of the Parties.[1357] The resolution included the following provisions:

1. It affirmed and expanded upon the Parties' support of the Convention's Subsidiary Body on Scientific, Technical and Technological Advice's (SBSTTA)[1358] program of work for marine and coastal biodiversity issues,[1359] which included plans for periodic assessments of the status of marine biodiversity, identification of components and marine biodiversity under threat, provision of advice for engendering cooperation with other relevant MEAs, including regional conservation bodies, and provision of advice to the Parties to implement their respective national biodiversity plans in this context;[1360]
2. It encouraged the Parties to adopt programs for integrated marine and coastal zone management;[1361]
3. It called for the development of models of ecosystem processes to facilitate ecosystem-based management of marine and coastal species;[1362]
4. It tasked the Convention's Executive Secretary with developing "options for the conservation and sustainable use of biological diversity and its components in the implementation of marine and coastal management and planning practices, including options for the development of integrated marine and coastal area management at regional and national levels," as well as the preparation of annual reports to the Subsidiary Body on Scientific, Technical and Technological Advice.[1363]

[1356] Donald K. Anton, *Law for the Sea's Biodiversity,* 36 COLUM. J. TRANSNAT'L L. 341, 343 (1997).
[1357] CBD, *Conservation and Sustainable Use of Marine and Coastal Biological Diversity,* Decision II/10, U.N. Doc. UNEP/CBD/COP/2/19 (1995), <http://www.biodiv.org/cop2/cp2-19.html>, site visited on Dec. 27, 2002 (hereinafter *Jakarta Mandate*).
[1358] *See* CBD, *supra* note 1341, at art. 25.
[1359] Jakarta Mandate, *supra* note 1357, at paras. 1 & 7.
[1360] Convention on Biological Diversity, Subsidiary Body on Scientific, Technical and Technological Advice, *Scientific, Technical and Technological Aspects of the Conservation and Sustainable Use of Coastal and Marine Biological Diversity,* UNEP/CBD/SBSTTA/1/18, 4 Aug. 1995, at para. 26, <http://www.biodiv.org/doc/meetings/sbstta/sbstta-01/official/sbstta-01-08-en.pdf>, site visited on Dec. 27, 2002.
[1361] Jakarta Mandate, *supra* note 1357, at para. 2.
[1362] *Id.* at Annex I, sec. x.
[1363] *Id.* at Annex II, sec. 4(b).

The Parties subsequently developed a Program of Work to implement the Jakarta Mandate at the Fourth Conference of the Parties. The Program, *inter alia,* identifies key operational objectives and priority activities in the context of integrated marine and coastal area management, marine and coastal living resources, marine and coastal protected areas, mariculture and alien species and genotypes.[1364]

At the Seventh Conference of the Parties, the Parties conducted a review of the program of work on marine and coastal biodiversity that was developed at the 4th Conference of the Parties.[1365] The Parties concluded that the program of work still comported with global priorities, but was not fully implemented and thus should be extended for an additional six years.[1366] Among the decisions made by the Parties in extending the program, the following are most germane to ACCOBAMS:

- A call for Parties to establish a global network of marine and coastal protected areas as part of a wider marine and coastal management framework;[1367]
- Promotion of integrated marine and coastal area management through, *inter alia,* promotion of an ecosystem approach, national and regional capacity building, and building upon the Large Marine Ecosystem Concept;[1368]

[1364] CBD, Fourth Conference of the Parties, *Conservation and Sustainable Use of Marine and Coastal Biological Diversity, Including a Programme of Work,* Decision IV/5 (1998), at Annex, para. 1, <http://www.biodiv.org/decisions/default.asp?lg=0&dec=IV/5>, site visited on Dec. 27, 2002.
[1365] Convention on Biological Diversity, Seventh Conference of the Parties, *Marine and Coastal Biological Diversity*, Decision VII/5 (2004).
[1366] *Id.* at Preamble.
[1367] *Id.* at para. 20. The Parties also requested that the CBD's Executive Secretary should collaborate with the Secretary-General of the United Nations and other relevant bodies to identify appropriate mechanisms for the establishment and management of marine protected areas beyond national jurisdiction. *Id.* at para. 31.
[1368] *Id.* at sec. III

- Foster research "on the effects of fish and invertebrate stock enhancement on marine and coastal biological diversity;"[1369]
- Enhance the prospects for preventing the introduction of invasive alien species into marine and coastal environments, through, *inter alia,* development of an international cooperative initiative through relevant organizations, such as the International Maritime Organization and the Global Invasive Species Program, implementation of measures to address invasive alien species in ballast water, and maintenance of an incident list on introductions of alien species.[1370]

5.14 International Convention for the Conservation of Atlantic Tunas

The International Convention for the Conservation of Atlantic Tunas (ICCAT)[1371] was opened for signature in 1966 and entered into force in 1969. The Convention currently has 40 contracting Parties.[1372] The International Commission for the Conservation of Atlantic Tunas was established at a Conference of Plenipotentiaries in 1969[1373] to carry out the Convention's objectives.[1374]

ICCAT applies to all waters of the Atlantic Ocean and adjacent seas, including the Mediterranean.[1375] In addition to seeking to maintain tuna and tuna-like fish populations at levels that will permit the maximum sustainable catch,[1376]

[1369] *Id.* at Operational Objective 2.1.
[1370] *Id.* at Operational Objectives 5.2-5.3.
[1371] International Commission for the Conservation of Atlantic Tunas, <http://www.iccat.es/>, site visited on Jan. 22, 2005.
[1372] *Id., Contracting Parties,* <http://www.iccat.es/contracting.htm>, site visited on Jan. 22, 2005.
[1373] International Commission for the Conservation of Atlantic Tunas, *supra* note 1371.
[1374] International Convention for the Conservation of Atlantic Tunas, *supra* note 1371, at art. III(1).
[1375] *Id.* at art. I.
[1376] *Id.* at art. VIII(1)(a). ICCAT has not been very effective in meeting this objective. As Larocque observed:

the Commission has established a Subcommittee on Bycatch that reviews data collection for bycatch, especially in the context of sharks.[1377] In response to a recent query from the International Whaling Commission, the Subcommittee indicated that it had recommended collection of information on marine mammal bycatch through observer programs, and that some nations had provided such information. The Subcommittee in 2002 also recommended that the Convention Secretariat develop a database management system for scientific observer information on marine mammal bycatch, and concluded that progress was being made.[1378]

ICCAT is also engaged in joint meetings with the General Fisheries Commission for the Mediterranean on large pelagic species.[1379] These meetings include discussion of bycatch issues, though there has been virtually no discussion of marine mammals in this forum.

> The lack of binding, enforceable measures in ICCAT has created little incentive for parties to abide by its commission's recommendations. As a result, ICCAT"s commission often sets quotas too high in order to achieve voluntary compliance from members, leading many to conclude that ICCAT has been an abysmal failure. ICCAT's fisheries statistics support this claim. In 1994, the biomass of Atlantic bluefin was only about thirteen percent of its 1975 level.

Emily Larocque, *The Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean: Can Tuna Promote Development of Pacific Island Nations?,* 4 ASIAN-PACIFIC L. & POL'Y 4, 7 (2003).

[1377] International Commission for the Conservation of Atlantic Tunas, *supra* note 1371. *See also* International Commission for the Conservation of Atlantic Tunas, *2002 Report of the Meeting of the Sub-Committee on By-Catch,* Appendix 9 (2002); International Commission for the Conservation of Atlantic Tunas, Resolution 0-11, *Resolution by ICCAT on Atlantic Sharks,* Mar. 22, 2002.

[1378] International Commission for the Conservation of Atlantic Tunas, *2002 Report of the Meeting of the Sub-Committee on By-Catch, supra* note 1377.

[1379] *See* International Commission for the Conservation of Atlantic Tunas, *7th Ad Hoc Joint GFCM-ICCAT Meeting on Stocks of Large Pelagic Fishes in the Mediterranean* (2004), <http://www.iccat.es/Documents/Meetings/Announce/Meet%202004%20GFCM-ICCAT%20EN.pdf>, site visited on Jan. 22, 2005.

5.15 Global Plan of Action for the Conservation, Management and Utilization of Marine Mammals

The Global Plan of Action for the Conservation, Management and Utilization of Marine Mammals (MMAP) was developed by UNEP and FAO, in conjunction with the International Whaling Commission and the World Conservation Union (IUCN), between 1978 and 1983.[1380] The initiative was adopted by UNEP's governing council as a non-binding instrument in 1984 and was subsequently endorsed by the United Nations in 1985.[1381] UNEP's Oceans Programme has served as the Secretariat for MMAP since 1985.

MMAP is "the only international instrument addressing the conservation of all marine mammals at the global level."[1382] In the context of cetaceans, it encompasses both marine species and riverine species of dolphins.[1383]

MMAP's overarching objective is "to promote the effective implementation of a policy for conservation, management and utilisation of marine mammals which would be widely accepted by governments and the public."[1384] The MMAP is built around five concentration areas, namely, policy formulation, regulatory and protective measures, improvement of scientific knowledge, improvement of law and its application and public education. Partners cooperating with MMAP on cetacean issues have included the Secretariat of the Convention on the

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[1380] UNEP, *Overview of UNEP's Marine Mammal Action Plan,* <http://www1.unep.org/marine-mammals/mmapsbackground.doc>, site visited on July 21, 2003.
[1381] International Whaling Commission, Scientific Committee, *UNEP's plans for a World Digital Atlas on Marine Mammal,* SC/54/024 (2002), at 1, <http://www.iwcoffice.org/SCWEB/SC-54-O24.doc>, site visited on July 21, 2003.
[1382] *Id.*
[1383] *Id.*
[1384] UNEP, *supra* note 1380, at 1.

Conservation of Migratory Species of Wild Animals (CMS), and the Whale and Dolphin Conservation Society (WDCS).[1385] UNEP's Regional Seas Programme has also contributed to the implementation of MMAP. Particularly germane in the context of ACCOBAMS is the Action Plan for the Conservation of Cetaceans in the Mediterranean Sea.[1386]

[1385] *Id.*
[1386] *Supra* note 884.

5.16 International Commission for the Scientific Exploration of the Mediterranean Sea (CIESM)

CIESM was established in 1910 "to promote marine science for the lasting protection of the Mediterranean Sea and for the well-being of its coastal populations."[1387] CIESM is currently funded by 23 Member States[1388] and supports the work of approximately 500 institutes and 2500 researchers.[1389] This work includes initiation, design and coordination of international research projects and organization of workshops and symposia.[1390]

Many of these projects are germane to the conservation of cetaceans, including efforts to inform fisheries management in the region, surveys of marine biodiversity, and research germane to the protection of critical Mediterranean ecosystems.[1391] Additionally, as indicated earlier, CIESM is directly involved in implementation of ACCOBAMS, including its appointment of representatives to the Scientific Committee,[1392] and assistance to the regime in both formulation and effectuation of its implementation priorities.[1393]

[1387] International Commission for the Scientific Exploration of the Mediterranean Sea (CIESM), Overview, <http://www.ciesm.org>, site visited on Jan. 22, 2005.
[1388] Algeria; Croatia; Cyprus; Egypt; France; Germany; Greece; Israel; Italy; Lebanon; Malta; Monaco; Morocco; Portugal; Romania; Serbia & Montenegro; Slovenia; Spain; Switzerland; Syria; Tunisia; Turkey; Ukraine. *Id.,* Member States, <http://www.ciesm.org/about/membe.html>, site visited on Jan. 22, 2005.
[1389] CIESM, *supra* note 1387.
[1390] *Id.*
[1391] *Id.*
[1392] *See supra* note 630 and accompanying text.
[1393] *See supra* notes 662-61 and accompanying text.

Chapter 6

The Prospects for ACCOBAMS

6.1 The Historical Record

It is difficult to be sanguine about the prospects for ACCOBAMS if one reviews the implementation history of other regional environmental treaty regimes and national legislation in this context.

A particularly abject example is the GFCM, which has clearly failed to prevent the overexploitation of many important fish species in the region.[1394] Despite disastrous declines in the region's commercial fish stocks over the past two decades,[1395] total fish catches have almost tripled since the establishment of the GFCM in 1948.[1396] Overfishing may now constitute the greatest threat to marine ecosystems in the Mediterranean basin.[1397] Moreover, the members of the GFCM have not responded to FAO requests for catch and effort statistics, which is critical data for any fisheries management regime.[1398] The Parties have also failed to fully comply with a GFCM resolution calling upon members to prepare a list of fishing boats operating from Mediterranean ports, despite the

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[1394] Juan-Luis Suárez de Vivero, et al., *The Mediterranean: Regional Politics and Fishing Policies, in* EUROPE'S SOUTHERN WATERS: MANAGEMENT ISSUES & PRACTICE 122 (David Symes ed., 1999).
[1395] Colin Woodard, *Black Sea in Critical Condition,* S.F. CHRON., Nov. 10, 1997, at A12; *Mediterranean Nations Agree to Fish Conservation Group,* EUR. REP., Dec. 4, 1996.
[1396] Scovazzi, *supra* note 1021, at 1357.
[1397] WWF, *From Macro-economic Stability Towards Sustainable Development: The Challenge for the Euro-Mediterranean Sustainable Development Strategy* (2002), at 5; General Fisheries Commission for the Mediterranean, *Report of the Second Session of the Sub-Committee on Marine Environment and Ecosystems,* 15-18 May 2001, at 4.
[1398] Scovazzi, *supra* note 1021, at 1359. *See also* GFCM, *supra* note 1255, at sec. 7; World Wide Fund for Nature, *Mediterranean Fisheries Face a Grim Future,* October 13, 1997, <http://www.panda.org/news/press/archive/news_158.htm>, site visited on Jan. 2, 2002.

fact that GFCM's Scientific Advisory Committee has deemed this information "essential."[1399]

The joint GFCM-ICCAT Working Group on Large Pelagic Fishes has failed to carry out any assessments of Mediterranean swordfish and albacore populations, and no new assessments of Eastern Atlantic Mediterranean bluefin tuna have occurred since 1998 as a consequence of the failure of individual States to submit relevant data.[1400] Moreover, "severe budgetary constraints for fisheries research in several countries" and reduced intersessional work at the country level to implement work plans of the GFCM's Scientific Advisory Committee (SAC) have been cited as factors leading to reduced participation in the critical work of the SAC's subcommittees in the recent years.[1401] Finally, internal measures to implement the Agreement have suffered from poor compliance by fishers in the region and inadequate monitoring by the Parties.[1402]

The record of the States in Mediterranean region has also been poor in implementing other species-specific conservation accords and associated

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[1399] General Fisheries Commission for the Mediterranean, Twenty Fifth Session, 12-15 Sept. 2000, *Selected Global Issues in Fisheries of Relevance to GFCM*, GFCM/XXV/2000/3 (2000), at <http://www.fao.org/docrep/meeting/X7663E.htm>, site visited on Oct. 2, 2001.

[1400] International Commission for the Conservation of Atlantic Tunas, *Report of the Standing Committee on Research and Statistics (SCRS),* 30 Sept.-4 Oct. 2002, at 103; International Commission for the Conservation of Atlantic Tunas, *Report of the Sixth GFCM-ICCAT Meeting on Stocks of Large Pelagic Fishes in the Mediterranean,* 15-19 Apr. 2002, at 13; General Fisheries Commission for the Mediterranean, *Report of the Fourth Session of the Scientific Advisory Committee,* FAO Fisheries Rep. No. 653 (2001), at 6.

[1401] GFCM, Sixth Session of the Scientific Advisory Committee, *Conclusions and Recommendations of the Four Sub-Committees,* SAC6/2003/3, at I (2003), <ftp://ftp.fao.org/fi/DOCUMENT/gfcm/sac6/3e.pdf>, site visited on Jan. 18, 2004; GFCM, Report of the Twenty-Seventy Session (2002), at 10, <ftp://ftp.fao.org/docrep/fao/005/y8322e/y8322E00.pdf>, site visited on Jan. 18, 2004.

[1402] Commission of the European Communities, *Green Paper on the Future of the Common Fisheries Policy,* COM(2001) 135 final (2001), at 19. WWF, *supra* note 34, at 7. "The 2000 ICCAT programme to evaluate the Mediterranean tuna stock has had to be postponed *sine die* due to lack of data." Tudela, *supra* note 284, at 11; *see also* WWF, *Mediterranean Environmental Crisis Points* 7 (2000).

national legislation. For example, the Rhodes Action Plan to protect the highly endangered Mediterranean monk seal (*Monachus monachus*)[1403] has not been successful in stanching the steady decline of the species in the region,[1404] a victim primarily of coastal development, pollution and killing by fishers and incidental capture in fishing gear.[1405] Since its implementation in the 1970s the number of animals in the region has declined from 600-700 to 250-350 currently,[1406] relegated to fragmented, and possibly isolated, subpopulations in the Greek and Turkish islands, the Mediterranean coast of Morocco and western Algeria, the Desertas Islands in the Madeira archipelago and the Sahara coast.[1407]

The Rhodes Plan contemplated the establishment of a series of monk seal reserves, protection under national legislation, public awareness initiatives, and additional research. However, implementation of the program has been abject to date. Nations in the region have dragged their feet in ratifying the revised Specially Protected Areas Protocol to the Barcelona Convention, considered to be the linchpin for identifying critical priorities for conserving monk seals in the region.[1408] Moreover, Mediterranean states have been slow to enact requisite national legislation and have failed to conduct critical population surveys and

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[1403] The monk seal "is considered one of the rarest and most threatened animal species in the world." Luis M. González, et al., *Status and Distribution of the Mediterranean Monk Sea Monachus monachus on the Cabo Blanco Peninsula (Western Sahara-Mauritania) in the 1993-1994,* 80 BIO. CONSERVATION 225, 225 (1997).
[1404] Giulia Mo, *Action and Action Plans,* 2(1) THE MONACHUS GUARDIAN, May 1999, at 22.
[1405] A. Borrell, A. Aguilar & T. Pastor, *Organochlorine Pollutant Levels in Mediterranean Monk Seas from the Western Mediterranean and the Sahara Coast,* 34(7) MARINE POLLUTION BULL. 505, 505 (1997); Susan Milius, *Now What Should We Do?,* 24(5) INT'L WILDLIFE 46-52 (1994).
[1406] *The Monk Sea in Danger,* 38 MEDWAVES 10 (Winter 1998/1999).
[1407] A. Borrell, A. Aguilar & T. Pastor, *supra* note 1405, at 505.
[1408] *Id.*

adequately monitor the species in critical areas.[1409] States in the region have also shown little commitment to implement national legislation and international accords to conserve sea turtles, including the critically endangered Mediterranean green turtle[1410] and loggerhead turtle.[1411]

The record of implementation of the Mediterranean Action Plan and the Convention for the Protection of the Mediterranean Sea Against Pollution is mixed to date. On the positive side, many nations in the region have embarked on ambitious efforts to adopt more comprehensive environmental policies, including coastal zone management and economic planning pertinent to marine and coastal pollution, as well as the funding of substantial amounts of pollution control infrastructure.[1412] Moreover, while the concentration of industry and population in coastal portions of the region have doubled over the past quarter

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[1409] *Id.;* Luis M. González, et al., *supra* note 1403, at 225.

[1410] Andreas Demetropoulos, *The Decline of the Turtles,* 45 MEDWAVES 16-17 (2002); Council of Europe, Convention on the Conservation of European Wildlife and Natural Habitats, *Update Report on Marine Turtle Conservation in Zakynthos, Laganas Bay, (Greece),* Mediterranean Association to Save the Sea Turtles, T-PVS/Files (2002) 15 (2002), <http://www.coe.int/t/e/Cultural_Co-operation/Environment/Nature_and_biological_diversity/Nature_protection/sc22_files15e.pdf>, site visited on Oct. 9, 2002; Mediterranean Association to Save the Sea Turtles, *Green Turtle (Chelonia Mydas) on the Turkish Mediterranean Coasts,* Convention on the Conservation of European Wildlife and Natural Habitats, 20th Meeting of the Standing Committee, T-PVS (2000) 56 (2000); I. Veniezelos, *Conservation Status of Sea Turtles in the Northeastern Mediterranean: Three Case Studies,* 1 CONTRIBUTIONS ZOOGEOGRAPHY & ECOLOGY EAST MEDITERRANEAN REGION 447, 447-450 (1999).

[1411] WWF, *Over 60% of Turkey's Turtle Nesting Sites are not Adequately Protected,* Dec. 6, 2003, <http://www.panda.org/about_wwf/where_we_work/europe/where/mediterranean/news.cfm?uNewsID=10602>, site visited on Jan. 25, 2004.

[1412] Haas, *supra* note 9, at 192 & 196-200. Moreover, the Parties have pledged to complete preparation of ten-year National Action Plans by 2005; these plans will outline concrete plans by each respective State to reduce land-based pollution, including the establishment of investment portfolios. *The Big Polluters: Industry, Urban Centres and Agriculture, supra* note 176, at 10.

century, "the Mediterranean is probably no dirtier than it was twenty years ago."[1413]

On the other hand, major polluting States in the region, including France, Spain and Italy, routinely flout the regulations they have established pursuant to the agreement.[1414] Institutionally, "the incorporation of the obligations arising out of the Barcelona Convention and its related Protocols into national laws and regulations is still rare."[1415] This is particularly true in the case of the Protocol for the Protection of the Mediterranean Sea Against Pollution from Land-Based Sources. As Massoud et al. recently concluded, "the LBS protocol which was designed to control the most significant cause of pollution, would probably be categorized the least effective considering that most of the measures required to make the protocol operational have not been implemented."[1416]

There has also been a disturbing slowness on the part of the Parties to the Barcelona Convention to ratify the successor convention and new and revised protocols.[1417] Moreover, the Convention has been beset by serious implementation and problems. For example, member States have consistently

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[1413] *Id.* at 192.
[1414] Pearce, *supra* note 150, at 28. Despite being a Party to the Barcelona Convention, Israel also continues to dump domestic sewage sludge from the Shafdan sewage treatment plant through a pipe that runs under the Mediterranean Sea. UNEP and the World Health Organization has cited the Shafdan as "one of the major toxic waste polluters along the Mediterranean coastline." Erika Weinthal & Yael Parag, *Two Steps Forward, One Step Backwards: Societal Capacity and Israel's Implementation of the Barcelona Convention and the Mediterranean Action Plan,* 3(1) GLOBAL ENVTL. POL. 51, 57 (2003). Israel has committed numerous other violations of its responsibilities under the Convention. *Id.*
[1415] UNEP, 13th Ordinary Meeting of the Contracting Parties to the Convention for the Protection of the Mediterranean Sea Against Pollution, UNEP(DEC)/MED IG.15/Inf.5 (2003), at 6, <http://62.68.74.75/acrobatfiles/03IG15_Inf05_eng.pdf>, site visited on Jan. 17, 2004.
[1416] Massoud, Scrimshaw & Lester, *supra* note 38, at 895. *See also* Suh-Yong Chung, *Is the Convention-Protocol Approach Appropriate for Addressing Regional Marine Pollution?: The Barcelona Convention System Revisited,* 13 PENN ST. ENVTL. L. REV. 85, 98 (2004).
[1417] *Id.*

failed to pay their dues to the Barcelona Convention Secretariat and have seriously underfunded the Mediterranean Plan's Trust Fund, its main source of financing.[1418]

Moreover, member States have frequently failed to provide critical information about implementation measures.[1419] Finally, efforts to protect marine and coastal biodiversity in the Mediterranean have been thwarted by antagonisms between competing, and largely uncoordinated, national ministries and agencies.[1420]

Overall, recent research indicates that while pollution may not have gotten worse in the region, few declines in toxic effluents have been recorded in the Mediterranean Sea, habitat destruction continues apace, and marine parks and protected areas exist for the most part only on paper.[1421] Moreover, there is

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[1418] Chung, *supra* note 1416, at 102; Weinthal & Parag, *supra* note 1414, at 57.
[1419] Weinthal & Parag, *supra* note 1414, at 57. *See also Anti-Pollution Efforts Stepped Up,* MIDDLE E. ECON. DIG., Mar. 17, 1995, at 20. MED POL has also been plagued by the failure of most of the 12 member states to report data. Johnston, *supra* note 25, at 242.
[1420] UNEP, *supra* note 175, at 24.

> In the case of marine ecosystems, often the main division (and even antagonism) is between environmental and fisheries marine administrations. Moreover, other competencies in sectors directly affecting marine areas (e.g. tourism, agriculture, water, industry, energy, transport and navigation, commerce, town planning and land management, public works, military defence, etc.) are usually widely distributed between different, uncoordinated administrations. In general, this is perceived as a major difficulty for the correct management of marine and coastal biodiversity. *Id.*

[1421] Massoud, Scrimshaw & Lester, *supra* note 38, at 894 ("Generally, due to lack of implementation, the Barcelona Convention has failed to combat increasing pollution and prevent further degradation of the Mediterranean ecosystem"); Stacy D. VanDeveer, *Capacity Building Efforts and International Environmental Cooperation in the Baltic and Mediterranean Regions, in* PROTECTING REGIONAL SEAS: DEVELOPING CAPACITY AND FOSTERING ENVIRONMENTAL COOPERATION IN EUROPE, *supra* note 958, at 24 & 29; UNEP, *supra* note 175, at 27-8. Implementation and enforcement problems also abound, evinced, for example, by increases in illegal construction along the Mediterranean coasts despite strict national legislation. *Id.* at 25. Notarbartolo di Sciara, *supra* note 882, at 14 (Specially protected areas in the region have suffered from "inappropriate choice of areas to be protected, lack of clear objectives in the establishment phase, lack of

evidence that rising pollution levels in many areas of the Mediterranean are posing increasing threats to marine life.[1422]

Compliance with environmental and fishing accords has been even more discouraging in the Black Sea region. In 1959, Bulgaria, Romania and the USSR entered into a fishing agreement, the Convention Concerning Fishing in the Black Sea (Varna Convention).[1423] The Convention primarily focused on data gathering and information exchange, however, it also set minimum size limits for eight species, established a minimum mesh size for nets used to catch turbot, and prohibited the catch of a species of sturgeon deemed close to extinction.[1424] However, the agreement collapsed at the end of the 1980s in the face of the refusal of member States to agree to controls on fishing methods or sustainable catch quotas.[1425]

The record of implementation of the Bucharest Convention is also discouraging. Recent research demonstrates a clear pattern of non-compliance with regulations to ban the use of organochlorine pesticides, perpetuating high

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management focus and governance expertise, lack of political agreement, and insufficient awareness of the potential benefits.")

[1422] Chung, *supra* note 1416, at 97.

[1423] 377 U.N.T.S. 203 (1959), available on the American Society of International Law – Wildlife Interest Group site, <http://www.internationalwildlifelaw.org/varma.html>.

[1424] Mee, *supra* note 340, at 86.

[1425] Lawrence D. Mee, *How to Save The Black Sea,* <http://www.undp.org/gef/new/blacksea.htm>; A.E. Reynolds, *The Varna Convention: A Regional Response to Fisheries Conservation and Management,* 2 INT'L J. COASTAL & ESTUARINE L. 154-170 (1987). In 1997, a Draft Convention for Fisheries and Conservation of Living Resources of the Black Sea was initiated by Bulgaria, Georgia, Romania, the Russian Federation, Ukraine and Turkey. In 2002, the Black Sea Commission expressed its desire to finalize the Draft Convention. Black Sea Ministers, *Declaration on the Protection of the Black Sea Ecosystem* (2002), available at <http://www.intfish.net/materials/2002/0205blacksea.htm>, site visited on July 13, 2003.

levels of DDT, PCBs and HCHs in Black Sea cetaceans.[1426] The Parties have failed to develop national measures to reduce the use of toxic substances identified in the agreement and have failed to honor their financial commitments to the Convention.[1427] Moreover, domestic waste discharges into rivers that feed into the Black Sea continue at very high levels despite the mandates of the Convention.[1428]

The Mediterranean monk seal has been reduced by 90 per cent in the last 40 years in the Black Sea region.[1429] The species is now considered to be extinct in Bulgaria "and may only be a heartbeat away from meeting a similar fate throughout the remainder of the Black Sea."[1430] While some States in the region, such as Turkey, have sought to reverse the decline through initiatives such as the establishment of protected areas, these programs have been characterized by the failure of States to provide adequate resources for enforcement and agency infighting that has thwarted establishment of monk seal sanctuaries.[1431]

The record to date of Black Sea nations in meeting their prospective obligations under Natura 2000 is not encouraging. A recent study of implementation of Natura 2000 by EU candidate countries found that Bulgaria

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[1426] Shinsuke Tanabe, et al., *Persistent Organochlorine Residues in Harbour Porpoise (Phocoena phocoena) from the Black Sea,* 34 MARINE POLLUTION BULL. 338, 341-343 (1997). *See generally,* Mark Glukhovsky, *Troublesome Neighbors,* MOSCOW NEWS, Jan. 22, 1998.
[1427] Natalia Mirovitskaya, *Moving Toward International Cooperation in the Black Sea Region: Prospects of Sustainable Governance,* paper presented at the 42nd International Studies Association Annual Convention, 20-24 Feb. 2001, at 17.
[1428] Tuncer, *supra* note 419, at 422.
[1429] *The Monk Seal,* 3 MED-ECOMEDIA WATCH 5 (2000).
[1430] *Philately Revisited*, 5(1) MONACHUS GUARDIAN (2002), <http://www.monachus-guardian.org/mguard09/09newmed.htm>, site visited on June 13, 2003.
[1431] Yalçin Savas & Cem Orkun Kiraç, *Endgame: The Fight for Marine Protected Areas in Turkey,* <http://www.monachus-guardian.org/mguard09/09covsto.htm>, site visited on Jan. 2, 2002.

has failed to conduct a national assessment of species density and distribution, obviating efforts to designate sites.[1432] Moreover, the study concluded that Bulgaria has provided insufficient funding or staffing to facilitate mapping and field work and has failed to provide adequate information to local communities about the program, likely ensuring future opposition by local residents.[1433] In Romania, the Ministry of Water and Environmental Protection lacks the financial resources to establish the Natura 2000 network.[1434] Romania has also failed to devote adequate resources or personnel to inform the general public about the program.[1435]

Finally, the implementation of international environmental accords by the Russian Federation, a very important potential future member State of ACCOBAMS, has also been disheartening. A recent study of Russian implementation of international fishing agreements in its northern basin concluded that there were serious problems, including deficiencies in resources for enforcement efforts and actions by the Ministry of Economy that run at cross purposes with management initiatives.[1436] Moreover, Russian compliance with its obligations under the Convention on the Protection of the Marine Environment of the Baltic Sea Area[1437] (Helsinki Convention) and its governing body, the Baltic

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[1432] WWF, *supra* note 1187, at 20.
[1433] *Id.* at 21.
[1434] *Id.* at 48.
[1435] *Id.*
[1436] Geir Hønneland & Anne-Kristin Jørgensen, *Implementing International Fisheries Agreements in Russia — Lessons from the Northern Basin,* 26 MARINE POL'Y 359, 365-366 (2002).
[1437] Convention on the Protection of the Marine Environment of the Baltic Sea Area (1992), <http://www.helcom.fi/helcom/convention.html>, site visited on Feb. 2, 2005.

Marine Environment Protection Commission (HELCOM)[1438] has also been poor, marked by the submission of inadequate national implementation reports and poor implementation of its regime obligations.[1439] Similar findings have also been made in the context of Russian implementation and compliance in recent years with CITES, the World Heritage Convention, the Ramsar Convention and the Convention on Biological Diversity.[1440]

6.2 Regime Resource/Capacity Constraints

As Vogler recently concluded, "widespread dissatisfaction with the performance of environmental regimes is in many ways not the consequence of weaknesses in the international institutions, but in the incapacity of state governments."[1441] Successful implementation of ACCOBAMS will clearly require substantial national expenditures, both in terms of implementation of recommendations by the regime, as well as for ancillary measures critical for the long-term viability of cetacean populations in the region. This includes specific programs, such as to reduce non-point pollution source, integrated coastal management, and efforts to reduce fisheries bycatch. Additionally, it evokes broader issues of governance, such as the ability and political will to conduct multi-sectoral assessments, and engendering communication and consultation

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[1438] Baltic Marine Environmental Protection Commission, <http://www.helcom.fi/>, site visited on August 13, 2003.
[1439] Selin & VanDeveer, *supra* note 1144.
[1440] Jørgen Holten Jørgensen & Geir Hønneland, *Implementing Global Nature Protection Agreements in Russia,* 8(3) J. INT'L WILDLIFE L. & POL'Y (2005) (in press); Jacobson & Weiss, *supra* note 774, at 326-27.
[1441] Vogler, *supra* note 19, at 34.

among government agencies and stakeholders to reconcile goals and priorities.[1442] This is especially true given the extremely modest budget of the regime.[1443]

Unfortunately, the severe financial constraints faced by many States in the Agreement Area may render the ambitious objectives of the treaty chimerical. Economic conditions in the Black Sea region are particularly problematic and do not bode well for the capacity or inclination of riparian nations to confront critical environmental issues.[1444]

Ukraine saw its economy implode after the collapse of the former Soviet Union. Economic output fell by 60 per cent in the first nine years of independence,[1445] one of the worst depressions in history.[1446] While the economy has grown in the past few years,[1447] poverty rates in recent years have hovered at 50 per cent[1448] and some economists peg the rate of unemployment at more than 20 per cent,[1449] with "[m]any workers paid intermittently if at all.[1450]

[1442] Achim Steiner, Lee A. Kimball & John Scanlon, *Global Governance for the Environment and the Role of Multilateral Environmental Agreements in Conservation,* 37(2) Oryx 227, 233 (2003).
[1443] Blackseaweb, *Country Overviews*, <http://www.blackseaweb.net/general/country.htm>, site visited on July 1, 2001. Moreover, regimes research indicates that many developing countries are highly suspicious of scientific advice from abroad, making a compelling case for contributing to the development of indigenous scientific capabilities in developing States that are current or prospective members of ACCOBAMS. Haas, *supra* note 9, at 190.
[1444] Joann Carmin & Stacy VanDeveer, *Enlarging EU Environments: Central and Eastern Europe from Transition to Accession,* 13(1) ENVTL. POL. 3, 7 (2004) (environmental issues moved "to the margin" in Central and Eastern European States in the 1990s due to economic hardship, and cultural and political disruptions); East-West Institute, *Task Force on Economic Strategy for South Eastern Europe,* Final Report, June, 2000, at 36; Mee, *supra* note 485.
[1445] Nancy Popson, *Where Does Europe End?,* WILSON Q., Summer, 2002, at 14.
[1446] *The Orange Revolution,* WALL ST. J., Dec. 28, 2004, at A10.
[1447] *Kuchma Signs 2005 Budget Bill,* BUS. REP., Dec. 28, 2004 (GDP projected to grow 6.5% in 2005); Douglas Birch, *Ukraine Poised for Political Shift,* BALTIMORE SUN, Dec. 28, 2004, at 1A.
[1448] *Ukraine,* Blackseaweb, <http://www.blackseaweb.net/general/country.htm>, site visited on July 30, 2002; Popson, *supra* note 1445, at 15.
[1449] Benjamin Smith, *Free Market Misery; Can Ukraine Save its Miners?,* In These Times, July 8, 2002, available on LEXIS-NEXIS, News Group File.

Moreover, the country remains deeply divided after three rounds of a bruising Presidential election in 2004 in which Viktor Yushchenko ultimately emerged as the winner.[1451]

Romania suffered one of the deepest economic declines of Eastern and Central European nations after the collapse of the USSR, with almost a 30 per cent drop in GDP in the early 90s.[1452] The economy suffered a second severe shock in the period of 1997-1999, with GDP falling over 12 per cent.[1453] While macroeconomic conditions have improved recently with GDP growing in the past several years,[1454] the economy remains very fragile,[1455] with a third of the

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[1450] Popson, *supra* note 1445, at 15. Average salaries in the Ukraine are less than $100 per month. Mark McDonald, *Ukraine's New President May Find that Getting Elected Was the Easy Part,* HERALD SUN (Melbourne), Dec. 29, 2004, at 23.

[1451] Fred Weir, *Deep Divide: Ukraine's Contested Election Reflects Russia's Push to Unify*, IN THESE TIMES, Jan. 3, 2005, at 8:

> [T]here are reasons to worry that Ukraine's fragile post-Soviet stability has already been undermined by the bitter dispute [the 2004 Presidential election], which has deeply aggravated the longstanding divisions between the country's heavily Russified, industrial east and the largely agricultural, nationalistic west. Since leaving the USSR in 1991, Ukraine has managed to maintain a vibrant -- if muddled -- democratic political culture, with relatively independent parliament, media and courts, while neighboring Russia and Belarus have become aggressively recentralized states run by super-presidential figures . . . The eastern regions, where most of Ukraine's industry is concentrated, are already planning referenda on "autonomy" — read rejoining Russia — if Yushchenko becomes president.

While President Yushchenko would like to ultimately bring Ukraine into the EU, it is likely the EU will be chary to move quickly given the imposing issues associated with the latest round of enlargement. Mark Landler, *Ukraine's New President Asks for Help at Economic Meeting,* N.Y. TIMES, Jan. 29, 2005, at A5.

[1452] OECD, *Economic Assessment: Romania* 12 (2002), <http://www.sourceoecd.org/data/cm/00007465/romania_assessment.pdf>, site visited on July 30, 2002.

[1453] *Id.* at 13.

[1454] Romania's GDP grew by 5.7 percent in 2001, 4.9 percent in 2002, and 4.7 percent in 2003, with inflation reduced from 30.3 percent in 2001 to 14 percent in 2003. Aurelian Craiutu, *Romania: The Difficult Apprenticeship of Liberty (1989-2004),* EES NEWS, Sept./Oct. 2004, at 9. An important impetus for improved economic performance in Romania was the ambitious

population living in poverty.[1456] Given the economic straits the nation finds itself in, it's not surprising that spending for environmental programs remains extremely low.[1457]

Bulgaria's GDP plummeted by one third between 1989 and 1997,[1458] and the nation experienced triple digit inflation in 1996 and 1997.[1459] While GDP has grown dynamically since,[1460] unemployment remains high, officially pegged at 12 per cent in 2004,[1461] and its per capita income of $1,500 is by far the lowest of any candidate for EU membership.[1462]

While Turkey experienced strong economic growth over the past two decades,[1463] growth has been volatile in recent years, including a 5 per cent drop

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structural economic reform program launched by Prime Minister Adrian Nastase's government in 2000. *Id.* at 6.

[1455] International Energy Agency, *Black Sea Energy Survey* 2 (2000).

[1456] *Easy to Preach, Harder to Do,* ECONOMIST, Aug. 31, 2002. There are some other disconcerting signs, including a recent increase in Romania's balance of payments deficit and large increases in consumer debt, which may be a portent of a recrudescence of the crippling inflation that beset the nation in the 1990s. Craiutu, *supra* note 1454, at 9.

[1457] Commission of the European Communities, *Regular Report on Romania's Progress Toward Accession,* SEC(2001) 1753 (2001), at 82 ("The budget allocated for environment remains extremely low . . . [representing] less than 0.4% of GDP (the average figure for EU Member States is approximately 1.5%)); Andrew Purvis, *Triangle of Death; Three Factories Pollute a Romanian Town, Stunting the Health and Lives of its Children,* TIME, Apr. 9, 2001, at 26. Romania also laid off a third of the workforce of its already understaffed environmental inspectorates in 2001. *Id.*

[1458] Sam Vaknin, *On the Way to the EU,* 3(18) CENTRAL EUR. REV. (2001), <http://www.ce-review.org/01/18/vaknin18.html>, site visited on July 31, 2002.

[1459] Blackseaweb, *supra* note 1443.

[1460] Bulgaria's GNP probably grew by about 5.6 per cent in 2004. *Bulgaria 10-Mo C/A Gap Shrinks on Tourism Revenue, Current Transfers,* SEENEWS, Dec. 28, 2004, LEXIS-NEXIS, Newfile.

[1461] Kristina Stefanova, *The Old Ones Die Young and the Young Ones Go Abroad,* WASH. TIMES, Dec. 27, 2004, at A14.

[1462] John R. Lampe, *Bulgaria's Delayed Transition: Problems but Progress,* EES NEWS, May/June 2003, at 8; Sam Vaknin, *On the Way to the EU,* 3(18) CENTRAL EUROPE REV. (2001), <http://www.ce-review.org/01/18/vaknin18.html>, site visited on Nov. 30, 2002.

[1463] Turkey's GDP increased by an average of 4.1 per cent annually over the past 20 years. INTERNATIONAL ENERGY AGENCY, BLACK SEA ENERGY SURVEY 198 (2000).

in 1999,[1464] and a sharp decline in 2001,[1465] resulting in the nation's worst recession since 1945.[1466] The European Union-Turkey Joint Consultative Committee recently stated that it was "deeply concerned by the state of crisis of the Turkish economy that threatens the long-term macro-economic stability of the country. The effects have been felt in every area of economic activity and the social consequences have been severe."[1467]

The economic crisis has resulted in Turkey becoming the International Monetary Fund's biggest debtor.[1468] Moreover, inflationary pressures have revived, and the continued weakness of the lira[1469] could maintain upward pressures on prices.[1470] Turkey's current woes are also exacerbated by a political crisis that precipitated early elections.[1471]

Georgia's real GDP fell about 70% between 1990 and 1994, with internal upheaval, including secessionist movements in the provinces of Abkhazia and South Ossetia, helping to stymie efforts at economic reform.[1472] The nation's

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[1464] EUROPA PUBLICATIONS, THE EUROPA WORLD YEAR BOOK, Vol. II (2000), at 3630.
[1465] Commission of the European Communities, *Regular Report on Turkey's Progress Toward Accession*, SEC(2001) 1756 (2001), at 34. Turkey's economy shrank 9.4 per cent in 2001. *Turkey is Shaken by its Seventh, and Biggest, Cabinet Resignation,* N.Y. TIMES, July 12, 2002, at 10.
[1466] Daniel Simpson, *As Recession Drags on and Coalition Crumbles, Turkey's Premier Calls Early Elections,* N.Y. TIMES, July 17, 2002, at A8.
[1467] *EU ESC Reflects with Turkish Opposite Numbers,* ENLARGEMENT WKLY., July 30, 2002, <http://europa.eu.int/comm/enlargement/docs/newsletter/latest_weekly.htm#C>, site visited on July 31, 2002.
[1468] Daniel Simpson, *Turkey Says Debt Negotiations Aren't Linked to Stand on Iraq,* N.Y. TIMES, July 18, 2002, at A5.
[1469] The lira recently hits its all time low against the dollar. *Turkey is Shaken by its Seventh, and Biggest, Cabinet Resignation, supra* note 1465, at 10.
[1470] *Id.* at 38; *Turkish Diary,* 4(1) INSIGHT TURKEY 141, 145 (2001).
[1471] *Turkey is Shaken by its Seventh, and Biggest, Cabinet Resignation, supra* note 1465, at 10.
[1472] As Nikolai Orlov recently concluded:

> It will be hard for Georgians to live in harmony in an integrated state. The relations between western and eastern Georgians are full of conflicts over the past decade. Megrelia, the Western Georgia, had been opposed to

economy has improved in recent years. Georgia posted a 5% increase in GDP in 2003, and it is projected that GNP grew 8.5 per cent in 2004.[1473] However, the country remains beset by massive corruption[1474] and has found it very difficult to attract foreign investment.[1475] More than half of the nation's population lives in poverty.[1476]

Albania remains a "dysfunctional state," heavily dependent on foreign aid and donations of the Albanian diaspora for economic survival. The economy was also severely undercut in 1997 by a failed pyramid scheme.[1477] While it has

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> Shevardnadze's regime. Positions of Zviyad Gamsakhurdia, the deceased former president of Georgia, are strong among Megrels. Mikhail Saakashvili has recently amnestied followers of Gamsakhurdia and invited them into the new government. Against the background of mass arrests of Shevardnadze's proponents, this is strongly irritating eastern Georgians. The eastern Georgians are now dissatisfied with the policies of new leaders. Experts presume two Georgian states - one on the east and another on the west - may appear due to the hostile relations between the Georgians. As a result, the present-day Georgia may break into eight small states and its territory could for a long time become a zone of instability and ethnic conflicts. Nikolai Orlov, *Georgia Might Reiterate the Fate of Yugoslavia,* DEFENSE & SECURITY (Russia), Mar. 1, 2004, at 7, LEXIS-NEXIS, Newsfile.

See also Steven R. Weisman, *Georgian Vows Peaceful Solution with Russia,* N.Y. TIMES, Aug. 6, 2004, at 3 (Georgia warned the United States that Russia is allegedly seeing to assert greater control over the former Soviet republic by fueling the secessionist movement in Abkhazia province); Seth Mydans, *Georgia's President Risks Showing Warlord's Who's Boss,* N.Y. TIMES, Mar. 18, 2004, at 5; International Energy Agency, *supra* note 1455, at 2.

[1473] *Georgia Forecasts 6% GDP Growth, 5.2% Inflation for 2005,* News Bull., Nov. 16, 2004, LEXIS-NEXIS, Newsfile. Georgia expects GDP growth of 6 per cent in 2005. *Id.*

[1474] In a positive development in this context, Georgia's new President, Mikhail Saakashvili, has signaled that he intends to confront corruption in the nation. He has backed this pledge up with the arrest recently of several high profile figures. Mydans, *supra* note 1472.

[1475] *Georgia: Review,* WORLD OF INFORMATION COUNTRY REP., Feb. 10, 2004, LEXIS-NEXIS, Newsfile.

[1476] Thomas Omestad, *Bye, Old Friend, Hello, New One,* U.S. NEWS & WORLD REP., Feb. 9, 2004, at 29, LEXIS-NEXIS Newsfile.

[1477] Elez Biberaj, *The Albanian National Question and Balkan Stability,* EES NEWS, Mar.-Apr. 2003, at 10.

experienced health economic growth in recent years,[1478] it remains Europe's poorest State,[1479] "mired deeply in underdevelopment."[1480]

Overall, in Eastern Europe, "[e]conomic transition . . . has caused biodiversity funding to dry up."[1481] While foreign sources of funding have sought to fill the gap, in most cases foreign aid rarely exceeds 10-15 per cent of the requisite funding for biodiversity programs in the region.[1482] As one commentator recently noted in discussing the prospects for Black Sea states to address marine pollution issues:

> A solution becomes more difficult in the context of the Black Sea because the majority of its littoral states are in a state of virtual bankruptcy. Some of the world's best marine biology institutes now have a skeletal staff, most of them receiving minimal or no salaries. Furthermore, the ports located along its coast do not have sewage or effluent treatment plants. The ones that exist have fallen into disrepair and there are no funds to set them right. Huge quantities of untreated organic waste are dumped daily into its waters – a staggering 571 million cubic metres per year.[1483]

Furthermore, many Black Sea research vessels are tethered in ports because of a lack of funds, or are being used to shuttle business people around

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[1478] Albania's economy grew by 6 per cent in 2004, and GDP is targeted by the government to grow by 6-7 per cent in 2005. *Albania Says Economic Growth, Fiscal Consolidation Major Goals in 2005,* SeeNews, Jan. 10, 2005, LEXIS-NEXIS Newsfile.

[1479] *Albanian Opposition Calls for New Anti-Government Protests,* Agence France Presse, Feb. 16, 2004, LEXIS-NEXIS Newsfile.

[1480] *The Other Europe; Redefining the East Challenges the West,* Pittsburgh Post-Gazette, Jan. 20, 2004, at A-12, LEXIS-NEXIS, Newsfile.

[1481] UNEP, 3 GLOBAL ENVIRONMENTAL OUTLOOK 136 (2002).

[1482] *Id.*

[1483] Sharma, *supra* note 413. *See also* Victoria Radchenko & Modest Y. Aleyev, *Environmental and Social Impacts of Management Approaches in Sevastopol Bay in a Historic Retrospective: A Case Study from the Black Sea,* 43 OCEAN & COASTAL MGMT. 793, 810 (2000) ([In the Black Sea Region] real nature conservation and recovery measures need serious investments. They are impossible under [sic] present total economic crisis."

the region.[1484] Funding constraints have also been the primary reason for the failure of the Parties to the Convention for the Protection of the Black Sea Against Pollution to establish an effective coordinating body,[1485] as well as a failure by Black Sea States to construct adequate wastewater facilities to grapple with priority sources of water pollution.[1486]

In the context of cetaceans, "the majority of wild animal research was stopped before 1992 because of absence of funding."[1487] Funding constraints have also precluded States in the region from establishing coastal reserves of adequate size to protect cetaceans, or providing specialized training to the staff of such reserves for cetacean research or rescue techniques.[1488] In many cases, communities, "faced with an alarming array of risks arising from a variety of sources,"[1489] have opted for focusing on local problems, imperiling the future of global initiatives.

Many of the same financial constraints exist in the Mediterranean, especially in the impoverished Magreb and Mashrek countries[1490] where

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[1484] Georgian Parliament, *Black Sea Biodiversity,* <http://www.parliament.ge/gov/enviro/manual/tevzi-0.htm> (site visited on April 23, 2002); Neal Ascherson, *Can A Study Cruise and a Noble Scrap of Paper Save the Black Sea?,* INDEPENDENT, Sept. 28, 1997; John Pomfret, *Communism's Messiest Legacy is a Gasping Black Sea,* INT'L HERALD TRIBUNE, June 21, 1994.

[1485] Mee *supra* note 485, at 12.

[1486] Commission for the Protection of the Black Sea Against Pollution, *State of the Environment of the Black Sea. Pressures and Trends, 1996-2000* (2002), at Sec. 2.4, <http://www.blacksea-commission.org/Downloads/SOE_English.zip>, site visited on July 4, 2003.

[1487] Birkun, Jr. & Krivokhizhin, *supra* note 429, at 288.

[1488] *Minutes of the 9th Ministerial Meeting of the Black Sea Commission, supra* note 424, at 23.

[1489] McGlade, *supra* note 485, at 105.

[1490] Juan. L. Suárez de Vivero & Juan. C. Rodríguez Mateos, *The Mediterranean and Black Sea: Regional Integration and Maritime Nationalism,* 26(5) MARINE POL'Y 383, 394 (2002). The Magreb States are: Algeria, Morocco, Libya, Mauritania and Tunisia. The Mediterranean riparian States in the Mashrek region are: Egypt, Lebanon and Syria.

Mediterranean Action Plan in States such as Albania, Egypt, Israel and Turkey.[1500]

The history of other international wildlife treaty regimes does not give one much cause for optimism in terms of ACCOBAMS securing sufficient funds to effectively implement its ambitious agenda. Even major multilateral regimes, including the Convention on International Trade in Endangered Species of Wild Fauna and Flora,[1501] and the International Convention for the Regulation of Whaling,[1502] have been plagued by the failure of their members to pay assessments in a timely manner. Moreover, minimal contributions have made it difficult to fulfill treaty objectives.[1503]

Furthermore, while ACCOBAMS also contemplates the pursuit of funds from other sources, the failure of cleanup programs for the Baltic Sea and the Danube River in recent years to attract substantial funding from international

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[1500] Dorit Talitman, Alon Tal & Shmuel Brenner, *The Devil is in the Details: Increasing International Law's Influence on Domestic Environmental Peformance – The Case of Israel and the Mediterranean Sea,* 11 N.Y.U. ENVTL. L.J. 414-478 (2003); Stacy VanDeveer, *Protecting Europe's Seas,* ENVIRONMENT, July/Aug., 2000, at 21.

[1501] Convention on International Trade in Endangered Species of Wild Fauna and Flora, March 3, 1973, 27 U.S.T. 1087, T.I.A.S. No. 8249, 993 U.N.T.S. 243, ELR Stat. 40336.

[1502] International Convention for the Regulation of Whaling, 2 December 1946, 161 U.N.T.S. 72 (entered into force 10 Nov. 1948).

[1503] *See Report on National Reports Submitted Under Article VIII, Paragraph 7, of the Convention,* NINTH MEETING OF THE CONFERENCE OF THE PARTIES, 7-18 Nov. 1994, Doc. 9.21, at 1; Burke, *supra* note 1336, at 292:

> The IWC is also given little or no capacity of its own to increase knowledge and understanding of whales, their habitats, or their interactions with other species . . . The commission has no research arm or funds to engage researchers. It must rely on member states and on private groups, neither of which can be presumed to do objective science or interpret conditions without bias.

See also Gregory Rose & George Paleokrassis, *Compliance with International Environmental Obligations: A Case Study of the International Whaling Commission,* in IMPROVING COMPLIANCE WITH INTERNATIONAL ENVIRONMENTAL LAW 148, 160 (James Cameron & Peter Roderick eds., 1996) (suggesting that fishers are reluctant to provide data to the European Union that may lead to restrictions on their activities).

sources is a discouraging portent,[1504] as is the egregious underfunding by the EU and the World Bank of phase one institutions and networks in the Black, Caspian and Aral Seas.[1505]

Additionally, as VanDeveer and Dabelko recently suggested, the ability of States to meet international environmental commitments extends beyond the adequacy of financial resources for technical and scientific programs. Other critical considerations include public sector capacity and the political commitment to environmental protection.[1506]

The States in the Black Sea particularly suffer from a lack of public sector capacity and many of these nations evince little commitment to implementation of environmental protection programs.[1507] In many nations in the region staffs in environmental agencies are paid salaries well below the cost of living and must seek other jobs.[1508] Moreover, these nations have failed to make adequate investments in pollution control technology,[1509]

In Russia, the *Minpriroda,* the Ministry for the Protection of the Environment and Natural Resources was downgraded in status to the *Goskomekologiya,* the State Committee for Environmental Protection, in

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[1504] Woodard, *supra* note 491, at 6.
[1505] VanDeveer, *supra* note 1500, at 25.
[1506] Stacy D. VanDeveer & Geoffrey D. Dabelko, *It's Capacity, Stupid: International Assistance and National Implementation,* 1(2) GLOBAL ENVTL. POL. 18, 22 (2001). *See also* Young, *supra* note 1310, at 278-79.
[1507] *Id. See also* Mirovitskaya, *supra* note 1427, at 17; Organisation for Economic Co-operation and Development, *Task Force for Implementation of the Environmental Action Programme for Central and Eastern Europe (EAP),* CCNM/ENV/EAP(2003)6 (2003), at 3.
[1508] Mee, *supra* note 485, at 31.
[1509] Mee, *supra* 963, at 150.

1996.[1510] In 2000, a presidential decree abolished both *Goskomekologiya* and the Federal Forestry Service.[1511] The functions of these two bodies were transferred to the Ministry for Natural Resources, which is charged with developing natural resources in Russia.[1512] Many observers believe that this has further weakened environmental protection efforts in the country.[1513] This conclusion was reinforced by the Russian Minister of Natural Resource's expression of doubt that his agency is capable of taking on new environmental regulatory duties.[1514]

In 2004, President Putin shuffled the federal executive branch again, establishing, *inter alia*, a new Service on Ecological, Technological and Nuclear Control.[1515] While the Service is supposedly independent of the control of the

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[1510] Jonathan D. Oldfield, *Russian Environmentalism,* 12 EUR. ENV'T 117, 119 (2002).
[1511] *Id.* at 120.
[1512] *Id.*
[1513] John Crace, *Setting the World Alight,* The Guardian, June 25, 2002 (LEXIS-NEXIS News Service):

> After the collapse of the communist regime, many of the eastern provinces of the former Soviet Union have seen a marked increase in the numbers of forest fires as they have largely dismantled their forest and environmental services. This has put the endangered Siberian tiger at even greater risk.

See also Mee, *supra* note 340, at 91.
[1514] Joshua E. Abrams & Matthew R. Auer, *The Disappearance of Popular Environmental Activism in Post-Soviet Russia, in* RESTORING CURSED EARTH 153 (Matthew R. Auer ed., 2004). Continuous reorganizations of the Ministery have also demoralized its staff, with only 10-25% of the original staff remaining. The ministerial section for international environmental cooperation has only 5-6 civil servants remaining. Jørgensen & Hønneland, *supra* note 1440. In 2004, as part of yet another re-shuffling, President Putin created the Service on Ecological, Technological and Nuclear Control under the Ministery of Natural Resources and tasked it with the responsibility for monitoring and control; however, it the Service remains "politically under the thumb of the Ministry." *Id.*
[1515] Russian Government, Presidential Decree no. 314 of 09.03.2004, <http://www.pravitelstvo.gov.ru/data/static_text.html?st_id=7637&he_id=783>, site visited on Jan. 24, 2005.

Ministry, it remains to be seen how this structure will work. Moreover, staff numbers have shrunk even more in the reorganization process.[1516]

Additionally, Russia has experienced problems in controlling the harvests of living marine resources within its EEZs.[1517] For example, efforts to prevent overharvesting, including illegal harvesting, in the Bering Sea region has been thwarted by an inadequate legal framework to control illegal activities, poor coordination between enforcement agencies, low pay for enforcement personnel and corruption.[1518]

In Bulgaria, despite several salutary developments in the early 1990s, including the formulation of a strategy for the conservation of biodiversity and the creation of a National Natural Protection Service,[1519] the initiatives of the environmental ministry have been undercut by successive governments more concerned with huge development projects than protection of the environment.[1520] Moreover, recent surveys indicate that the vast majority of Bulgarians are hostile to environmental initiatives that they perceive might impair their standard of living.[1521]

A recent assessment by the EU also concluded that administrative and enforcement capacities at the regional and municipal levels, where the implementation of environmental policy is primarily entrusted in the nation, are

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[1516] Jørgensen & Hønneland, *supra* note 1440.
[1517] Young, *supra* note 1310, at 282-83.
[1518] Alexy Vaisman, *Trawling in the Mist: Industrial Fisheries in the Russian Part of the Bering Sea* 64-67 (2001), <http://www.traffic.org/beringsea/bering.pdf>, site visited on Aug. 31, 2002.
[1519] Caedmon Staddon & Barbara Cellarius, *Paradoxes of Conservation and Development in Postsocialist Bulgaria: Recent Controversies,* 12 EUR. ENV'T 105, 106 (2002).
[1520] *Id.* at 114.
[1521] LILIANA B. ANDONOVA, TRANSNATIONAL POLITICS OF THE ENVIRONMENT 156 (2004).

extremely weak.[1522] Moreover, the country continues to suffer from a lack of integration of environmental concerns into decisions made by other sectors.[1523] However, at least in some sectors, such as air pollution regulation, the requirements for European Uinon membership have exerted a positive influence on government decisonmaking.[1524]

Romania suffers from some of the Black Sea region's worst environmental degradation.[1525] Unfortunately, it has also demonstrated an extremely limited capacity to implement environmental protection statutes and regulations. While it has strengthened its commitment to environmental protection in recent years, it suffers from a lack of local agency capacity for monitoring, enforcement and information dissemination, insufficient funding, and an inadequate legal and regulatory framework.[1526]

[1522] Commission of the European Communities, *Regular Report on Bulgaria's Progress Toward Accession,* SEC(2001) 1744 (2001), at 77.
[1523] WWF Water & Wetland Index, *Results Overview for Bulgaria,* Nov., 2003, <http://www.panda.org/downloads/europe/wwibulgaria.pdf>, site visited on Jan. 25, 2004.
[1524] Andonova, *supra* note 1521, at 182.
[1525] U.S. Energy Information Administration, *Romania: Environmental Issues,* < http://www.eia.doe.gov/emeu/cabs/romaenv.html>, site visited on Aug. 31, 2002.
[1526] *Id. See also* Rubin Meyer Doru & Trandafir, *Implementing Romania's Environmental Protection Law: Licenses and Authorizations,* <http://www.major-companies.ro/digest/articles/herzfeld2.htm>, site visited on Aug. 31, 2002.

Chapter

7 Recommendations: Improving the Prospects for ACCOBAMS

7.1 Increasing Regime Funding

As noted above, financial constraints may seriously impair the ability of many of the Parties to ACCOBAMS to implement its provisions. Unfortunately, as one commentator observed recently, bilateral and multilateral foreign assistance is declining, and is increasingly directed to non-environmental programs, e.g. combating AIDS and rebuilding Iraq.[1527] Moreover, the serious financial constraints faced by the treaty regime may preclude it from operationalizing critical aspects of its agenda, including conducting "extremely expensive," but essential, baseline population estimates and distributional information surveys,[1528] conducting studies of the extent and magnitude of cetacean bycatch in the Agreement Area,[1529] and development and implementation of a conservation plan for cetaceans in the Black Sea.[1530]

It is incumbent upon some of the more affluent states in the Agreement Area, as well as the European Community,[1531] to make meaningful financial

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[1527] United Nations Development Programme, et al., *International Environmental Governance,* in World Resources 2002-2004: DECISIONS FOR THE EARTH: BALANCE, VOICE, & POWER 35 (2003).
[1528] ACCOBAMS Secretariat, *Proceedings of the Second Meeting of the Parties of the Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area,* Palma de Majorca, Spain, 9-12 November, 2004, *Abundance and Distribution of Cetaceans within the ACCOBAMS Area,* Resolution 2.19.
[1529] *Report of the Second Meeting of the Scientific Committee,* ACCOBAMS, *supra* note **Error! Bookmark not defined.**, at sec. 4.1.5.
[1530] *Id.* at sec. 4.1.8.
[1531] The European Community could also become a Party to the agreement, ACCOBAMS, *supra* note 1, at art. XIII(1) ("This Agreement shall be open for signature by any Range State, whether or not areas under its jurisdiction lie within the Agreement Area, or regional economic integration organization, at least one member of which is a Range State . . ."). This would be salutary for several reasons. It would provide an important source of funding for implementation of ACCOBAMS programs, and also help to facilitate coordination of EC programs that are relevant

commitments to the regime. Moreover, several other affluent States outside the region have portrayed themselves as staunch advocates for the welfare of cetaceans in forums such as the International Whaling Commission. These States should view this as an excellent opportunity to demonstrate their commitment to cetacean conservation by contributing to implementation of the treaty's conservation plan and State capacity building, perhaps through an existing mechanism such as the Global Environment Facility or the voluntary fund provision of ACCOBAMS.[1532] Absent this support, ACCOBAMS may become yet another multilateral agreement "with ambitious goals, but without

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to the protection of cetaceans, including EC efforts to reduce the bycatch of marine mammals in fisheries operations, and habitat protection regulations, such as the Habitats Directive, Directive 92/43 on the Conservation of Natural Habitats and of Wild Fauna and Flora, OJEC 1992 L206/7 with ACCOBAMS programs. Unfortunately, the EU has expressed no interest in becoming a member of ACCOBAMS in the foreseeable future.

[1532] Global Environment Facility Instrument For The Establishment Of The Restructured Global Environment Facility (GEF), *reprinted in* 33 I.L.M. 1273 (1994) (*hereinafter Global Environment Facility Instrument).* The GEF was established as a pilot program under the rubric of the United Nations Development Program (UNDP), the International Bank For Reconstruction (IBRD) and the United Nations Environment Program (UNEP), 30 I.L.M. 1735 (1991). Hailed as "the first major financial accomplishment since the Rio Summit," *Global Funds Emerging To Pay For Big Cleanup,* BANGKOK POST, Dec. 8, 1994, its purpose is to grant concessional aid to developing States to assist them in implementation of environmental protection programs in four categories: 1) Protection of the ozone layer; 2) Limitation of greenhouse gas emissions; 3) Protection of biodiversity; and 4) Protection of international waters. *Global Environment Facility Instrument, supra,* para. 2, at 1285. *See also* Russell A. Mittermeier & Ian A. Bowles, *The GEF and Biodiversity Conservation: Lessons to Date, Suggestions For Future Action,* 20 SPECIES 33, June, 1993. The pilot phase of GEF ended in late 1993, after $1 billion was committed to 100 projects in developing nations. Pratap Chatterjee, *Environment: New Environment Fund Appoints Chairman,* INTER PRESS SERV., July 12, 1994. GEF was established as a permanent organization in 1994, with $2 billion pledged by thirty-four States to the restructured core fund. Charlotte Streck, *The Global Environment Facility — a Role Model for International Governance?,* 1(2) GLOBAL ENVTL. GOVERNANCE 71-76 (2001). The GEF's project portfolio during the 1990s totaled more than $938 million. GEF Homepage, <http://www.undp.org/gef/portf/funds.htm>, site visited on Sept. 12, 2002. In 2002, thirty two donor countries pledged $3 billion to fund operations between 2002 and 2006. Global Environment Facility, *What is GEF,* <http://www.gefweb.org/What_is_the_GEF/what_is_the_gef.html>, site visited on Jan. 22, 2005.

In the context of the Mediterranean and Black Sea region, current GEF projects include a protection and rehabilitation program for the Dnieper River, funding support for implementation of the Black Sea Environmental Program, and various projects to assist in cleanup of the Danube River Basin, <http://www.undp.org/gef/portf/wateur.htm>, site visited on Sept. 12, 2002.

realistic means of implementing or financing."[1533] Regimes research also indicates that "anticipation of material rewards from the regime," i.e. programs that contribute to capacity-building, will encourage Party compliance with the regime.[1534]

7.2 Strengthening Precautionary Principle Provisions in Relevant Regimes

7.2.1 Overview

The precautionary principle initially emerged during the mid-1960s in the former West Germany.[1535] The essence of the early conception of *vorsorge* ("foresight" or "taking care") was the belief that environmental damage could be prevented or minimized through careful, forward-looking planning, as well as the adoption of "best practices" in environmental management.[1536] The *vorsorgeprinzip* ("precautionary principle" or "foresight principle") was used by the German government and other northern European countries to address many pressing issues in 1970s and 1980s, including North Sea pollution, acid rain and climate change.[1537]

[1533] United Nations Development Programme, et al., *supra* note 1527, at 35.
[1534] Haas, *supra* note 9, at 189.
[1535] Warwick Gullett, *Environmental Protection and the 'Precautionary Principle:' A Response to Scientific Uncertainty in Environmental Management,* 14(1) ENVTL. & PLANNING L.J. 52, 55 (1997).
[1536] Timothy Riordan, *The Precautionary Principle in Contemporary Environmental Politics,* 4 ENVTL. VALUES 191, 193 (1995). *See also* Konrad von Moltke, *The Precautionary Principle,* ENV'T, Apr., 1992, at 2.
[1537] Wybe Th. Douma, *The Precautionary Principle,* European Environmental Law Homepage, <http://www.eel.nl/virtue/precprin.htm>, site visited on Jan. 5, 2002. For example, in applying the principle in the context of North Sea pollution, northern European States agreed to:

> . . . accept the principle of safeguarding the marine ecosystem of the North sea by reducing polluting emissions of substances that are persistent, toxic and liable

The principle emerged at the international level in the 1980s. Since its first explicit incorporation in an international document in 1987,[1538] the concept "has been included in virtually every recent treaty and policy document related to the protection and preservation of the environment,"[1539] as well as in national legislation and regulations in many States,[1540] and applied by many domestic courts.[1541] On this basis, some commentators and policymakers contend that the

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> to bioaccumulate at source by the use of best available technology and other appropriate measures. This applies especially when there is reason to assume that certain damage or harmful effects on the living resources of the sea are likely to be caused by such substances, even where there is no scientific evidence to prove a causal link between emissions and effects.

Ministerial Declaration, Second International Conference on the Protection of the North Sea (1987).

[1538] The London Declaration (1987): Ministerial Declaration. Second International Conference on the Protection of the North Sea (Nov. 24-25, 1987), <http://odin.dep.no/md/nsc/declaration/022001-990245/index-dok000-bn-a.html>.

[1539] D. Freestone & E. Hey, *Origins and Development of the Precautionary Principle, in* THE PRECAUTIONARY PRINCIPLE & INTERNATIONAL LAW 3 (D. Freestone & E. Hey eds., 1996). Examples of treaties and policy documents incorporating the precautionary principle include: the Stockholm Convention on Persistent Organic Pollutants, 40 I.L.M. 532 (2001), at art. 1, art. 8(9), Annex C(V)(B); the World Trade Organization, Agreement on the Application of Sanitary and Phytosanitary Measures (1994), at art. 5(7); the United Nations Framework Convention on Climate Change, opened for signature, June 4, 1992, *reprinted in* 31 I.L.M. 849 (1992), at art. 3(3); the Convention on the Protection and Use of Transboundary Watercourses and International Lakes, 31 ILM 1312 (1992), at art. 2(5); the Convention on the Protection of the Marine Environmental of the Baltic Sea, 3 YIEL 1 (1992), at art. 3; the Montreal Protocol to the Vienna Convention for the Protection of the Ozone Layer, *Protocol on Substances that Deplete the Ozone Layer,* 26 ILM 1541, 1551 (1987); and the Declaration of the Second International Conference on the Protection of the North Sea, *Ministerial Declaration Calling for Reduction of Pollution,* 27 ILM 835, 838 (1987), at Preamble, para. VII; art. XV(ii); art. XVI(1).

[1540] Ylva Arvidsson, *The Precautionary Principle: Experiences from Implementation into Swedish Law,* IIIEE Reports, 2001:7 (2001), at 2, 9-10, <http://www.iiiee.lu.se/information/library/publications/reports/2001/Ylva-Arvidsson.pdf>, site visited on July 1, 2002.

[1541] *See Van der Endt-Louwerse B.V.* et al. *v. State Secretary of Transportation, Public Works and Water Management,* IJM 2001/99, Netherlands Administrative Law Division of the Council of State, Apr. 26, 2001 (Court annulled a permit allowing extraction of shell from Wadden Sea based on precautionary principle, holding that uncertainties about the impact of extraction on the ecosystem remained even after assessment of best available information and that benefit of the doubt should result in protecting the Wadden Sea); *Latitude Fisheries Pty., Ltd. v. Australian Fisheries Management Authority,* (2002) FCA 416 (Australian government required to adhere to the precautionary principle in implementing the State's Fisheries Management Act); *In the Matter of Water Use Permit Applications, Waiahole Ditch Combined Contested Case Hearing,* 9 P.3d

Principle has attained, or is approaching attainment, of the status of customary international law.[1542] However, many others question this conclusion, citing both dissent by important States and the absence of a unified definition.[1543]

Intrinsic to the precautionary principle is an express rejection of a focus on the assimilative capacity of the environment, which heretofore held sway in the arena of international environmental decision-making.[1544] The assimilative capacity concept emphasizes the ability of scientists to use predictive modeling

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409, 466-467 (Hawaii 2000) (Commission on Water Resource Management required to act in accordance with precautionary principle).

[1542] "Based on its rapid and widespread acceptance by national actors, the principle may be approaching the status of customary international law." William C. Burns & C. Thomas Duncan Mosedale, *European Implementation of CITES and the Proposal for a Council Regulation (EC) on the Protection of Species of Wild Fauna and Flora,* 9 GEO. INT'L ENVTL. L. REV. 389, 417 n.195 (1997); BIRNIE & BOYLE, *supra* note 758, at 120 n.12; Communication on the Precautionary Principle, Communication from the Commission of the European Communities, COM(2000)1 final (Feb. 2, 2000), para. 3-4, <http://europa.eu.int/comm/off/health consumer/precaution.htm>, site visited on June 7, 2003 (precautionary principle has become "a full-fledged and general principle of international law").

[1543] *See* Anna Godduhn & L.K. Duffy, *Multi-Generation Health Risks of Persistent Organic Pollution in the Far North: Use of the Precautionary Approach in the Stockholm Convention,* 6 ENVTL. SCI. & POL'Y 391, 349 (2003) ("Several governments ... have claimed precaution to be a guiding principle with customary international law status, but most nations remain with international courts: undecided"); Daniel Dobos, *The Necessity of Precaution: The Future of Ecological Necessity and the Precautionary Principle,* 13 FORDHAM ENVTL. L.J. 375, 391 (2002) (Proposition that the precautionary principle now constitutes customary international law "is seriously undermined by the varied formulations of the principle and its resulting vagueness"); Barbara Kwiatkowska, *Southern Bluefin Tuna (New Zealand v. Japan; Australia v. Japan), Order on Provisional Measures (Itlos Cases Nos. 3 and 4),* 94 AM. J. INT'L L. 150, 155 (2000) (quoting Judge Laing in the *Southern Bluefin Tuna Case*: "it is not possible, on the basis of the materials available and arguments presented on this application for provisional measures, to determine whether, as the Applicants contend, customary international law recognizes a precautionary principle;" David Palmeter & Petros C. Mavroidis, *The WTO Legal System: Sources of Law,* 92 AM. J. INT'L L. 398, 407 (1998) (citing the holding of the Appellate Body of the World Trade Organization in *EC — Measures Concerning Meat and Meat Products (Hormones)* that it remained unclear whether the precautionary principle had ripened into a principle of general or customary international law); John S. Applegate, *The Taming of the Precautionary Principle,* 27 WM. & MARY ENVTL. L. & POL'Y REV. 13, 14-15 (2002) ("There also remains some very important and powerful skeptics of the precautionary principle, principally the United States, the international trade community represented by the WTO, and national and transnational economic enterprises").

[1544] Ellen Hey, *The Precautionary Concept in Environmental Policy And Law: Institutionalizing Caution,* 4 GEO. INT'L ENVTL. L. REV. 303, 305 (1992). *See also* Bamako Convention on the Ban of Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes Within Africa, 30 I.L.M. 773, at art. 4(3)(f).

to accurately ascertain the carrying capacity of, and the magnitude of threats to, the environment, as well as society's technological capacity to mitigate such threats once detected.[1545] It also presumes that there is sufficient time to act to avoid harm from such threats once they have been detected.[1546] However, revelations past thirty years of unanticipated long-term damage associated with many substances that were heretofore presumed to be safe, including DDT, PCBs, and chlorofluorocarbons, put the lie to these assumptions.[1547] Moreover, there has been growing recognition that many of the global environmental threats faced by this generation, and most likely many generations beyond, including climate change and threats to biodiversity, pose the specter of virtually unbounded and irreversible impacts,[1548] providing a strong rationale for more risk-averse assessment and management strategies.

Recognition of the failure of the assimilative capacity paradigm to adequately safeguard the environment led to the formulation of the precautionary principle:

> The precautionary concept advocates a shift away from the primacy of scientific proof and traditional economic analyses that do not account for environmental degradation. Instead, emphasis is placed on: 1) the vulnerability of the environment; 2) the limitations of

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[1545] *Id.* at 306; Gullett, *supra* note 1535, at 56; Gregory Fullem, *The Precautionary Principle: Environmental Protection in the Face of Scientific Uncertainty,* 31 WILLAMETTE L. REV. 495, 497-98 (1995).

[1546] Charmian Barton, *The Status of the Precautionary Principle in Australia: Its Emergence in Legislation and as a Common Law Doctrine,* 22 HARV. ENVTL. L. REV. 509, 511 (1998).

[1547] Gullett, *supra* note 1535, at 56; Janna G. Koppe & Jane Keys, *PCBs and the Precautionary Principle,* in THE PRECAUTIONARY PRINCIPLE IN THE 20TH CENTURY 64-78 (Poul Harremoës, et al. eds., 2002).

[1548] Norman Myers, *Biodiversity and the Precautionary Principle, in* LAW, VALUES, & THE ENVIRONMENT 42 (1996) (If current mass extinction proceeds unchecked, will "not only eliminate half or more of all species, but will leave the biosphere impoverished for at least 5 million years — a period twenty times longer than humankind itself has been a species"); Fullem, *supra* note 1545, at 495.

> science to accurately predict threats to the environment, and the measures required to prevent such threats; 3) the availability of alternatives (both methods of production and products) which permit the termination or minimization of inputs into the environment; and 4) the need for long-term, holistic economic considerations, accounting for, among other things, environmental degradation and the costs of waste treatment.[1549]

"The precautionary principle can also be viewed as a safeguard against the opportunism of decision-makers in situations of asymmetric information or imperfect monitoring by society."[1550] In the context of management and conservation of wildlife species, the principle reflects the recognition that "scientific understanding of ecosystems is complicated by a host of factors, including complex and cascading effects of human activities and uncertainty introduced by naturally chaotic population dynamics."[1551]

The precautionary principle has been characterized as a "public policy guideline for environmental issues"[1552] which "ensures that a substance or activity posing a threat to the environment is prevented from potentially adversely affecting the environment, even if there is no conclusive scientific proof linking that particular substance or activity to environmental damage."[1553]

The Principle is premised on four basic assumptions:

- There is a threat of harm, either credible or known;

[1549] Hey, *supra* note 1544, at 307.
[1550] Arvidsson, *supra* note 1540, at 11.
[1551] Robert J. Wilder, *Precautionary Principle; Prevention Rather Than Cure,* Ocean 98, <http://www.ocean98.org/wilder.htm>, site visited on July 8, 2002.
[1552] Norman Myers, *Biodiversity and the Precautionary Principle,* 22 AMBIO 74, May, 1993.
[1553] James Cameron & Juli Abouchar, *The Precautionary Principle: A Fundamental Principle of Law and Policy for the Protection of the Global Environment,* 14 B.C. INT'L & COMP. L. REV. 1, 2 (1991). *See* 1992 Rio Declaration on Environment and Development, Principle 5, 31 I.L.M. 874 (1992) ("lack of full scientific certainty shall not be used a reason for postponing cost-effective measures to prevent environmental degradation").

- The situation presents a lack of scientific certainty or evidence;
- Cause and effect relationships are not yet proven;
- There is a necessity or duty to act.[1554]

A representative example of the Principle is found in the Convention for the Protection of the Marine Environment of the North-East Atlantic[1555] (OSPAR Convention):

> [P]reventive measures are to be taken when there are reasonable grounds for concern that substances or energy introduced, directly or indirectly, into the marine environment may bring about hazards to human health, harm living resources and marine ecosystems, damage amenities or interfere with other legitimate uses of the sea, even when there is no conclusive evidence of a causal relationship between the inputs and the effects.[1556]

Some versions of the principle incorporated into recent international environmental treaty regimes, soft law instruments, and national legislation also mandate the use of the best available technology or best management practices to prevent harm to the environment,[1557] consistent with a shift from an emphasis

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[1554] Peter L. deFur & Michelle Kaszuba, *Implementing the Precautionary Principle,* 288 SCI. TOTAL ENV'T 155, 157 (2002).
[1555] *Supra* note 1271.
[1556] *Id.* at art. 2(2)(a).
[1557] North Atlantic Salmon Commission, *NASCO Plan of Action for the Application of the Precautionary Approach to the Protection and Restoration of Atlantic Salmon Habitat* (2001), at sec. 3, http://www.nasco.org.uk/html/habitat.html; Second International Conference on the Protection of the North Sea, Ministerial Declaration (London, Nov. 1987), arts. VII, XV(ii), XVII(1); UNEP governing Council, Second Special Session, Nairobi, Kenya, 1-3 Aug. 1990, Decisions No. SS.II/4, at 41 (endorsing an approach to hazardous waste management that includes consideration of raw material selection, product substitution, and clean production technologies and processes "as a means of implementing a precautionary approach in order to promote production systems which minimize or eliminate the generation of hazardous wastes and optimize use of raw materials, water and energy, for example through recycling"); *See also* John MacDonald, *Appreciating the Precautionary Principle as an Ethical Evolution in Ocean Management,* 26 OCEAN DEV. & INT'L L. 255, 264 (1995):

> Aside from the precautionary principle's theoretical content in international environmental policy, other practical questions still remain where it is applied. In particular, does the principle 'require specific instruments or regulatory approaches'? Many believe that the principle does in fact require specific

on environmental effects to environmental management,[1558] or have reversed the traditional burden of proof to establish the safety of practices or activities.[1559]

> technologies to control pollution. The notion of requiring the best available technology to be used in emission control has been advanced to serve this end. As yet, however, the international community is still divided on the issue. (citations omitted)

See also Carolyn Raffensperger, et al., . . . *and You Can Mean Saying 'Yes' to Innovation,* 401 NATURE 207, 208 (1999):

> Clean production involves the prevention of harm at source through the use of less material-intensive and toxic production systems and products, and was a logical outcome of the principle's demand for preventive action in the face of uncertainty. The question asked is switched from 'how much pollution is acceptable?' to 'how much can we prevent?'

As Gullett points out, some formulations of the principle mandate the more discretionary adoption of the "best available technology not entailing excessive cost" (BATNEEC). Gullett, *supra* note 1535, at 58.

[1558] David Santillo & Paul Johnston, *Is There a Role for Risk Assessment Within Precautionary Legislation?,* 5(5) HUMAN & ECOLOGICAL RISK ASSESSMENT 923, 925 (1999) ("the precautionary principle also engenders the aspiration to achieve a progressive reduction in environmental burden, without a reliance on the need to identify and quantify specific risks").

[1559] BIRNIE & BOYLE, *supra* note 758, at 118; Owen McIntyre & Thomas Duncan Mosedale, *The Precautionary Principle as a Norm of Customary International Law* (1997), at 19 (unpublished manuscript supplied to the author); Grant J. Hewison, *The Precautionary Approach to Fisheries Management: An Environmental Perspective,* 11 INT'L J. MARINE & COASTAL L. 301, 307 (1996); Jon M. Van Dyke, *Applying the Precautionary Principle to Ocean Shipments of Radioactive Materials,* 27 OCEAN DEV. & INT'L L. 379, 380 (1996); David Favre, *Debate Within the CITES Community: What Direction for the Future?,* 33 NAT. RESOURCES J. 875, 883 (1993); Michael D. Rogers, *Risk Analysis Under Certainty, the Precautionary Principle, and the New EU Chemicals Strategy,* 37 REGULATORY TOXICOLOGY & PHARMACOLOGY 370, 376 (2003) (new EU chemicals strategy contemplates reversing burden of proof for certain substances of "high concern," requiring applicant to demonstrate that proposed use is safe); Government of Canada, *A Canadian Perspective on Precautionary Approach/Principle Discussion Document,* <http://www.ncr.dfo.ca/cppa/HTML/discussion_e.htm>, site visited on Aug. 13, 2002; North Atlantic Salmon Conservation Commission, *Action Plan for the Application of the Precautionary Approach to the Protection and Restoration of Atlantic Salmon Habitat,* CNL(01)51 (2001), at sec. 3, <http://www.nasco.int/pdf/nasco_res_habitatpoa.pdf>, site visited on Sept. 29, 2003 (Contracting Parties should "place the burden of proof on proponents of an activity which may have an impact on habitat"); Convention for the Prevention of Maritime Pollution by Dumping From Ships and Aircraft (Fifteenth Meeting of the Oslo Commission), *On the Reduction and Cessation of Dumping Industrial Wastes as Sea,* Decision 89/1 (14 June 1989) ("dumping of industrial wastes in the North Sea shall cease by 31 December 1989, and in other parts of Convention waters by 31 December 1995 . . . except[ing] those industrial wastes for which it can be shown to the Commission through the Prior Justification Procedure (PJP) both that there are no practical alternatives on land and that the materials cause no harm in the marine environment); Michigan Compiled Law Service, §324.3903 ("The burden of proof is on a manufacturer of a cleaning agent or water conditioner, before distribution for sale or use in this state, to establish that its contents comply with this part and rules promulgated under this part, and will not or is not likely to adversely affect human health or the environment"); *State of the*

7.2.2 Standards under ACCOBAMS

Application of the precautionary principle is particularly salutary in the context of cetacean conservation regimes given the serious deficiencies of knowledge about the impact of exogenous factors on the viability of stocks, such as pollution and fisheries interactions, and the grave threat of population crashes well before downward trends in stocks can be detected.[1560] As Burke concludes:

> [W]hales are not fish, and the consequences of delaying regulation because of inadequate data are potentially far more serious and possibly irreversible. In this context, an interpretation and approach based on precautionary principles seem justified. When uncertainly prevails about the status of particular stocks under current or prospective exploitation, early regulatory action might be warranted under the conditions mentioned.[1561]

Given the very low population levels of many Black and Mediterranean Sea cetacean species, serious deficiencies in data collection, and escalating

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Environment Norway-Waste, Principles of an Environmentally Friendly Policy, GRID-Arendal (1998) ("In a situation of high potential risk and lack of, or inadequate information, the concept of precaution requires that the onus of scientific proof be on those who intend to draw benefits from the resource and contend that there is no risk; that is, reversal of the burden of proof . . .")

[1560] Paul Thompson & Sue Mayer, *Defining Future Research Needs for Cetacean Conservation,* in THE CONSERVATION OF WHALES & DOLPHINS 411 (Mark P. Simmonds & Judith D. Hutchinson eds., 1996).

> [E]ven where repeated estimates of cetacean population size can be made, the precision of these estimates may be so low that it would take many years to detect population trends. In NE Scotland, where there is an estimated population of only 130 bottlenose dolphins in the Moray Firth, power analysis techniques . . . have shown that it would take over 10 years to detect an annual population decline of around 5 per cent . . . In this case, one clearly cannot wait for significant declines to be detected as the population would have decreased from 130 to 74 individuals before any action was taken. (Citations omitted).

See also, Alexander Gillespie, *Aboriginal Subsistence Whaling: A Critique of the Inter-Relationship Between International Law and the International Whaling Commission,* 12 COLO. J. INT'L ENVTL. L. & POL'Y 77, 133 (2001); Jaume Forcada, *Can Population Surveys Show if the Mediterranean Monk Seal Colony at Cap Blanc is Declining in Abundance?,* 37 J. APPLIED ECO. 171, 179 (2000); Sean Hern, *Competing Values: Taking a Broad View on the Narrowing Conservation Regimes of the 1982 United Nations Convention on the Law of the Sea,* 16 AM. U. INT'L L. REV. 177, 193 (2000).

[1561] Burke, *supra* note 1336, at 298.

threats attendant to development in the region, effective implementation of the precautionary principle should be a paramount priority of the Parties to ACCOBAMS.

Unfortunately, most incarnations of the precautionary principle in international environmental treaty regimes to date "provide few, if any operable guidelines for policy makers nor. . . constitute a rigorous analytical schema."[1562] As one commentator has observed, "[the principle] seem[s] more like a "sound bite" rather than a principle rooted in the law."[1563] As a consequence, policy makers are often confused about their obligations in applying the principle, or blithely sign agreements that incorporate the principle knowing that it's likely to be unenforceable given its vagueness.[1564] Thus, it should come as little surprise

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[1562] Timothy O'Riordan & Andrew Jordan, *The Precautionary Principle in Contemporary Environmental Politics,* 4 ENVTL. VALUES 191, 192 (1995). *See also* Konrad von Moltke, *Whither MEAs: The Role of International Environmental Management in the Trade and Environment Agenda,* International Institute for Sustainable Development (2001), at 39; Kenneth R. Foster Paolo Vecchia & Michael H. Repacholi, *Policy Forum: Risk Management - Science and the Precautionary Principle*, 288 SCI. 979 (2000); Jenifer Ross, *Legally Binding Informed Consent,* 10 COLO. J. INT'L ENVTL. L. & POL'Y 499, 525 (1999); S.M. Garcia, *The Precautionary Principle: Its Implications in Capture Fisheries Management,* 22 OCEAN & COASTAL MGMT. 99, 111 (1994).

[1563] Deborah Katz, *The Mismatch Between the Biosafety Protocol and the Precautionary Principle,* 13 GEO. INT'L ENVTL. L. REV. 949, 949 (2001). *See also* David Vanderzwaag, *The Precautionary Principle and Marine Environmental Protection: Slippery Shores, Rough Seas, and Rising Normative Tides,* 33 OCEAN DEV. & INT'L L. 165, 166 (2002):

> However, getting a clear "normative fix" on the precautionary principle is difficult. The principle is often called "elusive" given its general nature and still limited international implementation. The law and literature relating to the precautionary principle has been described as in "disarray," with great confusion over meaning and detachments from relevant social science and legal literature [citations omitted].

[1564] Arvidsson, *supra* note 1540, at 15; Gullett, *supra* note 1535, at 58 ("Formulations of the precautionary principle tend to be hortatory in character ..."); A. JORDAN & T. O'RIORDAN, THE PRECAUTIONARY PRINCIPLE IN CONTEMPORARY ENVIRONMENTAL POLICY & POLITICS 32 (1999) ("The precautionary principle is vague enough to be acknowledged by all governments regardless of how well they protect the environment"); James E. Hickey & Vern R. Walker, *Refining the Precautionary Principle in International Environmental Law,* 14 VA. J. INT'L L. 423, 424 & 437 (1995).

that the principle has seen extremely limited implementation by States at the national level or in international regimes.[1565] Clearly, effective operationalisation of the precautionary principle in MEAs is "dependent on more detailed criteria ..."[1566]

ACCOBAMS incorporates an especially vague version of the precautionary principle, simply providing that "the Parties shall apply the precautionary principle" in the context of conservation, research and management measures.[1567] In this amorphous form, it is likely that the principle will hold little or no sway in the implementation of the Convention.

However, one of the marked strengths of multilateral environmental regimes has been their ability to promote the development and diffusion of analytic tools and policy-relevant models, such as the precautionary principle.[1568] To ensure the viability of the Principle, the Parties should establish a working group to answer two scientific questions that constitute a *sine qua non* for the establishment of specific guidelines for implementing the principle:

1. Exactly what (if not scientifically proven facts) must be known before measures shall be taken and with what degree of certainty?;
2. In what manner should regulators respond to uncertain risks?[1569]

[1565] Vanderzwaag, *supra* note 1563, at 176.
[1566] Lee A. Kimball, *Whither International Institutional Arrangements to Support Ocean Law?,* 36 COLUM. J. TRANSNAT'L L. 307, 324 (1997). *See also* Per Sandlin, *Dimensions of the Precautionary Principle,* 5(5) HUMAN & ECO. RISK ASSESSMENT 889, 890 (1999).
[1567] ACCOBAMS, *supra* note 1, at art. II(4).
[1568] Oran R. Young, *Institutions and th Growth of Knowledge: Evidence from International Environmental egimes,* 4 INT'L ENVT. AGREEMENT: POLITICS, L. & ECON. 215, 218 (2004).
[1569] Jan Bohanes, *Risk Regulation in WTO Law: A Procedure-Based Approach to the Precautionary Principle*, 40 COLUM. J. TRANSNAT'L L. 323, 332 (2002).

The working group should also be tasked with establishing guidelines for applying the principle as a component of risk management assessment procedures germane to cetacean protection. The European Commission has recently set forth guidelines in a Communication that may provide a useful starting point for this exercise.[1570]

One suggested priority for the group should be the development of new, more precautionary protocols for risk assessments germane to activities or substances that may threaten cetaceans. Risk assessment is "the procedure in which the risks posed by inherent hazards involved in processes or situations are estimated either quantitatively or qualitatively."[1571] Risk assessments are conducted to facilitate risk management decisions, that is, the process through which choices can be made between a range of options to achieve desired outcomes, whether this be environmental standards under treaties, formalized cost-benefit analyses or other standards, such as industrial best practices.[1572] Risk assessments are conducted in many contexts that are relevant to the welfare of cetaceans, including the potential impacts on cetaceans of

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[1570] Commission of the European Communities, *Communication from the Commission on the Precautionary Principle,* COM(2000) 1 (2000).
[1571] European Environment Agency, *Environmental Risk Assessment – Approaches, Experiences and Information Sources,* Environmental Issue Rep. No. 4, <http://reports.eea.eu.int/GH-07-97-595-EN-C2/en/chapter1h.html>, site visited on Feb. 7, 2005. The term "hazard" can be defined as "a property or situation that in particular circumstances could lead to harm." The term "risk" can be defined as "the combination of the probability, or frequency, of occurrence of a defined hazard and the magnitude of the consequences of the occurrence." *Id.*
[1572] *Id.*

pollution,[1573] bycatch in fisheries;[1574] mineral exploration activities,[1575] and shipping activities.[1576]

Effective operationalisation of the precautionary principle requires the calculation of the probability of Type II errors (acceptance of false negative results) in the conducting of such assessments.[1577] In the context of environmental risks, Type II errors are generally recognized as more dangerous than Type I errors (acceptance of false positive results)[1578] because they can result in irreversible damage, such as species extinction.[1579] Moreover, while it is likely that Type I errors may be detected by continued monitoring, in the case of

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[1573] City of Hong Kong, *Assessment of Risk to Cetaceans along the South China Coast Due to Contaminants with Special Reference to the Indo-Pacific Humpback Dolphins*, <http://iris.cityu.edu.hk/generalpublic/ProjectInfo_GP.cfm?Pno=9040862>, site visited on Feb. 7, 2005.

[1574] John Harwood, *Risk Asessment and Decision Analysis in Conservation,* 95 BIO. CONSERVATION 219-226 (2000); John Harwood, *A Risk Assessment Franework for the Reduction of Cetacean By-Catches,* 9 AQUATIC CONSERVATION: MARINE & FRESHWATER ECOSYSTEMS 593-599 (1999).

[1575] Government of Australia, Department of Environment and Heritage, *The Potential Sensitivity of Marine Mammals to Mining and Exploration in the Great Australian Bight Marine Park Marine Mammal Protection Zone,* <http://www.deh.gov.au/coasts/mpa/gab/sensitivity/>, site visited on Feb. 7, 2005.

[1576] Government of Australia, *Whale Research and Management Activities,* <http://www.defence.gov.au/environment/biodiversity_conservation/whale_research.htm>, site visited on Feb. 7, 2005.

[1577] Paul Boudreaux, *Book Review: Environmental Costs, Benefits, and Values: A Review of Daniel A. Farber's Eco-Pragmatism,* 13 TUL. ENVTL. L.J. 125, 160, n. 230 (1999); Richard A. Posner, *An Economic Approach to the Law of Evidence*, 51 STAN. L. REV. 1477, 1504 (1999).

[1578] Buhl-Mortensen provides an example of Type I statistical errors in the context of the potential impacts of pollutants on marine organisms:

> A monitoring programme usually tests a null hypothesis (*Ho*); that a discharge has no effect on nature ... Results from some statistical tests will lead either to rejection of *Ho* or not. If it *is* rejected and we concluded that there is an effect, even when *no* effect of the discharging exists ... then we commit a type-I error. Scientists traditionally try to reduce the frequency of type-I errors to 5 in 100 ... Lene Buhl-Mortensen, *Type II Statistical Errors in Environmental Science and the Precautionary Principle,* 32(7) MARINE POLLUTION BULL. 528, 529 (1996).

[1579] Reed F. Noss, *Symposium on Ecology and the Law: Some Principles of Conservation Biology, As They Apply to Environmental Law,* 69 CHI.-KENT L. REV. 893, 896 (1994); Barbara L. Taylor & Tim Gerrodette, *The Use of Statistical Power in Conservation Biology: The Vaquita and Northern Spotted Owl,* 7(3) CONSERVATION BIOLOGY 489, 490 (1993).

false negatives "there is no basis for new investigations and the mistake would continue."[1580]

Currently, 98% of all marine and aquatic biomonitoring and high tier aquatic ecotoxicology regimes, for example, only calculate the probability of committing a Type I error.[1581] More generally, most assessments, including those conducted by ecologists, are singularly focused on reducing Type I errors, that is, minimizing false positives.[1582]

The use of the statistical tool known as power analysis can substantially help to reduce the risk of committing Type II errors:

> In a statistical power analysis, the focus is on the flip side of the coin of the null hypothesis – namely the risk of committing a Type II error . . . Power analysis (1-β) shows us the probability that our t-test could have shown a difference in case there was one in reality. Where α in the t-test symbolizes the acceptable risk of committing a Type I error, β symbolizes the risk of committing a Type II error. For any given test, we would like to have the quality 1-β be as large as possible and the quantity of β as small as possible ... The power (1-β) of an investigation is related to and influenced by four variables; effect size (Δ), sample size (n), sample variability (σ^2) and α in the following way:
>
> a) If Δ increases (↑) then (↔) β↓↔ power ↑
> b) If *n* ↑↔βpower↑
> c) If σ^2↓↔β↓↔power↑
> d) If α↑↔β↓↔power↑

[1580] A.J. Underwood & M.G. Chapman, *Power, Precaution, Type II Error and Sampling Design in Assessment of Environmental Impacts,* 296 J. EXPERIMENTAL MARINE BIO. & ECOLOGY 49, 50 (2003).

[1581] Hans Sanderson & Søren Petersen, *Power Analysis as a Reflexive Scientific Tool for Interpretation and Implementation of the Precautionary Principle in the European Union,* 9(4) ENVTL. SCI. & POLLUTION RES. 1, 3 (2001).

[1582] Lene Buhl-Mortensen & Reidar Toresen, *Fisheries Management in a Sea of Uncertainty: The Role and Responsibility of Scientists in Attaining a Precautionary Approach,* 4(3) INT'L J. SUSTAINABLE DEVELOPMENT 245, 257 (2001); Anne Fairbroterh & Richard S. Bennett, *Ecological Risk Assessment and the Precautionary Principle,* 5(5) HUMAN & ECOLOGICAL RISK ASSESSMENT 943, 946 (1999); Randall M. Peterman, *The Importance of Reporting Statistical Power: The Forest Decline and Acidic Deposition Example,* 71(5) ECOLOGY 2024, 2025 (1990).

If n or Δ is too low or σ^2 is too high, the statistical power of the test is reduced and thus the risk of committing a Type II error is increased. If a study fails to reject the null hypothesis with low power, the study should be revised instead of concluding that there is no effect.[1583] This may necessitate changes to research methodologies, including increasing sample sizes, reducing sample variability, or increasing the length of studies.[1584]

In the context of assessing the possible impacts of substances on cetaceans, risk assessment procedures also need to take into account critical factors that increase the uncertainty of likely outcomes, including estimates of exposure probability, the parameters and form of dose-response relationships, and forms of population models.[1585] In cases where high levels of uncertainty or intrinsic indeterminacies preclude meaningful risk assessment,[1586] safety factors should be incorporated into the decision making process, such as the use of pessimistic assumptions,[1587] the use of Bayesian statistical techniques,[1588] such

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[1583] Sanderson & Petersen, *supra* note 1581, at 3.
[1584] *Id.;* Taylor & Gerrodette, *supra* note 1579, at 490; Underwood & Chapman, *supra* note 1580, at 63.
[1585] John Harwood, *Risk Assessment and Decision Analysis in Conservation,* 95 BIO. CONSERVATION 219, 220 (2000); D. Santillo, et al., *The Precautionary Principle: Protecting Against Failures of Scientific Method and Risk Assessment,* 36(12) MARINE POLLUTION BULL. 939, 942 (1998).
[1586] Indeterminacies arise as a consequence of critical factors in the assessment process that are both unknown and incapable of being subjected to analytical reduction, such as the mechanism of action or causal chains. Santillo, et al., *supra* note 1585, at 947. *See also* Aniello Amendola, *Recent Paradigms for Risk Informed Decision Making,* 40 SAFETY SCI. 17, 19-20 (2001).
[1587] Santillo, et al., *supra* note 1585, at 947; J.S. Gray & J.M. Bewers, *Towards a Scientific Definition of the Precautionary Principle,* 32(11) MARINE POLLUTION BULL. 768-771 (1996).
[1588] The application of Bayesian statistical techniques facilitates quantification of the uncertainty in parameter estimates to determine the probability that a scientific hypothesis is true given a set of data. Aaron M. Ellison, *An Introduction to Bayesian Inference for Ecological Research and Environmental Decision-Making,* 6(4) ECOLOGICAL APPLICATIONS 1036-1039 (1996). "In technical terms, Bayes' Theorem states that the subjective posterior odds (odds after being exposed to new data) . . . that a hypothesis is true can be determined by multiplying the prior odds (or odds

as Monte Carlo uncertainty analysis,[1589] or reversal of the burden of proof in conducting power analysis.[1590] A commitment should also be made to expand programs of investigation that utilize previous decisions as experimental tests of predictions made by decisionmakers. This is a quintessentially precautionary approach because it would facilitate calculation of probabilities in the actual decisionmaking process rather than an analysis of what occurs after a decision is made.[1591]

Additionally, to ensure meaningful implementation and clear guidance to policymakers, the precautionary principle provision of ACCOBAMS should be amended to include specific precautionary mandates, such as: 1) mandating the use of the best available technology to minimize threats to cetaceans, including technology to reduce bycatch in fisheries operations and pollution from land and

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before exposure to the new data) . . . by the ratio of (1) the probability that the data would have been observed if the hypothesis were true to (2) the probability that the data would have been observed if the hypothesis were not true. The ratio of (1) to (2) above is referred to as the likelihood ratio." Stephen Charest, *Bayesian Approaches to the Precautionary Principle,* 12 DUKE ENVTL. L. & POL'Y F. 265, 272 (2002).

[1589] Harwood, *supra* note 1585, at 224; H. Caswell, et al., *Harbor Porpoise and Fisheries: An Uncertainty Analysis of Incidental Mortality,* 8 ECOLOGICAL APPLICATIONS 1226-1238 (1998). "Monte Carlo simulation is a statistical technique by which a quantity is calculated repeatedly, using randomly selected "what-if" scenarios for each calculation. Though the simulation process is internally complex, commercial computer software performs the calculations as a single operation, presenting results in simple graphs and tables. These results approximate the full range of possible outcomes, and the likelihood of each. When Monte Carlo simulation is applied to risk assessment, risk appears as a frequency distribution graph similar to the familiar bell-shaped curve, which non-statisticians can understand intuitively." U.S. Environmental Protection Agency, *Use of Monte Carlo Simulation in Risk Assessments,* <http://www.epa.gov/reg3hwmd/risk/guide1.htm>, site visited on Jan. 10, 2003; *see also* Paolo F. Ricci, et al., *Precaution, Uncertainty and Causation in Environmental Decisions,* 29 ENV'T INT'L 1, 7 (2003).

[1590] *See* note 1559 and accompanying text. For example, under some circumstances we might require Parties conducting activities that may potentially affect populations to demonstrate with high power that these activities will not adversely affect populations rather than requiring scientists to demonstrate that a population is declining before such activities can be regulated. Taylor & Gerrodette, *supra* note 1579, at 497; Peterman, *supra* note 1582, at 2026.

[1591] Underwood & Chapman, *supra* note 1580, at 67.

marine-based sources;[1592] 2) in the context of the required impact assessments for activities that may have an adverse impact on cetacean stocks,[1593] imposition of the burden of proof on the parties conducting the activities to demonstrate their safety, or modification of the burden of proof "to require a potential polluter to prevent evidence of a high standard pointing to harmlessness or negligible harm."[1594] In all cases a reasonable range of alternatives should be considered, including a non-action alternative for new activities when there is evidence of potential harm to cetaceans from the activity; 3) establishment of an independent observer scheme to more closely monitor cetacean bycatch, as well as enhance our underlying knowledge of cetacean stocks in the region; 4) establishment of precautionary reference points for individual cetacean stocks in the Agreement Area, which if reached will trigger a series of measures conducive to stabilisation of populations.[1595] Given the paucity of data on most cetacean populations in the region, there is a very real possibility that research in the future will uncover

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[1592] *See,* for example, Swedish Environmental Code, Ch. 2, Sec. 3:

> Persons who pursue an activity or take a measure, or intend to do so, shall implement protective measures, comply with restrictions and take any other precautions that are necessary in order to prevent, hinder or combat damage or detriment to human health or the environment as a result of the activity or measure. For the same reason, the best possible technology shall be used in connection with professional activities.

[1593] ACCOBAMS, *supra* note 1, at Annex 2(1)(c).

[1594] Gullett, *supra* note 1535, at 61.

> Precautionary measures would be introduced when the magnitude of uncertainty (influenced by indications of potential harm) outweighs indications or benefit from a proposed activity. This would enable precaution to be implemented quickly and activities would be permitted only where there is confidence that they would not result in unacceptable harm. *Id.*

[1595] For a description of reference points and their role in implementing the precautionary principle, *see infra* notes 1606-1611 and accompanying text.

"adverse surprises," that is, lower, perhaps radically lower, than anticipated stock levels for some species in the Agreement area. Thus, it is critical that the principle of "precautionary robustness," that is, "readiness for quick action in response to adverse surprise,"[1596] be incorporated into any scheme to use precautionary reference points (*See also* Figure 17). This will necessitate the establishment of measures that can be implemented quickly to bolster and stabilize flagging populations, and without the need for further deliberation.

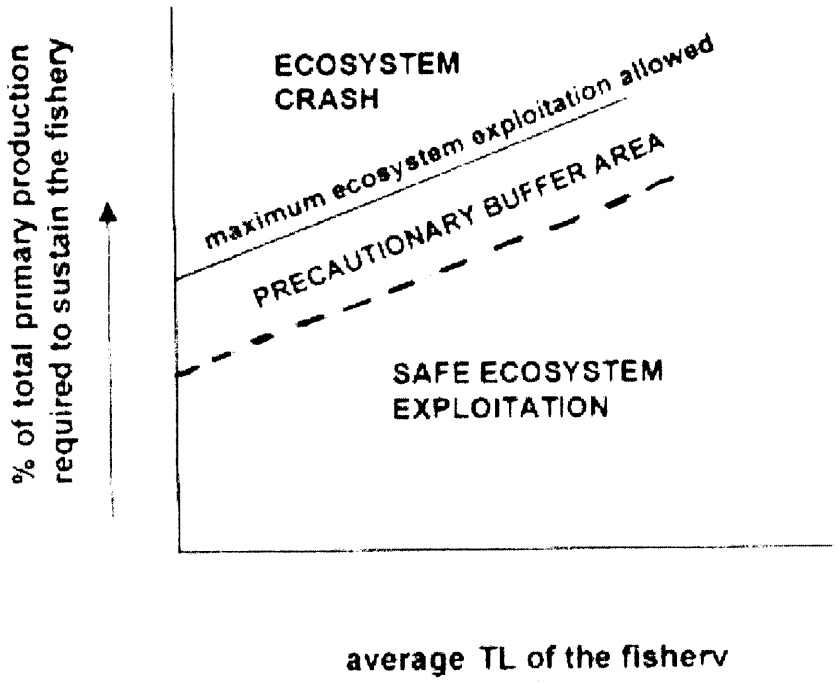

Figure 17

[1596] Peter Read, *Precautionary Climate Policy and the Somewhat Flawed Protocol: Linking Sinks to Biofuel and the CDM to the Convention,* 2 CLIMATE POL'Y 89, 92 (2002).

It would also be beneficial to amend the precautionary principle provisions of several other regimes germane to cetaceans to enhance their effectiveness. The following section provides one example of how the principle can be more effectively operationalised in a regime highly germane to the conservation of the cetaceans, the General Fisheries Commission for the Mediterranean.

7.2.3 Standards under the General Fisheries Commission for the Mediterranean

Improving the management of fisheries under the jurisdiction of the GFCM would have a salutary effect on cetacean stocks in the Mediterranean given the threats that food shortages and bycatch pose to many species.[1597] As is true with most regional fisheries commissions, the amended version of the GFCM Agreement incorporates the precautionary principle, providing that the Commission "shall apply the precautionary approach to conservation and management decisions."[1598] Effective application of the precautionary principle is an important management approach in the context of fisheries given the failure of more traditional approaches:

> Much of the history of fisheries management in the last century could be characterised as one of taking high biological risks in favour of short-term economic gains with depletion of fish stocks being the norm. Against this background, the precautionary approach offers to shift the balance in the management decision process towards lower biological fishing.[1599]

[1597] *See supra* secs. 2.1.3.3 & 2.1.3.4.

[1598] Agreement for the Establishment of the General Fisheries Commission for the Mediterranean, *supra* note 1079, at art. III(2).

[1599] Tom Polacheck, *Experimental Catches and the Precautionary Approach: The Southern Bluefin Tuna Dispute,* 26 MARINE POL'Y 283, 283 (2002). *See also* J. Gulland, *Fishery Management: How Can We Do Better, in* MANAGEMENT OF WORLD FISHERIES: IMPLICATIONS OF EXTENDED COASTAL STATE JURISDICTIONS 255, 256 (E. Miles ed., 1989) ("[M]anagers still prefer to turn a blind eye to the uncertainties in biological assessments, and to the costs involved in achieving even the minimum degree of precision needed for certain types of regulations . . .").

To ensure that the precautionary principle is effectively operationalised to ensure effective conservation and management of targeted species and protection of the interests of associated species, including cetaceans that may rely on these species for food, the precautionary principle provision in the GFCM should be amended as follows:

> Parties shall apply the precautionary principle in formulation and implementation of conservation and management decisions, consistent with the relevant provisions of the FAO Code of Conduct for Responsible Fisheries and the United Nations Agreement on Straddling Fish Stocks and High Migratory Fish Stocks.[1600]

The FAO Code of Conduct for Responsible Fisheries[1601] and its associated Technical Guidelines to implement the precautionary principle,[1602] provide a framework for operationalising the principle in the management of targeted species and minimization of impacts on associated and dependent species.[1603] Similarly the United Nations Agreement on Straddling Fish Stocks

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[1600] This language is adapted from Article 4 of the Agreement on the International Dolphin Conservation Program, <http://www.state.gov/www/global/oes/oceans/dolphin.html>, established under the framework of the Inter-American Tropical Tuna Commission.

[1601] *Supra* note 1081.

[1602] *FAO Technical Guidelines for Responsible Fisheries - Precautionary Approach to Capture Fisheries and Species Introductions – 2,* <http://www.fao.org/docrep/003/w3592e/w3592e00.htm>.

[1603] FAO Code of Conduct for Responsible Fisheries, *supra* note 1081, at sec. 7.5.2. While the Code is a non-binding instrument, Gregory Rose, *Marine Biodiversity Protection Through Fisheries Management – International Legal Developments,* 8(3) REV. EUR. COMMUNITY & INT'L ENVTL. L. 284, 285 (1999), the GFCM and its Parties have evinced an intent to implement relevant principles of the Code through the Agreement for the Establishment of a General Fisheries Commission for the Mediterranean, as well as national legislation and regulations. *See* General Fisheries Commission for the Mediterranean, *Consultation on the Application of Article 9 of the FAO Code of Conduct for Responsible Fisheries in the Mediterranean Region,* 19-23 July 1999, <http://www.fao.org/fi/meetings/ccrf/art9/r606/english/r606e.asp>, site visited on Mar. 5, 2004; General Fisheries Council for the Mediterranean, Committee on Fisheries Management, 10th Session, 17-20 June 1997, *Progress Report on the Implementation of Code of Conduct for Responsible Fisheries and other International Instruments,* <http://www.ua.es/copemed/en/virtlib/gfcm/cfm10d5.htm>.

and High Migratory Fish Stocks (Straddling Stocks Convention)[1604] provides guidelines germane to precautionary management of both coastal and pelagic species.[1605] Several of the Code's and Convention's provisions should be implemented by the GFCM; the most important of these is the establishment of stock-specific target reference points and stock- specific limit reference points, reflecting precautionary management principles.

The FAO Code of Conduct and the Straddling Stocks Convention recommend that fisheries management regimes take a precautionary approach by establishing stock-specific target reference points and stock-specific limit reference points for living aquatic resources.[1606] In the context of fisheries management, a "reference point" is "a conventional value, derived from technical analysis, which represents a state of the fishery or population, and whose characteristics are believed to be useful for the management of the unit stock."[1607] "Target reference points" are indicators of stock status that establish desirable targets for management,[1608] with Maximum Sustainable Yield (MSY)[1609]

[1604] Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, Aug. 4, 1995, UN LAW OF THE SEA BULL., No. 29, at 25 (1995), *reprinted in* 34 I.L.M. 1542 (1995) (*hereinafter* Straddling Stocks Convention), available online at: <http://www.oceanlaw.net/texts/unfsa.htm>, site visited on Aug. 14, 2003.

[1605] *Id.* at art. 6 & Annex II.

[1606] FAO Code of Conduct for Responsible Fisheries, *supra* note 1081, at sec. 7.5.3; Straddling Stocks Convention, *supra* note 1604, at Annex II.

[1607] J.F. CADDY & R. MAHON, REFERENCE POINTS FOR FISHERY MANAGEMENT (1995), at sec. 2.1, http://www.fao.org/DOCREP/003/V8400E/V8400E00.HTM#toc; E.C.E. Potter, et al., *Managing the Exploitation of Migratory Salmonids,* 62 FISHERIES RES.127, 131 (2003).

[1608] M.J. Fogarty, et al., *Assessing Uncertainty and Risk in Exploited Marine Populations,* 54 RELIABILITY ENGINEERING & SYSTEM SAFETY 183, 186 (1996).

[1609] "MSY is the largest long-term average catch or yield that can be taken from a stock or stock complex under prevailing ecological and environmental conditions." U.S. National Oceanic & Atmospheric Administration, *NOAA Fisheries Strategic Plan, Glossary of Terms,*

often used as the target.[1610] "Limit reference points" refer to pre-established "red areas" or thresholds levels for spawning biomass in a fishery where "the continuity of resource production is in danger, and immediate action is needed, such as a substantial reduction in fishing effort/mortality, or in the extreme case, closure of the fishery for a period of time."[1611] This approach has also been embraced by regional fisheries organizations, such as the North Atlantic Salmon Conservation Organization (NASCO),[1612] as well as in the 2002 revisions to the Common Fisheries Policy.[1613]

The GFCM's Scientific Advisory Committee, and most specifically its Subcommittee on Stock Assessment, has begun to discuss the application of reference points.[1614] However, the Subcommittee recently acknowledged that Mediterranean scientists to date have established values based on research conducted outside the region, "i.e. without a Mediterranean preagreed precautionary framework to highlighting [sic] areas of different risk for the

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<http://www.nmfs.noaa.gov/om2/glossary.html>. "This [surplus] yield represents a harvest that can be taken for an indefinite time without further depleting the stock." Ray Gambell, *International Management of Whales and Whaling: An Historical Review of the Regulation of Commercial and Aboriginal Subsistence Whaling,* ARCTIC, June 1993, at 100.

[1610] Caddy & Mahon, *supra* note 1607, at sec. 2.3.

[1611] *Id. See generally,* Serge Garcia, *The Precautionary Approach to Fisheries: Progress Review and Main Issues (1995-2000),* 24th Proc. Conf. Center for Oceans Law and Policy, University of Virginia (2000), at 479-560; P.M. Mace & M.P. Sissenwine, *How much spawning per recruit is enough?*, in S.J. SMITH, J.J. HUNT & D. RIVARD [eds.], RISK EVALUATION AND BIOLOGICAL REFERENCE POINTS FOR FISHERIES MANAGEMENT, 120 CAN. SPEC. PUBL. FISH. AQUAT. SCI. 101-118 (1993).

[1612] North Atlantic Salmon Conservation Organization, *Agreement on Adoption of a Precautionary Principle,* CNL(98)46 (1999), <http://www.nasco.int/pdf/nasco_res_adoptprec.pdf>, site visited on Sept. 29, 2003, at sec. 7.

[1613] Council Regulation (EC) No. 2371/2002, *supra* note 1150, at arts. 5, 6.

[1614] GFCM, Twenty-Eighth Session, *Management of Mediterranean Fisheries,* GFCM/XXVIII/2003/5 (2003), at 3, <lftp://ftp.fao.org/fi/DOCUMENT/gfcm/gfcm_28/J0428e.pdf>, site visited on Jan. 18, 2004.

sustainability of the resource."[1615] Moreover, the GFCM has acknowledged serious data shortfalls that will make implementation of this approach difficult.[1616]

The GFCM should accelerate its work in this context and establish target and limit reference points for targeted commercial species as soon as possible.[1617] In so doing, a precautionary alternative to Maximum Sustainable Yield should be adopted by the GFCM as the target for catch quotas and fishing effort criteria. "MSY can still be a useful reference point if it is used as a limit reference point instead of a target."[1618]

The use of MSY as a fisheries management strategy, which closely conforms to the approach taken by the GFCM and other fisheries regimes,[1619] has been an abject failure in management of fisheries throughout the world.[1620] First, fisheries managers usually face critical data deficiencies when seeking to calculate MSY. For example, managers rarely can measure stock levels accurately, typically facing confidence intervals of ±50 per cent.[1621] Second,

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[1615] GFCM, *supra* note 1401, at 7.
[1616] GFCM, *supra* note 1614, at 3.
[1617] At its Second Session in 2000, the GFCM's Sub-Committee on Stock Assessment endorsed the concept of biological reference points as a means of implementing the precautionary principle. General Fisheries Commission for the Mediterranean, Twenty-Fifth Session, Silema, Malta, 12-15 Sept. 2000, at 9.
[1618] Food & Agriculture Organization, *Reference Points for Fisheries Management: Their Potential Application to Straddling and Highly Migratory Resources* 3 (1994). *See also* David J. Die & John F. Caddy, *Sustainable Yield Indicators from Biomass: Are There Appropriate Reference Points for Use in Tropical Fisheries?,* 32 FISHERIES RES. 69, 77 (1997).
[1619] Hern, *supra* note 1560, at 192.
[1620] Donald Ludwig, Ray Hilborn, Carl Walters, *Uncertainty, Resource Exploitation, and Conservation: Lessons from History,* 260 SCI. 17, 17 (1993); P.A. Larkin, *An Epitaph for the Concept of Maximum Sustained Yield,* 106 TRANSACTIONS AM. FISH. SOC'Y 1-11 (1977).
[1621] Donna R. Christie, *It Don't Come EEZ: The Failure and Future of Coastal State Fisheries Management,* 14 J. TRANSNAT'L L. & POL'Y 1, 12 (2004); Gautam Sethi, et al., *Fishery Management Under Multiple Uncertainty,* Working Paper No. 929, Department of Agricultural and Resource Economic & Policy, Division of Agriculture and Natural Resources, University of California at Berkeley (Jan. 2000), at 5; Callum M. Roberts, *Why Does Fishery Management So Often Fail?, in* SCIENCE & ENVIRONMENTAL DECISION MAKING 170, 180 (Mark Huxham & David

efforts to estimate MSY by statistically fitting models to historical data "assumes that past conditions have a similar probability of recurring in the future."[1622] This implicitly assumes permanent information on stock-production relationships and the relationship between fishing effort and rates of exploitation and attendant parameter values.[1623] A number of reviews in recent years conclude that few fisheries exhibit steady abundance.[1624] "In the presence of fluctuations in production, attempts to remove the MSY yield each year from a stock leads to disaster."[1625] Third, calculations of MSY are premised on the assumption that an equilibrium can be achieved between fishing effort and stock size. Unfortunately, "stock size is often driven more by environmental variations than by exploitation."[1626] Fourth, MSY management protocols often do not assess the effects of target species' exploitation on non-target species or inter-species interactions.[1627] This, as Ehrenfield explains, renders MSY models unrealistic for management purposes:

Sumner eds., 2000). *See generally* Giulio Pontecorvo, *Insularity of Scientific Disciplines and Uncertainty About Supply: The Two Keys to the Failure of Fisheries Management,* 27 MARINE POL'Y 69-73 (2003).

[1622] Caddy & Mahon, *supra* note 1607, at sec. 2.4.1.

[1623] Hiroyuki Matsuda, *The Importance of Type II Error and Falsifiability,* 17(1) INT'L J. OCCUPATIONAL MEDICINE & ENVTL. HEALTH 137, 142 (2004).

[1624] Ludwig, Hilborn & Walters, *supra* note 815, at 17; Oran R. Young, *Institutional Uncertainties in International Fisheries Management,* 37 FISHERIES RES. 211, 212 (1998); J.A. Gulland, *The Concept of Maximum Sustainable Yield and Fisheries Management,* FAO Fisheries Technical Paper No. 70 (1968), at 4.

[1625] Caddy & Mahon, *supra* note 1607, at sec. 2.4.1.

[1626] Callum M. Roberts, *Ecological Advice for the Global Fisheries Crisis,* 12(1) TREE 35, 35 (1997). *See also* G.L. Kesteven, *MSY Revisited. A Realistic Approach to Fisheries Management and Administration,* 21(1) MARINE POL'Y 73, 75 (1997).

[1627] Steven F. Edwards, Jason S. Link & Barbara P. Rountree, *Portfolio Management of Wild Fish Stocks,* 49 ECOLOGICAL ECON. 317, 3317-18 (2004); United Nations Department for Policy Coordination and Sustainable Development, *Maximum Sustained Yields for Fisheries,* <http://esl.jrc.it/envind/un_meths/UN_ME087.htm>, site visited on Aug. 3, 2003.

> [T]here are many species of fish and other kinds of animals and plants upon which the fish ultimately depend, all of which are interacting, and this interaction, this complexity, makes it impossible to deal with a fishery as if it were composed of just one species. So in fact, when you manage one species, another one that's valuable may go down, or things that are happening with the second fishery may affect plans for the first one.[1628]

Finally, from a political perspective, the use of optimistic assumptions by fisheries managers often results in high initial catch rates, often overshooting MSY conditions.[1629] However, given the economic dislocations attendant with reducing effort and/or fleet size, it may be unrealistic to expect the parties to fishing agreements to substantially reduce harvesting, again arguing strongly for establishment of more precautionary catch levels at the outset.[1630]

The use of MSY as a management tool is particularly injudicious in the Mediterranean. First, an analysis of long and short-term fishery trends in the Western and Eastern Mediterranean, using data from a 45-year time series, concluded that very few time series show stable yield levels. This suggests a considerable dynamism caused by environmental and/or trophic or fishery-related impacts in the region's fisheries,[1631] making the use of historical abundance to calculate MSY wholly inappropriate. Additionally, as a consequence of resource constraints, GFCM management efforts have suffered

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[1628] Quoted in Hern, *supra* note 1560, at 190-91.
[1629] DANIEL PAULY & JAY MACLEAN, IN A PERFECT OCEAN 65 (2003).
[1630] *Id.*; Rosenberg, *supra* note 1624, at 829; Christopher J. Carr & Harry N. Scheiber, *Dealing with a Resource Crisis: Regulatory Regimes for Managing the World's Marine Fisheries,* 21 STAN. ENVTL. L.J. 45, 56 (2002); M.-L. Koljonen, *Conservation Goals and Fisheries Management Units for Atlantic Salmon in the Baltic Sea Area,* 59 J. FISH BIO. (Supp. A) 269, 270 (2001).
[1631] General Fisheries Council for the Mediterranean, *Data Analysis on National Landings and Analysis by Species*, Committee on Fisheries Management, Tenth Session, 17-20 June 1997, Rome, Italy, GFCM:CFM/97/Inf.6.

from a lack of data for many species, and it has only been able to conduct assessments on an irregular basis.[1632]

To ensure effective operationalisation of precautionary management principles, stock-specific target reference points for harvested and non-targeted species should be calculated on the basis of more precautionary harvesting criterion that reflect a commitment to ecosystem-based fisheries management. One option is the Marginal Yield concept developed by Doubleday,[1633] which translates into approximately two-thirds of the fishing effort needed to produce MSY. This would allow approximately 80 per cent of the MSY to be harvested.[1634] Another alternative could be the Optimal Sustainable Population management criteria that are incorporated into at least two pieces of fisheries legislation in the United States, the U.S. Mammal Protection Act of 1972,[1635] and the Magnuson Fishery Management and Conservation Act.[1636] Optimal Sustainable Population management regimes "assume that the stock starts at carrying capacity and consider the probability that it remains >60% of carrying capacity over a time horizon of *T* yr." Thus, managers seek to maintain stocks at >0.6*K*.[1637]

Should ongoing monitoring of stocks establish that this reference point is too high to ensure the long-term sustainability of stocks, or dependent species such

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[1632] General Fisheries Commission for the Mediterranean, *Report of the Fourth Session of the Scientific Advisory Committee,* Athens, Greece, 4-7 June 2001, at para. 39.
[1633] W.G. Doubleday, *Environmental Fluctuations and Fisheries Management*, ICNAF Sel. Pap. 1 (1976), 141–50.
[1634] Caddy & Mahon, *supra* note 1607, at sec. 2.4.1.
[1635] 16 U.S.C. 1361 et seq., as amended.
[1636] 16 U.S.C. 801 et seq.
[1637] Tim Lauck, et al., *Implementing the Precautionary Principle in Fisheries Management Through Marine Reserves,* 8(1) ECOLOGICAL APPLICATIONS (Supplement) S72, S76 (1998).

as cetaceans,[1638] then the GFCM should consider adoption of the approach proposed by Verbeek, pegging fishing intensity at a level that will result in the maintenance of target and non-target stocks at or above 80 per cent of their average biomass in the absence of fishing.[1639] While this would translate into catches of only approximately 40 per cent of the theoretical MSY, this is typical of what is being achieved from stocks that are currently overfished,[1640] and may ensure the long-term sustainability of the fishery.

In establishing limit reference points, the GFCM should be guided by the following principles:

1. Pre-negotiated automatic management responses should be established for situations where an agreed endangered state is reached for a species:

> A management plan must indicate which management measures are to be applied, and the circumstances under which the measures are to be varied. This should involve the formulation of decision rules, which specify in advance what action should be taken when specified deviations from the operational targets and constraints are observed. The specification should include minimum data requirements for the types of assessment methods to be used for decision-making.[1641]

These plans should also include timelines for rebuilding threatened stocks, an approach adopted by the United States to implement precautionary management

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[1638] *See* Pikitch, et al., *supra* note 820, at 347:

> It is entirely possible that a fishery could be considered overfished within the ecosystem plan (ecosystem overfishing) when it is not overfished in a single-species context. This can occur when a forage species that serves as a prey resource for marine predators is also the target of a fishery or when overfishing of large predators causes food web shifts.

[1639] Monica Verbeek, *The Future of European Fisheries,* SEAS AT RISK 6 (2001).

[1640] *Id.*

[1641] *FAO Technical Guidelines for Responsible Fisheries, supra* note 1602, at sec. 3.1, <http://www.fao.org/docrep/003/w3592e/w3592e07.htm#bm07>. Fixed agreed time horizons for taking such actions should also be established. Polacheck, *supra* note 1599, at 292.

in the Sustainable Fisheries Act of 1996.[1642] Formulation of pre-determined responses is critical, because without such rules "immediate socio-politico-economic concerns often dominate, potentially delaying needed remedial measures."[1643] The overarching objective should be to ensure that target reference points are not exceeded on average.[1644]

2. In the case of overexploited species, limit reference points must reflect the need to rebuild stocks, necessitating substantial reductions in fishing effort to permit the accumulation of surplus production. This may require reduction of fish efforts of five years or more;
3. Consistent with an ecosystem approach,[1645] if there is an expectation that a managed system may change states, such as a transition from domination by one assemblage of species to another, precautionary limit reference points should be established;
4. Specific limits may be established to reflect possible ecosystem effects of harvesting, including bycatch and other side effects of fisheries. Consistent with salutary developments in the United States, Canada and in the European Community, the GFCM should seek to increase participation by theoretical and community ecologists in management decision making;[1646]
5. When information for determining reference points for a fishery is poor or absent, provisional reference points should be established. "Provisional reference points may be established by analogy to similar and better-known stocks. In such situations, the fishery shall be subject to enhanced monitoring so as to enable revision of provisional reference points as improved information becomes available."[1647]

[1642] Sustainable Fisheries Act, 16 U.S.C. §1801 (1996), at sec. 108(10); United Nations General Assembly, 56th Session, A/56/357, *Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks.* However, efforts to implement these precautionary measures have been halting as a consequence of lawsuits by fishery groups to slow or block recovery plans. Carl Safina, *The Continued Danger of Overfishing,* Issues in Science & Technology Online, Summer, 2003, <http://www.nap.edu/issues/19.4/safina.html>, site visited on Aug. 19, 2003.

[1643] Laura J. Richards & Jean-Jacques Maguire, *Recent International Agreements and the Precautionary Approach: New Directions for Fisheries Management Science,* 56 CAN. J. FISHERIES & AQUATIC SCI. 1545, 1547 (1998).

[1644] Straddling Stocks Convention, *supra* note 1604, at Annex II, para. 2.

[1645] *See supra* note 820.

[1646] Malcolm MacGarvin, *Fisheries: Taking Stock, in* Harremoës, *supra* note 1547, at 22.

[1647] Straddling Stocks Convention, *supra* note 1604, at Annex II, para. 6. Under all circumstances, a precautionary management approach should include an estimate of the risk and uncertainty

In implementing the precautionary principle, the Straddling Stocks Convention also emphasizes the need to improve the decision-making process for fishery resource conservation and management by obtaining and sharing the best scientific information available.[1648] Given the serious data deficiencies that the GFCM faces in making management decisions, it must substantially enhance its capability to obtain relevant scientific information on fish stocks and their interface with dependent species, including cetaceans. Several priorities should be pursued in this context. First, the GFCM needs to develop reliable time series on which to base fisheries models; biological time series are extremely limited currently, rendering efforts to establish accurate biological reference points nugatory.[1649] Second, it needs to enhance its modelling capabilities to distinguish changes in fish abundance related to harvesting and environmental factors, including changes in nutrient supplies and other biogeochemical processes in the region.[1650] Third, the GFCM needs to increase the participation of scientists from the southern and eastern portions of the Mediterranean and Black Sea. Poor representation of researchers from these regions may especially hamper the

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associated with exceeding reference points. Omar Defeo & Juan Carlos Seijo, *Yield – Mortality Models: A Precautionary Bioeconomic Approach,* 40 FISHERIES RES. 7, 7 (1999). Under circumstances where these risks or uncertainties are unusually high, reference points may have to be set even more cautiously.

[1648] *Id.* at art. 6(3)(a). *See also*, Food & Agriculture Organization, *Precautionary Approach to Capture Fisheries and Species Introduction,* Secs. 3.1 & 4.1, <http://www.fao.org/DOCREP/003/W3592E/w3592e07.htm#bm07>, site visited on Jan. 3, 2002.

[1649] CIESM, *The Eastern Mediterranean Climatic Transient, Its Origin, Evolution and Impact on the Ecosystems,* Workshop Series No. 10 (2000), at 12; CIESM, *Precautionary Approach to Local Fisheries in the Mediterranean,* Workshop Series No. 7 (1999), at 1.

[1650] *The Eastern Mediterranean Climatic Transient, Its Origin, Evolution and Impact on the Ecosystem, supra* note 835, at 12.

research efforts of the Commission's working groups and subcommittees.[1651] Moreover, from a regimes perspective, helping to facilitate the participation of scientists from this area could contribute to the development of epistemic communities in this region. This could ultimately strengthen the commitment of the GFCM's member States in these sub-regions to effective implementation and compliance with the treaty.[1652]

The GFCM should also increase research on the role of marine reserves as a precautionary fisheries management tool. As Lauck explains, marine reserves reflect a precautionary strategy known as "bet hedging":

> Bet hedging is a form of diversification of activities, having the purpose of reducing risk through pooling or averaging of (at least partially) independent random events . . . The current "world view of fisheries management is that every commercially valuable stock should be exploited at the optimal level. Given the large uncertainties and biases of management, overfishing of every stock seems almost predetermined. This practice, clearly the opposite of bet hedging, suggests what a bet hedging management strategy would consist of: different stocks, or substocks, would be managed in different ways. The simplest way to diversify the management of a given fishery resource would be to exploit part of the resource while protecting the remainder.[1653]

Recent matrix modelling studies suggest that large reserves may be especially beneficial for heavily over-exploited fisheries.[1654] Moreover, unlike most other management options marine reserves can protect the entire

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[1651] *Report of the Twenty-Sixth Session of the General Fisheries Commission for the Mediterranean; supra* note 1091, at 2.
[1652] *See supra* note 17.
[1653] Lauck, *supra* note 1637, at S75-S76.
[1654] Roberts, *supra* note 1626, at 37; Callum M. Roberts, *Selecting Marine Reserve Locations: Optimality Versus Opportunism,* 66(3) BULL. MARINE SCI. 581, 582 (2000).

ecosystem, including critical habitats and all species found in the area.[1655] A recent review of 100 reserves concluded that population densities in marine reserves were on average 91 per cent higher, biomass was 192 per cent higher and species diversity was 23 per cent higher.[1656]

No-fishing zones may also enhance fisheries production in contiguous areas through spillover effects, that is, the supply of propagules or adults to nearby areas.[1657] Moreover, reserves may reduce the conflict between fisheries and marine mammals by increasing foraging densities within reserves and reducing competition with fisheries outside the reserve area.[1658] Finally, research indicates that no-take reserves enable fish species to grow larger, translating into increased reproductive potential.[1659]

Unfortunately, to date, marine protected zones in the Mediterranean have generally been small and isolated, obviating the prospects for long distance

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[1655] Stephen R. Palumbi, *Marine Reserves. A Tool for Ecosystem Management and Conservation,* Pew Oceans Commission (2003), at 22-3; M. Harmelin-Vivien, *Influence of Fishing on the Trophic Structure of Fish Assemblages in Mediterranean Seagrass Beds,* CIESM Workshop Series No. 12 (2000), at 39-41; K.I. Stergious & D. Pollard, *A Spatial Analysis of the Commercial Fisheries Catches from the Greek Aegean Sea,* 20 FISHERIES RES. 109-135 (1994).

[1656] Callum M. Roberts, et al., *Designing Marine Reserve Networks,* 2(3) CONSERVATION BIOLOGY 10, 12 (2001); *see also* Palumbi, *supra* note 1655, at 23; Trevor J. Willis, Russell B. Millar & Russ C. Babcock, *Protection of Exploited in Temperate Regions: High Density and Biomass of Snapper Pagrus Auratus (Sparidae) in Northern New Zealand Marine Reserves,* 40 J. APPLIED ECO. 214-227 (2003).

[1657] J.S. Ashworth & R.F.G. Ormand, *Effects of Fish Pressure andTrophic Group on Abundance and Spillover Across Boundaries of a No-Take Zone,* 121 BIO. CONSERVATION 333, 342-43 (2005); C.M. Roberts & J.P. Hawkins, *Fully-Protected Marine Reserves: A Guide,* WWF Endangered Seas Campaign (2000), at 12. *See also* Roberts, *supra* note 1626, at 36:

> The vast majority of marine species possess a pelagic larval dispersal phase, which means that ocean currents can carry the progeny of protected stocks outside reserves to replenish fishing grounds. There is also growing evidence for emigration of adults and juveniles across reserve boundaries as stocks build up inside, providing a further benefit to fisheries.

[1658] Sascha K. Hooker, *Marine Reserves, Ecological Theory and the Role of Higher Predators in Marine Ecosystem Management,* CIESM Workshop Monographs, *supra* note 277, at 102.

[1659] Royal Commission, *supra* note 1153, at 188.

propagule dispersal,[1660] and thus "are unlikely to allow the long-term persistence of Mediterranean marine communities in the face of increasing human impacts and environmental change."[1661]

Moreover, there has been insufficient research on supply side marine ecology in the region to ensure the optimal design of marine reserves, highlighting another critical component of the future scientific agenda.[1662] Additionally, it would be salutary to implement adaptive management programs that would facilitate assessment of the effectiveness of marine reserves, including the use of appropriate Before/After/Control/Impact (BACI) experimental design.[1663]

[1660] CIESM, *Scientific Design and Monitoring of Mediterranean Marine Protected Areas*, Executive Summary (1999), at 10. Globally, the areas designated for marine reserves are usually too small and isolated, averaging only 1-20km^2. Royal Commission, *supra* note 1153, at 185. Most studies indicate that at least 20 per cent of habitat must be protected to provide at least some level of support for fisheries and biodiversity, and 40-50 per cent may be necessary where intervention has been delayed or a fishery has been severely depleted. *Id.* at 197-98.

[1661] Fiorenza Micheli, *Marine Reserves: U.S. Experience in a Mediterranean Context, in* CIESM, *supra* note 1660, at 39. The limited size of marine reserves is by no means a phenomenon unique to the Mediterranean and Black Sea regions. "[E]ven the largest NTAs [no-take areas] in the world are not self-sustaining, because they are too small relative to the scale of natural and human disturbances, and to the dispersal distances of many larvae and migrating adults." D.R. Bellwood, et al., *Confronting the Coral Reef Crisis,* 429 NATURE 827, 831 (2004).

[1662] *Id.* at 11. More generally, there is a tremendous need for additional research on marine protected area design. As Micheli recently concluded, "in contrast to terrestrial ecosystems, where a great deal of data and theory are available to guide the design and management of conservation reserves, an ecological basis for the design of marine reserves is largely lacking." Micheli, *in* CIESM, *supra* note 1661, at 39. *See also* Ray Hilborn, et al., *When Can Marine Reserves Improve Fisheries Management?,* 47 OCEAN & COASTAL MGMT. 197, 199 (2004) ("For marine reserves to be an effective fishery management tool, they need to be considered case by case in light of the objectives and the current state of the fishery. They need to be evaluated and compared to viable alternative fisheries management tools, and used, where appropriate, as one element in a broader package of measures").

[1663] A.K. Smith & D.A. Pollard, *The Best Available Information — Some Case Studies from NSW, Australia, of Conservation-Related Management Responses Which Impact on Recreational Fishers,* 20(3) MARINE POL'Y 261, 266 (1996).

Of course, summoning up the political will to implement the precautionary principle in fisheries management decision making may prove to be a daunting challenge for the GFCM and its member states. As MacGarvin observes:

> The problem is that natural capital has been run down so far that industry in many cases cannot absorb the short-term hit necessary to rebuild the stocks. Interest groups need to redirect their attention from arguing with each other and instead learn the language of, and engage with, the economic ministries who — not surprisingly given the history of inappropriate subsidy — have a highly jaundiced view of the merits of investing in recovery programmes.[1664]

The Parties to other regimes relevant to conservation of cetaceans in the ACCOBAMS Agreement Area should also consider the development of guidelines for operationalising the precautionary principle. For example, the second phase of the Mediterranean Action Plan calls for "developing common resource management policies inspired by the precautionary principle" to help protect living marine resources, but provides no guidelines for effectuating this objective.[1665] Similarly, the Protocol Concerning Specially Protected Areas and Biological Diversity in the Mediterranean,[1666] provides in its preamble that "lack of full scientific certain should not be invoked as a reason for postpoining measures to avoid or minimize such a threat," but, again, fails to provide substantive guidelines for operationalizing the principle.

7.3 Establish a Research Program for the Impacts of Climate Change on Cetaceans in the Agreement Area

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[1664] MacGarvin, *supra* note 1646, at 25.
[1665] Mediterranean Action Plan (II), *supra* note 799, at sec. 1.3.3.
[1666] *Supra* note 857.

The surface of the Earth is heated by solar radiation emanating from the sun at short wavelengths between 0.15 and 5 μm. Each square meter of the Earth receives an average of 342 watts of solar radiation throughout the year.[1667] Approximately one-third of the incoming solar radiation is reflected back to space in the form of thermal infrared, or longer-wave radiation, at wavelengths of 3-50 μm.[1668] Of the remainder, a portion is partly absorbed by the troposphere, the area from the surface up to about 11 kiometers of altitude, but most (168 watts per square meter) is absorbed by land, ocean and ice surfaces.[1669]

Some of the outgoing infrared radiation is absorbed by naturally occurring atmospheric gases—principally water vapor (H_2O)—as well as carbon dioxide (CO_2), ozone (O_3), methane (CH_4), nitrous oxide (N_20) and clouds.[1670] This absorption is termed the "natural greenhouse effect" because these gases, which are termed "greenhouse gases," operate much like a greenhouse: they are "transparent" to incoming short-wave radiation, but "opaque" to outgoing infrared radiation, trapping a substantial portion of such radiation and re-radiating much of this energy to the earth's surface.[1671] This process is critical to the sustenance of

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[1667] INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2001: THE SCIENTIFIC BASIS, Contribution of Working Group I to the Third Assessment Report of the Intergovernmental Panel on Climate Change (2001), at 89 (hereinafter *Climate Change 2001*).
[1668] INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, RADIATIVE FORCING OF CLIMATE CHANGE 7 (1994) [hereinafter *Radiative Forcing*].
[1669] JOHN T. HARDY, CLIMATE CHANGE 8 (2003); *Climate Change 2001, supra* note 1667, at 89.
[1670] MELVIN A. BENARDE, GLOBAL WARMING . . . GLOBAL WARNING 45 (1992).
[1671] Envtl. & Geographical Sci. Dep't, U. Capetown, *Climate Change—Some Basics* (1999), at <http://www.egs.uct.ac.za/csag/faq/climate-change/faq-doc-5.html> (last visited Nov. 10, 2000).

life on earth, elevating surface temperatures by about thirty-three degrees Celsius.[1672]

In the past, the net incoming solar radiation at the top of the atmosphere was balanced by net outgoing infrared radiation, contributing to climatic stability.[1673] However, with the advent of fossil fuel burning plants to support industry, automobiles and the energy demands of modern consumers,[1674] "humans began to interfere seriously in the composition of the atmosphere."[1675]

The burning of fossil fuels, mainly coal, oil and gas, has soared since the beginning of the Industrial Revolution, producing over 6.5 gigatons of carbon in recent years, nearly all of which enters the atmosphere as CO_2.[1676] As a consequence, concentrations of carbon dioxide in the atmosphere have increased approximately thirty-one percent since 1850,[1677] from 270-280 parts per million (ppm) by volume in pre-industrial times to more than 379 ppm today,[1678] with most of the increase occurring in the past fifty years.[1679]

[1672] *Id.* The "greenhouse effect" phenomenon was first described by the French scientist Fourier in 1827. *See* Spencer Weart, *From The Nuclear Frying Pan Into The Global Fire*, BULL. ATOMIC SCI. 18, 19 (June 1992).

[1673] *Scientists Remain Unanimously Concerned Over Climate Change*, 23 ECO-LOG WK., July 14, 1995, *available at* 1995 WL 2406417. "For the past 8,000 years, the world's climate has been very stable, varying only within a range of + or - 1 degrees C." *Id.*

[1674] "Globally, more than 80% of human CO_2 emissions come from transportation and industrial sources.

[1675] Fred Pearce, *World Lays Odds On Global Catastrophe*, NEW SCI., Apr. 8, 1995, at 4.

[1676] HADLEY CENTRE, THE GREENHOUSE EFFECT AND CLIMATE CHANGE 5 (1999). An additional 1.5 gigatons, or approximately 20 per cent of total emissions, is released into the atmosphere from land-use changes, such as deforestation. Cement production contributes a small additional amount. *Id.;* Hardy, *supra* note 1669, at 13.

[1677] Thomas R. Carl & Kevin E. Trenberth, *Modern Global Climate Change,* 302 SCI. 1719, 1720 (2003).

[1678] *CO_2 Buildup Accelerating in Atmosphere,* USA TODAY, Mar. 21, 2004, site visited on <http://www.usatoday.com/weather/news/2004-03-21-co2-buildup_x.htm>.

[1679] WORLDWATCH INSTITUTE, VITAL SIGNS 2002 (2002), at 52; TOM M.L. WIGLEY, THE SCIENCE OF CLIMATE CHANGE: REPORT OF THE PEW CENTER ON CLIMATE CHANGE 5 (1999); Christopher Flavin & Odil Tunali, *Getting Warmer*, WORLD WATCH, Mar./Apr. 1995, at 13. Atmospheric concentrations

Anthropogenic activities have also resulted in substantially increased atmospheric concentrations of other greenhouse gases, including methane and nitrous oxides,[1680] as well as new sources, such as chlorofluorocarbons and halons.[1681]

According to the latest report by the Intergovernmental Panel on Climate Change, projected increases in atmospheric greenhouse gas concentrations over the next century (rising to double or triple pre-industrial levels or beyond) could elevate temperatures on Earth by 1.4-5.8°C by the year 2100,[1682] with the trend

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of CO_2 have reached their highest levels in 160,000 years. United Nations Environment Programme (UNEP), GEO-2000, *The State of the Environment—Global Issues* (1999), *at* <http://www.unep.org/geo2000/english/0034.htm>.

[1680] "The primary natural source of [methane] is microbial decay of organic matter under anoxic conditions in wetlands. Anthropogenic sources, which in sum may be twice as great as natural sources, include rice cultivation, domestic ruminants, bacterial decay in landfills and sewage, leakage during the mining of fossil fuels, leakage from natural gas pipelines, and biomass burning." JAMES HANSEN ET AL., NASA GODDARD INSTITUTE FOR SPACE STUDIES, GLOBAL WARMING IN THE 21ST CENTURY: AN ALTERNATIVE SCENARIO 4 (2000), *available at* <http://www.giss.nasa.gov/gpol/cites/2000.html> (last visited Nov. 10, 2000). Atmospheric concentrations of methane have increased by 150% since 1750 and are increasing by approximately 1.1 per cent year. Hardy, *supra* note 1669, at 17.

Significant sources of nitrous oxide include microbial breakdown of nitrogen-based fertilizers, the clearing of land, biomass burning, and fossil fuel combustion. UNEP, *supra* note 1679. Atmospheric concentrations continue to increase by approximately 0.25 per cent annually. Hardy, *supra* note 1669, at 18.

[1681] Guy Brasseur, *Global Warming and Ozone Depletion: Certainties and Uncertainties*, *in* GLOBAL WARMING & THE CHALLENGE OF INTERNATIONAL COOPERATION: AN INTERDISCIPLINARY ASSESSMENT 29-30 (Gary C. Bryner ed., 1994). Overall, CO_2 accounts for sixty-five percent of the total radiative forcing resulting from anthropogenically released greenhouse gases, methane contributes an additional nineteen percent, chlorofluorocarbons, ten percent, and nitrous oxide about six percent. GRAEME APLIN, GLOBAL ENVIRONMENTAL CRISES 222 (2^{d} ed. 1999).

[1682] Intergovernmental Panel on Climate Change, *Third Assessment Report of Working Group I,* Executive Summary (2001), at 8. In 1988, the UN General Assembly called upon World Meteorological Organization and UNEP to establish the Intergovernmental Panel on Climate Change (IPCC). G.A. Res. 43/53, UN GAOR, 2d Comm., 43d Sess., Supp. (no. 49), at 133, UN Doc. A/43/49 (1989). The IPCC is comprised of 2500 climate scientists from throughout the world, and is tasked with gathering information and coordinating research related to climate change, evaluating proposals for reducing greenhouse gas emissions, and assessing the viability of response mechanisms. G.A. Res. 43/53, U.N. GAOR, 2d Comm., 43rd Sess., Supp. No. 49, at 133, U.N. Doc. A/43/49 (1989); David Lewis Feldman, *Iterative Functionalism and Climate Management Organizations: From Intergovernmental Panel on Climate Change to Intergovernmental Negotiating Committee*, *in* INTERNATIONAL ORGANIZATIONS & ENVIRONMENTAL POLICY 1195-96 (Robert V. Bartlett, et al. eds., 1995).

accelerating thereafter.[1683] A more recent study by the United Kingdom's Hadley Centre concluded that a doubling of carbon dioxide from pre-industrial levels will increase temperatures by 3.5° C, with a 90% probability that warming will be between 2.4° C and 5.4° C.[1684]

In the Mediterranean region, it has been projected that temperatures in terrestrial areas will rise by 2.8°C by 2050 and 4.3°C by 2080.[1685] While it is

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The IPCC's most recent estimate of anticipated temperature increases is substantially higher than that in its last major assessment report in 1997, where it projected a temperature increase of between 1.0 to 3.4°C by 2100. The highest estimates primarily reflect lower projections for sulphur dioxide emissions over the next century. Sulphur dioxide exerts a cooling effect on the atmosphere by deflecting incoming solar radiation. *Id.;* TOM M.L. WIGLEY, THE SCIENCE OF CLIMATE CHANGE: REPORT OF THE PEW CENTER ON CLIMATE CHANGE 21 (1999). At its most recent Working on Climate Sensitivity, the IPCC's Climate Change Working Group I concluded that it is most likely that a doubling of atmospheric carbon dioxide levels from pre-industrial levels will yield a temperature increase of 3.0°C; however, "an upper limit to possible climate sensitivity regmains highly uncertain." Richard A. Kerr, *Three Degrees of Consensus,* 305 SCI. 972-974 (2004).

[1683] IPCC, THE IPCC ASSESSMENT OF KNOWLEDGE RELEVANT TO ARTICLE 2 OF THE UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE: A SYNTHESIS REPORT § 3.2 (1995) (draft).

[1684] Hadley Centre, *Uncertainty, Risk and Dangerous Climate Change* (2004), at 13, <http://www.metoffice.com/research/hadleycentre/pubs/brochures/B2004/global.pdf>, site visited on Dec. 19, 2004. Another recent study, utilizing an ensemble of more than 2500 climate simulations, concluded that doubling atmospheric carbon dioxide levels from pre-industrial times is most likely to yield a temperature increase of 3.4° C. D.A. Stainforth, et al., *Uncertainty in Predictions of the Climate Response to Rising Levels of Greenhouse Gases,* 433 NATURE 403, 403 (2005).

Another study by the Hadley Centre concluded that the carbon absorption capabilities of vegetation and soil, which are now responsible for sopping up fifty percent of carbon emissions, may start to decline with rising temperatures. As a consequence, the Centre projected that concentrations of carbon dioxide could rise to 1000 ppm, resulting in temperature increases of eight degrees Celsius by the end of the century. Peter M. Cox, et al., *Acceleration of Global Warming Due to Carbon-Cycle Feedbacks in a Coupled Climate Model,* 408 NATURE 184, 186 (2000).

[1685] INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2001: IMPACTS, ADAPTATION, AND VULNERABILITY, Contribution of the Working Group II to the Third Assessment Report of the Intergovernmental Panel on Climate Change, sec. 17.1.4.3.1, *Small Island States* (2001), <http://www.grida.no/climate/ipcc_tar/wg2/624.htm#17143>. *See also* Martin Parry, *The ACACIA Report: Assessment of Effects and Adaptations for Climate Change in Europe,* 57 CHANGE 5, 6 (2001) (ACACIA study in Europe projects annual temperature increases of 0.1°C-0.4°C per decade over the next century, with the greatest increase over southern Europe and north-east Europe).

anticipated that ocean temperature increases will be slightly lower than these projections, the rise will still be substantial.[1686]

In assessing the possible impacts of climate change on cetaceans, it must be emphasized at the outset that our ability to assess future impacts at the regional level, which is critical for ascertaining the possible ramifications for many cetacean species,[1687] remains limited.[1688] Climate researchers use computer models, derived from weather forecasting, to represent the Earth's energy and water cycles and to predict how enhanced levels of greenhouse gases will affect the Earth's climate. The most sophisticated of these models, general circulation models (GCMs), use a three dimensional grid overlaying the surface of the earth with grid points a few hundred kilometers per side, within which cells are stacked about twenty layers deep.[1689] (*See* Figure 18).

[1686] C. Drew Harvell, et al., *Climate Warming and Disease Risks for Terrestrial and Marine Biota,* 296 SCI. 2158, 2158 (2002).

[1687] INTERNATIONAL WHALING COMMISSION, REPORT OF THE IWC WORKSHOP ON CLIMATE CHANGE AND CETACEANS 2 (1996) [hereinafter IWC REPORT].

[1688] INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2001: THE SCIENTIFIC BASIS, Contribution of Working Group I to the Third Assessment Report of the Intergovernmental Panel on Climate Change (2001), at 587; William C.G. Burns, *The Impact of Climate Change on Pacific Island Developing Countries in the 21st Century, in* CLIMATE CHANGE IN THE SOUTH PACIFIC: IMPACTS & RESPONSES IN AUSTRALIA, NEW ZEALAND, & SMALL ISLAND STATES 234 (Alexander Gillespie & William C.G. Burns eds., 2000).

[1689] Hadley Center for Climate Prediction and Research, *Regional Climate, at* <http://www.meto.gov.uk/sec5CR_div.bak/Brochure/regn_pre.html>. *See also* IPCC, AN INTRODUCTION TO SIMPLE CLIMATE MODELS USED IN THE IPCC SECOND ASSESSMENT REPORT 10 (1997).

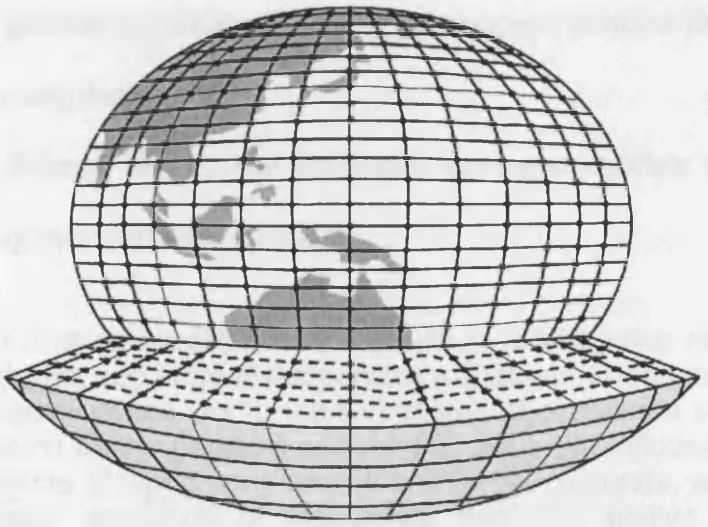

Figure 18: General Circulation Model

Vertical layers of the model represent levels in the atmosphere and depths in the ocean, dividing the surface of the planet into a series of horizontal boxes separated by lines similar to latitudes and longitudes.[1690] Within each grid point, a series of equations are run and solved on a super-computer, producing simulations of key climatic components, including wind, air-pressure, temperature, humidity, ice coverage and land surface processes.[1691] Climate models are usually run for several simulated decades, with the derived results compared to actual statistics on climatic indicia over this period, such as mean temperatures and precipitation. The models are then run with changes in external forcing, such as projected increases in atmospheric greenhouse gas concentrations, over a series of decades or centuries. "The differences between

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[1690] NASA, Goddard Institute for Space Studies, *Global Climate Modeling,* <http://www.giss.nasa.gov/research/modeling/gcms.html.>, site visited on Mar. 5, 2004.
[1691] Eric J. Barron, *Climate Models: How Reliable Are Their Predictions?*, CONSEQUENCES 17, 18 (Aug. 1995).

variables, has also proved successful in linking large-scale spatial averages of precipitation and surface temperature to local precipitation and temperature-time series.[1696]

With the caveat that regional climate assessments remain speculative, recent research indicates that cetaceans may be seriously threatened by projected warming in the next century in the Mediterranean and Black Sea, a region expected to suffer serious impacts from climate change.[1697] The warming of tropical waters may contribute to epizootics, such as the one that killed thousands of striped dolphins in the Mediterranean in the early 1990s,[1698] and augment the spread of marine disease agents and parasites,[1699] as well as invasive species that threaten cetacean prey resources.[1700] Recent research

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[1696] Silvina A. Solman & Mario N. Nunez, *Local Estimates of Global Climate Change: A Statistical Downscaling Approach,* 19 INT'L J. CLIMATOLOGY 835, 836 (1999); *see also* Hartmut Grassl, *Status and Improvements of Coupled General Circulation Models,* 288 SCI. 1991, 1994 (2000) (statistical downscaling used to effectively simulate meteorological variables in Scandinavian mountain area).

[1697] Vanya Walker-Lee, *Climate Change Negotiations in Milan: Modest Progress v. Growing Alarm,* 32 SUSTAINABLE MEDITERRANEAN 8 (2003), <http://www.mio-ecsde.org/filemgmt_data/files/newsletter.32.pdf>, site visited on Feb. 26, 2005; ; Wolfgang H. Berger, *Climate History and the Great Geophysical Experiment, in* CLIMATE DEVELOPMENT AND HISTORY OF THE NORTH ATLANTIC REALM 8 (G. Wefer, et al. eds., 2002).

[1698] *See* note 149 and accompanying text, *supra.*

[1699] Simmonds & Nunny, *supra* note 130, at 47; Harvell, et al., *supra* note 1686, at 2161; INTERNATIONAL WHALING COMMISSION, REPORT OF THE IWC WORKSHOP ON CLIMATE CHANGE AND CETACEANS 16 (1996).

[1700] U. Niermann, et al., *Fluctuations of Pelagic Species of the Open Black Sea During 1980-1995 and Possible Teleconnections, in* ENVIRONMENTAL DEGRADATION OF THE BLACK SEA: CHALLENGES AND REMEDIES, *supra* note 410, at 174:

> Striking changes were observed in the NAO (North Atlantic Oscillation), SO (Southern Oscillation), ENSO (Southern Oscillation (El Niño Index)), and ALPI (Aleutian Low Pressure Index) in the second half of the 1980s resulting in changes of the hydrological and meteorological regime (river run off, salinity, sea- and air temperature, atmospheric pressure, precipitation and strength of westerly winds) in the northern hemisphere. It is concluded (hypothetically), that possibly, changes in the weather regime during the 1980s could have triggered the changes in the phyto- and mesozooplankton communities of the Black Sea,

indicates that Black Sea cetacean species may be particularly threatened in this context.[1701] Anticipated reductions in river flow in Southern Europe associated with climate change could also increase the concentrations of pollutants in coastal areas in the region.[1702]

Recent research also predicts an increase in precipitation in the Mediterranean region associated with projected warming.[1703] This could result in more land pollutants running into coastal waterways inhabited by whales.[1704] Additionally, elevated levels of atmospheric carbon dioxide could increase sea-water acidity, potentially raising the concentration of heavy metals in ocean ecosystems, exacerbating the toxic effect of these substances on cetaceans.[1705]

Climate change could adversely affect the abundance of species that cetaceans rely upon for sustenance in several ways. Increases in sea surface temperature could lead to changes in estuarine salinity or acidity, negatively affecting fisheries production in coastal areas.[1706] Additionally, sea surface temperatures are strongly correlated with recruitment of juvenile fish

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which caused the conditions for the outburst of *M. leidyi* and the decline of the anchovy stock.

[1701] Bernd Würsig, Randall R. Reeves & J.G. Ortega-Ortiz, *Global Climate Change and Marine Mammals, in* MARINE MAMMALS BIOLOGY & CONSERVATION (Peter G.H. Evans & Juan Antonio Raga eds., 2001), at 594.
[1702] IPCC, *supra* note 1683, *Europe,* sec. 13.2.1.1. Ann Milner Roberts, *Climatic Catastrophe in the Mediterranean,* FINANCIAL TIMES BUSINESS REP., Nov. 20, 1997.
[1703] R. Cheddadi, J. Guiot & D. Jolly, *The Mediterranean Vegetation: What if the Atmospheric CO2 increased?,* 16 LANDSCAPE ECO. 667-675 (2001).
[1704] Charles Arthur, *Global Warming Poses New Threat to Whales' Survival,* INDEPENDENT, June 26, 1997, at 3.
[1705] Catherine Dold, *Toxic Agents Found to be Killing Off Whales,* N.Y. TIMES, June 16, 1992, at B8.
[1706] Notarbartolo di Sciara, *supra* note 62, at 46; Simmonds & Nunny, *supra* note 130, at 47; Würsig, Reeves & Ortega-Ortiz, *supra* note 929, at 593.

populations.[1707] Changes in currents or precipitation patterns could also increase pollutant loading and lead to a decline in food quality for cetacean prey species.[1708] There is also evidence that warming temperatures in areas such as the Ligurian Sea and the Adriatic Sea may result in displacement of cold water species by species more adapted to warmer temperatures, potentially threatening cetacean food supplies.[1709] For example, researchers have cited evidence of the "tropicalisation" of southern marine waters in the Mediterranean, including the recent observation of Atlantic fish species in southwestern Mediterranean waters, as well as the increasing spread of Lessepsian migrants in the Adriatic Sea, including *Epinephelus coloides,* a grouper species.[1710] Changes in sea surface temperatures associated with climate change may also influence the distribution of cetacean prey in the region, potentially adversely affecting abundance.[1711]

The upwelling intensity of oceans might also be affected by rising temperatures, which could ultimately have adverse effects on the rate of nutrient

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[1707] Martin J. Attrill & Michael Power, *Climatic Influence on a Marine Fish Assemblage,* 417 NATURE 275, 278 (2002); H.O. Pörtner, et al., *Climate Induced Temperature Effects on Growth Performance, Fecundity, and Recruitment in Marine Fish: Developing a Hypothesis for Cause and Effect Relationships in Atlantic Cod (Gadus morhua) and Common Eelpout (Zoarces viviparous),* 21 CONTINENTAL SHELF RES. 1975, 1981-82 (2001); H.N. Cabral, M.J. Costa & J.P. Salgado, *Does the Tagus Estuary Fish Community Reflect Environmental Changes?,* 18 CLIMATE RES. 119, 125 (2001).

[1708] Simmonds & Nunny, *supra* note 130, at 47.

[1709] C. Nike Bianchi & Carla Morri, *Marine Biodiversity of the Mediterranean Sea: Situation, Problems and Prospects for Future Research,* 40(5) MARINE POLLUTION BULL. 367, 370 (2000); UNEP, *supra* note 175, at 17 ("Tropicalisation" of southern Mediterranean waters as a consequence of climate change cause of appearance of exotic species, including recent observations of Atlantic fish species in the southwestern Mediterranean region and increasing spread of Lessepian migrants in the Adriatic Sea, such as *Epinephelus coloides*). *See generally,* Colin MacLeod, et al., *Climate Change and the Cetacean Community of North-West Scotland,* 124 BIO. CONSERVATION 477, 482 (2005).

[1710] UNEP, *supra* note 886, at 17.

[1711] Bearzi, *supra* note 44, at 236.

export into the eutrophic upper ocean layer. This could reduce primary production, and subsequently, fish production.[1712] Finally, there is a threat of shift by cetaceans precipitated by the migration of prey species, a phenomenon that researchers have identified during recent El Niño events.[1713] The possible adverse impacts of these shifts remain speculative but potentially serious.[1714]

Recent research in the Mediterranean suggests warming could also adversely affect the status of cetacean prey species by exacerbating anoxic conditions in the region.[1715] Recent anomalous increases (2-3°C) of summer temperatures and deepening of the thermocline in coastal areas of the Western Mediterranean may provide a portent. This has resulted in massive mortality of benthic fauna (such as sponges and gorgonians) inhabiting hard substrates.[1716] There is also evidence that rising sea surface temperatures in the region, up by more than 0.12° C since 1960,[1717] is resulting in compositional changes in fish and algal communities in the Mediterranean.[1718] This could ultimately have

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[1712] FAO, *Fisheries and Long-Term Climate Variability,* in The State of the World's Fisheries and Aquaculture (2002), <http://www.fao.org/docrep/005/y7300e/y7300e07.htm#P3_39>, site visited on May 17, 2003.
[1713] David Lusseau, et al., *Parallel Influence of Climate on the Behaviour of Pacific Killer Whales and Atlantic Bottlenose Dolphins,* 7 ECO. LETTERS 1068, 1073 (2004); Würsig, Reeves & Ortega-Ortiz, *supra* note 929, at 599.
[1714] *Id.*
[1715] IPCC, *supra* note 1683, *Europe,* sec. 13.2.3.2.2. Secretariat to the Barcelona Convention, *supra* note 21, at 63-66. Roberta Danovaro, et al., *Deep-sea Ecosystem Response to Climate Change: The Eastern Mediterranean Case Study*, 16(9) TRENDS ECO. & EVOLUTION 505, 505 (2001).
[1716] Danovaro, *supra* note 1715, at 505; J-C. Romano *et al.*, *Anomalie termique dans les eaux du golfe de Marseille durant l'été 1999. Une explication partielle de la mortalité d'invertébrés fixés?*, 323 C.R. ACAD. SCI. 415-427 (2000) (mortality linked to stability ocean temperature increase over course of few months).
[1717] P. Francour, et al., *Are the Mediterranean Waters Becoming Warmer?,* 28 MARINE POLLUTION BULL. 523-26 (1994).
[1718] John R.M. Chisholm, Jean M. Jaubert & Giuseppe Giaccone, *Caulerpa taxifolia in the Northwest Mediterranean: Introduced Species or Migrant from the Red Sea?,* 318 C.R. ACAD. SCI. 1219, 1226 (1995).

adverse impacts on the food chain of cetaceans.[1719] Finally, climate change may affect the transmission of sound by causing changes in current patterns, imperiling cetaceans' ability to communicate.[1720]

Thus, the failure of ACCOBAMS to address the potential impact of climate change in formulating management decisions and implementing the precautionary principle could bedevil its efforts to ensure the viability of cetacean species in the Agreement Area. In designing research programs, the regime should also incorporate climate impact assessments into the design phase. Continuous monitoring of potential climate impacts on cetaceans in the region is also critical to ensure that the distribution of protected species has not shifted in ways that obviate the effectiveness of specially protected areas or Specially Protected Areas of Mediterranean Importance.[1721] Finally, the regime should also consult closely with other regimes that are addressing the impact of climate change on cetaceans and marine environments, such as the Convention on Biological Diversity,[1722] the International Whaling Commission,[1723] the

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[1719] Elevated sea surface temperatures have adversely affected fish stocks in other parts of the world. For example, during ENSO events off Americas in 1972-1973, stock of anchoveta collapsed from 1971-1973, primary production was reduced by factor of 3 and recruitment by an order of magnitude. This was associated with decline in zooplankton related to high rates of upwelling of water due to elevated temperatures. DAVID CUSHING, POPULATION PRODUCTION & REGULATION IN THE SEA: A FISHERIES PERSPECTIVE 183 (1995).

[1720] Simmonds & Nunny, *supra* note 130, at 47.

[1721] Colin D. MacLeod, et al., *Climate Change and the Cetacean Community of North-West Scotland,* 124 BIO. CONSERVATION 477, 482 (2004).

[1722] In extending the CBD's program of work on marine and coastal biodiversity for six years in 2004, the Parties edeclared that the program of work should "address issues related to biodiversity and climate change." Convention on Biological Diversity, *supra* note 1365, at Preamble

[1723] 50th Meeting of the International Whaling Commission, *Resolution on Environmental Change and Cetaceans*, IWC Resolution 1998–6 (1998).

Intergovernmental Panel on Climate Change (IPCC),[1724] the United Nations Framework Convention on Climate Change (UNFCCC),[1725] and the Intergovernmental Oceanographic Commission.[1726]

7.4 The Purview of ACCOBAMS and its Role in Other Forums

Given the fact that many of the primary threats to cetaceans, such as pollution and incidental catch in fisheries are currently being addressed by other regimes, it would make very little sense for ACCOBAMS to devote its limited resources to attempt to duplicate the activities of these regimes.[1727] However, consistent with the recommendations of researchers who emphasize the value of reinforcing linkages of MEAs,[1728] termed "interplay management" by Stokke,[1729] and "nesting" by Skjærseth.[1730] ACCOBAMS should seek to conduct relevant

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[1724] *See supra* note 1682. The IPCC is currently conducting an assessment of climate change impacts on biodiversity for the Convention on Biological Diversity. Convention on Migratory Species, *Report of the Tenth Meeting of the CMS Scientific Council,* 2-4 May 2001, at 20.
[1725] United Nations Conference on Environment and Development: Framework Convention on Climate Change, May 9, 1992, 31 I.L.M. 849.
[1726] IOC, <http://ioc.unesco.org/iocweb/>.
[1727] Robin Churchill advanced this argument in a recent discussion of ASCOBANS and his analysis is equally valid in this context. *See* Robin R. Churchill, *The Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas,* in THE FUTURE OF CETACEANS IN A CHANGING WORLD 307-08 (William C.G. Burns & Alexander Gillespie eds., 2004). It is also not likely that other regimes would easily cede any of their authority to ACCOBAMS.
[1728] Joy Hyvarinen & Duncan Brack, *Global Environmental Institutions: Analysis and Options for Change,* Royal Institute for International Affairs (2000), at 9, <http://www.riia.org/pdf/research/sdp/GEI.pdf>, site visited on July 16, 2002.
[1729] "Interplay management" "refers to deliberate efforts by participants in tributary or recipient regimes to prevent, encourage, or shape the way one regime affects problem solving under another." Olav Schram Stokke, *The Interplay of International Regimes: Putting Effectiveness Theory to Work,* Fridjof Nansen Institute, FNI Rep. 14/2001, at 17, <http://www.fni.no/ca/01-14-oss.pdf>, site visited on Aug. 10, 2002.
[1730] Jon Birger Skjærseth, *Toward the End of Dumping in the North Sea: The Case of the Oslo Commission, in* ENVIRONMENTAL REGIME EFFECTIVENESS, *supra* note 791, at 76.

research on anthropogenic impacts on cetaceans in the region and play the role of a "lobbyist" for the interests of cetaceans in these other forums.

ACCOBAMS's "sister" agreement under the CMS, the Agreement on the ASCOBANS,[1731] has provided salutary guidance in this context recently. On the basis of research findings by a joint IWC/ASCOBANS Working Group on harbor porpoises that marine mammal by-catch levels in fisheries of above 1.7 per cent are unsustainable,[1732] ASCOBANS is seeking to press the European Union to incorporate this limit in the EU's Common Fisheries Policy.[1733] Similarly, the Convention Biological Diversity's Secretariat has intiated a dialogue with the Secretariat of the United Nations Framework Convention on Climate Change to integrate biodiversity concerns, such as the impact of climate change on coral bleaching, into implementation of the UNFCCC and the Kyoto Protocol.[1734]

The research role of ACCOBAMS may be particularly important in areas where other organizations may not have adequately assessed impacts on cetaceans, such as fisheries bycatch, the impact of specific pollutants, or the impacts of noise. The monitoring and research programs of ACCOBAMS will also make it uniquely qualified to apprise managers of specially protected areas of critical habitat regions for cetaceans and potential appropriate conservation

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[1731] *See supra* note 5.
[1732] ASCOBANS, *Proceedings of the Third Meeting of Parties to ASCOBANS,* Resolution No. 3 (2000), at 96.
[1733] *Pingers Could Help Save North Sea's Dolphins, Porpoises,* CETACEAN NEWS, Apr. 17, 2001.
[1734] Convention on Biological Diversity, 7th Conference of the Parties, Decision VII/5, *Marine and Coastal Biological Diversity*, at para. 31(i).

measures,[1735] as well as to assess the possible biological impacts of cetacean-watching.

The Parties to ACCOBAMS should also encourage the establishment of a forum in which States in the region can engage in an integrated environmental assessment process. This process should examine both the linkages and trade-offs among environmental issues governed by different agreements, as well as the trade-offs associated with regimes governing commercial enterprises, such as fisheries and tourism.[1736] A similar multi-sectoral assessment process is critical at the national level in the respective Parties also.[1737]

7.5 Improving the Implementation, Compliance, and Effectiveness Provisions of ACCOBAMS

7.5.1 Overview

In assessing the operation of MEAs worldwide the German Advisory Council for Global Change recently concluded:

> [I]mplementational deficits abound at the local and national levels: Protected areas only exist on paper, programmes of action are non-binding and are not implemented, national reports are not written at all. This indicates the need for more effective international mechanisms by which to ensure compliance.[1738]

[1735] HOYT, *supra* note 69, at 135.
[1736] Achim Steiner, Lee A. Kimball & John Scanlon, *Global Governance for the Environment and the Role of Multilateral Environmental Agreements in Conservation,* 37(2) ORYX 227, 231 (2002).
[1737] *Id.*
[1738] GERMAN ADVISORY COUNCIL FOR GLOBAL CHANGE, NEW STRUCTURES FOR GLOBAL ENVIRONMENTAL POLICY 40 (2000). *See also* Lawrence Susskind & Connie Ozawa, *Negotiating More Effective International Environmental Agreements, in* THE INTERNATIONAL POLITICS OF THE ENVIRONMENT 143 (1992).

Additionally, MEAs have been characterized by ineffective implementation and monitoring and poor enforcement of treaty obligations.[1739] These have been key, if not decisive, factors in the continued downward spiral of many environmental indicators despite the proliferation of regional and international environmental agreements over the past 20 years.[1740] As indicated above, these problems have also plagued environmental regimes and national environmental programs in the Mediterranean and Black Sea region.[1741] Thus, every effort should be made to strengthen the weak compliance and implementation assessment provisions of ACCOBAMS to help the regime avoid a similar fate. Additionally, given the limited resources of the regime and the perilous state of many of the species it was created to protect, it is important to establish a viable mechanism to accurately assess the treaty's effectiveness on an ongoing basis.

7.5.2 Improving Prospects for Compliance and Implementation

7.5.2.1 Establish a Standing Body on Compliance and Implementation

There is growing empirical evidence that independent institutional mechanisms to review and foster treaty compliance and implementation can substantially improve the prospects for MEAs to meet their objectives.[1742]

[1739] Charles Sampford, *Environmental Governance for Biodiversity,* 5 ENVT'L SCI. & POL'Y 85, 86 (2002), Hyvarinen & Brack, *supra* note 1728, at 39; Susskind & Ozawa, *supra* note 1738, at 153; Reeve, *supra* note 756, at 249-52.

[1740] "Evidence points to the failure to invest in enforcement and compliance [of regional and international environmental agreements] as a key reason for the continuing degradation of environmental quality." Durwood Zaelke, *A Mandate for Strengthening Environmental Enforcement and Compliance,* International Network for International Network for Environmental Compliance and Enforcement, <http://www.inece.org/secretariat.html>, site visited on Aug. 30, 2002.

[1741] *See* sec. 6.1, *supra.*

[1742] Frank Biermann & Steffen Bauer, *Assessing the Effectiveness of Intergovernmental Organisations in International Environmental Politics,* 14 GLOBAL ENVTL. CHANGE 189,192 (2004); Stacy VanDeveer, *Protecting Europe's Seas,* ENV'T, July/Aug. 2000, at 19; Owen Greene, *The*

Institutional review procedures induce more honest reporting by national governments.[1743] Moreover, they may spur member States to develop stronger monitoring capabilities and mechanisms to regulate pertinent domestic activities.[1744] In a broader sense, the interaction of Parties in compliance and implementation review processes also "deepen the constitutive process"[1745] that helps to engender trust, and ultimately greater cooperation, among members of treaty regimes:

> The first reflectivist process emphasizes the impact that cooperative interaction will have on the 'other.' 'By showing others through cooperative acts that one expects them to be cooperators too, one changes the intersubjective knowledge in terms of which their identity is defined' . . . The second reflectivist process is a reflective variant of the first. By engaging in cooperative interaction, a state projects something about itself that redefines the intersubjective environment from which it derives its self-conception. Another state absorbs this new presentation of the cooperator, projects this new identity back, and resocializes the cooperator to a new conception of itself. Thus an actor's self-concept will gradually change and the new identity (e.g. that of a cooperator) will be internalized . . . Acts of cooperation create a language of cooperation that then frames actors' responses to new events.[1746]

Compliance and implementation bodies have also been endorsed by the UNEP's Working Group of Experts on Enforcement and Implementation of

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System for Implementation Review in the Ozone Regime, in THE IMPLEMENTATION & EFFECTIVENESS OF INTERNATIONAL ENVIRONMENTAL COMMITMENTS: THEORY & PRACTICE, *supra* note 768, at 118-19.

[1743] Greene, *supra* note 768, at 206.

[1744] *Id.* at 205; George W. Downs, Kyle W. Danish, Peter N. Barsoom, *The Transformational Model of International Regime Design: Triumph of Hope or Experience?,* 38 COLUM. J. TRANSNAT'L L. 465, 472 (2000).

[1745] Downs, *supra* note 770, at 37.

[1746] *Id.* at 28. *See also* Jarle Trondal, *Unpacking Social Mechanisms: Comparing Social Constructivism and Organization Theory Perspectives,* Arena Working Papers, WP 99/31 (1999), <http://www.arena.uio.no/publications/wp99_31.htm>, site visited Aug. 8, 2002.

Environmental Conventions on the basis of an extensive analysis of MEAs.[1747] Thus, the Parties to ACCOBAMS should endorse the establishment of an Implementation and Compliance Committee (ICC).[1748] In the following sections I will set forth the proposed contours of the ICC, drawing where appropriate on the experience of other regimes that have established similar entities.

7.5.2.2 Structure/Procedures of the ICC

A recent analysis by the Convention on Biological Diversity of compliance mechanisms in MEAs suggests that implementation and compliance entities should be kept small.[1749] Several regimes that have established compliance and implementation review committees have also embraced this philosophy. For example, the Implementation Committee of the Montreal Protocol on Substances that Deplete the Ozone Layer[1750] consists of ten members,[1751] and that of the Convention on Long-Range Transboundary Air Pollution[1752] is comprised of eight members.[1753] The ICC should initially be constituted with 8-10 individual

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[1747] UNEP Working Group of Experts on Enforcement and Implementation of Environmental Conventions, *supra* note 747, at sec. IV(B)(2).
[1748] The ICC could likely be established either by amending ACCOBAMS, or as Churchill & Ulfstein suggest, on the basis of the "implied powers" of international organizations to exercise other powers essential to achieve their objectives. Robin R. Churchill & Geir Ulfstein, *Autonomous Institutional Arrangements in Multilateral Environmental Agreements: A Little Noticed Phenomenon in International Law,* 94 AM. J. INT'L L. 623, 644 (2000).
[1749] Convention on Biological Diversity, *supra* note 742, at 11.
[1750] Montreal Protocol on Substances That Deplete the Ozone Layer, Sept. 16, 1987, *as adjusted and/or amended*, Arts. 8, 10, 1522 UNTS 293. For a detailed description of the Committee, *see* O. Yoshida, *Soft Enforcement of Treaties: The Montreal Protocol's Noncompliance Procedure and the Functions of Internal International Institutions,* 10 COLO. J. INT'L ENVTL. L. & POL'Y 95, 114 (1999).
[1751] Third Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer, UNEP/OzL.Pro.3/11, 21 June 1999, Decision III(20).
[1752] Convention on Long-Range Transboundary Air Pollution, Nov. 13, 1979, TIAS No. 10,541, 1302 UNTS 217.
[1753] Decision 1997/2,

members, consisting of an equal number of representatives from Parties in the Black Sea and Mediterranean Sea and contiguous Atlantic area.[1754]

The reporting and response procedure for the ICC should be structured as follows:

- The Parties will submit the revised reporting forms to the ICC. The frequency of report submission should be amended to require submission of reports biennially instead of triennially. This will help to facilitate the discerning of potentially adverse trends and the formulation of appropriate Party responses in a more expeditious fashion;
    - The procedure should include provision for submissions by Parties that have reservations about another Party's compliance with its obligations under ACCOBAMS, an approach adopted by several extant conventions, including the Montreal Protocol on Substances that Deplete the Ozone Layer,[1755] the United Nations Economic Commission for Europe's Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (the Aarhus Convention) and the Basel Convention;[1756]
- The ICC will review the reports of the Parties to assess compliance and implementation of the Agreement by the Parties and the effectiveness of the Agreement in meeting treaty objectives. Where

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[1754] An alternative approach would be to adopt the proposal for independent review outlined by UNEP's Montevideo Program for the Development and Periodic Review of Environmental Law, UNEP, *The Programme for the Development of the Development and Periodic Review of Environmental Law for the First Decade of the Twenty-First Century*, Decision 21/23 of the Governing Council of 9 February 2001, <http://www.iucn.org/themes/law/pdfdocuments/Montevideoper cent20III.pdf>, site visited on July 17, 2002. One of the primary objectives of the Program is to improve the implementation, compliance and the effectiveness of MEAs. *Id.* at sec. I. Under this proposal, UNEP, in cooperation with representatives from States not members to the agreement in question, would be tasked with conducting independent assessments of party implementation and compliance with selected MEAs. *Id.* at Sec. I; Global Ministerial Environment Forum 2000, *Discussion Papers Presented by the Executive Director* (UN Doc. UNEP/GCSS.VI/8).

[1755] *Supra* note 1750. The Parties adopted a non-compliance procedure at the Tenth Meeting of the Parties in 1998, Dec. X/10. The procedure includes a position for any Party to express reservations to the Secretariat about compliance any other Party. *Id.* at sec. 1..

[1756] *See* sec. 7.6, *infra*; United Nations Economic and Social Council, *Report of the First Meeting of the Parties,* ECE/MP.PP/2/Add.8, 2 Apr. 2004, <http://www.unece.org/env/pp/documents/.mop1/ece.mp.pp.2.add.8.e.pdf>, site visited on Sept. 3, 2004; Basel Convention, *Mechanism for Promoting Implementation and Compliance,* <http://www.basel.int/legalmatters/compcommittee/termsref.doc>, site visited on Jan. 15, 2005.

it deems it appropriate, the ICC may request additional information from the Parties;

- The ICC will be authorized to solicit additional information from concerned organizations or individuals, an approach taken by the Parties to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal in its establishment of an implementation and compliance assessment committee;[1757]
    - The assessment mechanism might also include a provision for consensual on-site inspections by the ICC (including the posting of observers on the fishing vessels of Parties to monitor bycatch), as provided for under several other regimes, including the Convention on Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar Convention),[1758] the Vienna Convention for the Protection of the Ozone Layer,[1759] and the Convention on International Trade in Endangered Species.[1760]
- The ICC will prepare an annual report outlining compliance and implementation problems by individual Parties and will submit this report to the Secretariat and to representatives of the Parties where problems are detected.
    - The ICC will prepare a consolidated report (encompassing its findings since submission of its last report to the Meeting of the Parties) to the Meeting of the Parties. This may include compliance and implementation recommendations for individual Parties or for the Parties generally;
    - On receipt of the report, the MOP may decide upon and impose measures on individual Parties to secure compliance or enhance implementation of treaty provisions and decisions of the Parties.[1761] This may include any or all of the following:

[1757] Mar. 22, 1989, UN Doc. EP/IG.80/3 (1989), *reprinted in* 28 ILM 649 (1989); UNEP, *supra* note 1765, Annex, at para. 8.

[1758] Convention on Wetlands of International Importance Especially as Waterfowl Habitat, Feb. 2, 1971, 996 T.I.A.S. No. 11084, 996 U.N.T.S. 245. The monitoring procedure was established in 1989 and is voluntary and non-adversarial. CHAYES & CHAYES, *supra* note 750, at 186.

[1759] Vienna Convention for the Protection of the Ozone Layer, Mar. 22, 1985, Art. 2, 26 ILM 1529 (1987); Greene, *supra* note 1742, at 116. The European Commission's proposal for a new Common Fisheries Policy also contains a provision for inspections of businesses and other facilities conducting activities relevant to the CFP, as well as vessel inspections. However, such inspections are not voluntary. Commission of the European Communities, *supra* note 1153, at art. 27(d)(1).

[1760] Reeve, *supra* note 756, at 74-5.

[1761] While the ICC could be imbued with the authority to make these decisions itself, this is probably not judicious since the body would be less representative than the full membership and

- A request to a Party found to be in non-compliance or failing to adequately implement the treaty to begin consultations with the ICC to develop a compliance action plan to rectify the problem(s). The plan should include clear objectives, benchmarks and an indicative timeline for implementation;[1762]
- Provision of assistance, including technical assistance, technology transfer, training, capacity-building and financial assistance;[1763]
- The issuance of public cautions to non-complying Parties[1764] and a requirement (or recommendation) for a detailed plan to rectify problems identified by the ICC;

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therefore should not be entrusted with making decisions with serious implications for the sovereignty of the member States, UNEP, *supra* note 1765, Annex, at para. 8; *see also* Convention on Biological Diversity, *supra* note 742, at 11.

[1762] This is the approach recommended by the Secretariat to CITES. *See* Convention on International Trade in Endangered Species, Twelfth Meeting of the Conference of the Parties, *Interpretation and Implementation of the Convention,* CoP12 Doc. 26 (2002), at 8, <http://www.cites.org/common/cop/12/docs/eng/E12-26.pdf>, site visited on Oct. 14, 2002, and the Basel Convention in its Mechanism for Promoting Implementation and Compliance, *supra* note 1756.

[1763] This provision reflects consistent findings that non-compliance by Parties to MEAs is often not willful, but rather a function of a lack of capability. Xueman Wang & Glenn Wiser, *The Implementation and Compliance Regimes under the Climate Change Convention and its Kyoto Protocol,* 11(2) REV. EUR. COMMISSION & INT'L ENVTL. L. 181, 182 (2002); Convention on International Trade in Endangered Species, *supra* note 1763, at 7. This emphasis on promoting compliance through financial and logistical support is one of the integral components of the "managerial approach" advocated by Chayes & Chayes. This model emphasizes the need to develop an "interactive process for dealing with compliance" in which the regime engages in "justificatory discourse" among its members on an ongoing basis. CHAYES & CHAYES, *supra* note 750, at 109-286. This interactive, dialectic process of discourse seeks to invoke, interpret and elaborate norms in a way "that generates pressure for compliance." Harold Honju Koh, *Why Do Nations Obey International Law?,* 106 YALE L.J. 2599, 2638 (1997).

[1764] The threat of and issuance of public cautions may exert substantial influence on State compliance by threatening to undercut a State's reputation in the world community, and hence its ability to participate in international forums. As Chayes & Chayes observe, "in the last analysis, the ability of a state to remain a participant in the international policy-making process - and thus its status as a member of the international system - depends in some degree on its demonstrated willingness to accept and engage the regime's compliance procedures." CHAYES & CHAYES, *supra* note 750, at 230. *See also* Louis Henkin, *General Course on Public International Law,* 216 RECEIL DES COURS 72 (1989); Edward Weisband, *Discursive Multilateralism: Global Benchmarks, Shame, and Learning in the ILO Labor Standards Monitoring Regime,* 44 INT'L STUDIES Q. 643, 648 (2000); FREDERIC L. KIRGIS, INTERNATIONAL ORGANISATIONS IN THEIR LEGAL SETTING 524 (2d ed. 1993). This "shaming" mechanism is particularly important given the high political costs associated with imposing punitive sanctions to enforce agreement mandates or norms, Lesley Wexler, *The International Deployment of Shame, Second-Best Responses, and Norm Entrepreneurship: The Campaign to Ban Landmines and the Landmine Ban Treaty,* 20 ARIZ. J. INT'L & COMP. L. 561, 566 (2003) and the very real prospect that such an approach might prove counterproductive, *see* n.1765, *infra.*

- Inclusion of a section in the nation's next report describing efforts to rectify the problem(s), the effectiveness of these initiatives, and impediments to meeting this objective.[1765]

In developing the ICC, the Parties should consider collaborating with the Supreme Audit Institutions (SAIs) of the respective members. SAIs are the highest national audit institutions in States, responsible for auditing the regularity of governmental expenditures and receipts.[1766] As such "they are well equipped to audit the compliance of respective governments to international obligations and commitments."[1767] In the past few years SAIs have been involved in the auditing of the implementation and compliance record of Parties to the Convention on the Protection of the Marine Environment of the Baltic Sea and

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[1765] Of course, the Parties could also provide for sanction provisions in the treaty against non-complying Parties, embracing the so-called "hard approach" of some compliance models. Eric Dannenmaier & Isaac Cohen, *Promoting Meaningful Compliance with Climate Change Commitments,* Report of the Pew Center on Global Climate Change (2000), at 3. However, I concur with the Convention on Biological Diversity's Intergovernmental Committee for the Cartagena Protocol on Biosafety's conclusion that "[a] simple, transparent and non-confrontational regime is more likely to engender credibility, trust and support than one that is accusatorial and based on complex quasi-judicial procedures." Convention on Biological Diversity, *supra* note 742, at 10. This is the approach that most regimes have adopted in establishing non-compliance procedures. *See* UNEP, *Monitoring the Implementation of and Compliance With the Obligations Set Out by the Basel Convention,* Conference of the Parties to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, Sixth Meeting, 9-13 Dec. 2002, UNEP/CHW.6/9 2002, at 4, <http://www.unep.ch/basel/COP6/cop6_09e.pdf>, site visited on Dec. 26, 2002 (Implementation and compliance mechanism should be "non-confrontational ... in nature"); Convention on Biological Diversity, Intergovernmental Committee for the Cartagena Protocol on Biosafety, Third Meeting, 22-26 Apr. 2002, *Draft Procedures and Mechanisms on Compliance Under the Cartagena Protocol on Biosafety,* UNEP/CBD/ICCP/3/10, at 34 ("The compliance procedures and mechanisms shall be simple, facilitative, non-adversarial and cooperative in nature."); Report of the 2nd Meeting of the Parties to the Montreal Protocol, UNEP/OzL.Pro.2/3, 29 June 1990, Annex III, para. 6 (Committee shall seek to secure "an amicable resolution" of non-compliance matters); Convention on Long-Range Transboundary Air Pollution, *supra* note 1152, LRTAP Executive Body Decision 1997/2, annex, para. 3(b), <http://www.unece.org/env/lrtap/conv/report/eb53_a3.htm>, site visited on July 23, 2002 (Implementation Committee directed to formulate a "constructive solution" when instances of non-compliance are found).

[1766] Sylvia van Leeuwen, *Auditing International Environmental Agreements: The Role of Supreme Audit Institutions,* 24 THE ENVIRONMENTALIST 93, 93 (2004).

[1767] *Id.* at 94.

the Oslo-Paris Convention, as well as agreements to protect interstate rivers.[1768] Every ACCOBAMS State has an SAI that could assist the Parties in developing and implementing environmental performance standards pertinent to implementation and compliance of the treaty,[1769] and the SAIs of some Party States already have experience in auditing the performance of other treaty regimes.[1770]

To maximize the prospects for effective compliance with ACCOBAMS from the outset of membership, new Parties to the treaty should also be required to prepare a report outlining the extent to which they are already in compliance with ACCOBAMS, and if necessary to develop a compliance plan, including benchmarks and timelines for achieving compliance. This plan should be submitted to the Secretariat, distributed to the other parties, and made available on the ACCOBAMS website.[1771]

[1768] *Id. See also,* Algemene Rekenkamer, *Marine Pollution from Ships,* INCOSAI Korean Edition (2001), <http://www.rekenkamer.nl/9282000/d/p185report_english.pdf>, site visited on January 17, 2005.
[1769] International Organization of Supreme Audit Institutions, <http://www.intosai.org>, site visited on Jan. 16, 2005.
[1770] van Leeuwen, *supra* note 1766, at 97.
[1771] Convention on Biological Diversity, *supra* note 742, at 7.

7.5.3 Revision of Reporting Protocols and Additional Institutions

As outlined in Sec. 4.8.3, *supra,* the reporting requirements adopted by the Parties at the First Meeting of the Parties are likely to prove egregiously inadequate in facilitating assessment of compliance, implementation and effectiveness issues associated with the Convention. Several measures should be taken to improve the efficacy of the reporting protocols and meet each of the concerns outlined in Sec. 4.8.3.

In terms of the problems associated with the failure of Parties to MEAs to file reports in a timely manner, the failure to do so under the ACCOBAMS framework should give rise to an inquiry by the ACCOBAMS Secretariat within three months of the failure to file requisite reports. In some cases, non-compliance with reporting requirements will be attributable to capacity problems in individuals Parties. Thus, the Parties should develop a line item in the budget to facilitate capacity building in this context and the Secretariat should be authorized to develop a reporting compliance plan, including timetables. In cases where this proves unavailing, the Parties should consider additional measures, including the issuance of cautions or membership suspension.

Per the discussion in Sec. 4.8.3, the specificity of information required in the reports should also be increased in several contexts:

1. The Parties should be required to not only list the relevant conventions and agreements to which they are members, but also provide an assessment of their compliance with specific mandates within those agreements, as well as recommendations and resolutions from Meetings of the Parties, pertinent to the objectives of ACCOBAMS. The ACCOBAMS Secretariat should develop a list

of those mandates and recommendations and resolutions for all relevant international conventions in a timely manner;

2. Benchmarks and timelines for complying with or implementing specific provisions of the Convention, or conference resolutions, should be established by Parties, and the Parties should be required to assess their progress in meeting these benchmarks and timelines in the reporting forms during each reporting period. The Parties should seek to develop a uniform set of indicators and benchmarks to help facilitate the assessment of national reporting in this context.[1772] This work would benefit greatly from the experience of two regimes that have been at the forefront of indicators development, the United Nations Convention to Combat Desertification[1773] and OSPAR.[1774]

   The Whale and Dolphin Conservation Study has also provided a valuable foundation for this work through the development of three key sets of indicators pertinent to assessing the effectiveness of ACCOBAMS. These are: 1. *species indicators* to assess population trends, mortalities and distributions; 2. *ecosystem indicators* to assess ecosystem health and threats; and 3. *institutional indicators* to assess the viability of institutional mechanisms developing within the ACCOBAMS regime.[1775]

   Of course, it needs to be acknowledged that many developing nations, and those with economies in transition, face serious challenges in develping effective indicator protocols. As identified in a recent study by the U.S. Environmental Protection Agency, these include: 1. Compliance cultures that are only in the formative stages in some States; 2. inadequate implementation of

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[1772] United Nations Convention to Combat Desertification, *Review of the Report of the Secretariat on Progress Made by Affected Country Parties in the Implementation of the Convention,* 5th Conference of the Parties, ICCD/COP(5)/3 (2001), at 4, <http://www.unccd.int/cop/officialdocs/cop5/pdf/3eng.pdf>, site visited on Aug. 23, 2003; United Nations Convention to Combat Desertification, *Report of the Permanent Inter-State Committee on Drought Control in the Sahel (CILSS) and the Sahara and Sahel Observatory (OSS) on their Initiative on the Development of Benchmarks and Indicators,* 5th Conference of the Parties, ICCD/COP(5)/CST/7 (2001), at 54, <http://www.unccd.int/cop/officialdocs/cop5/pdf/cst7eng.pdf>, site visited on Aug. 23, 2003.

[1773] UN Convention to Combat Desertification in Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa, June 19, 1994, 33 ILM 1328 (1994).

[1774] Fifth International Conference on the Protection of the North Sea, *Bergen Declaration,* 20-21 March 2002, at 8, <http://odin.dep.no/archive/mdvedlegg/01/11/Engel069.pdf>, site visited on Dec. 12, 2003. For a discussion of the OSPAR indicators project, *see* Royal Commission on Environmental Pollution, *supra* note 1153, Appendix K, at 469-472, <http://www.rcep.org.uk/fisheries/Turningthetide.pdf>, site visited on Dec. 23, 2004.

[1775] Whale and Dolphin Conservation Society, *Approaches to the Assessment of Successes of the Conservation of Cetaceans in the ACCOBAMS Area, supra* note 45, at 269.

environmental laws; 3. regulatory bodies with limited resources or powers; 4. jurisdictional issues, including an absence of clear roles and responsibilities between national, regional, state/provincial and municipal levels of government; 5. inadequate data systems, making it difficult to even develop basic output indicators.[1776]

3. In addition to listing their "main national legislative and regulatory texts pertinent to cetaceans," ACCOBAMS should embrace the approach recently taken by the Convention on Biological Diversity in reporting on the establishment of protected areas. The reporting form requires more detailed information on the regulatory framework of the Parties, including the stage of development of this framework and a requirement that copies of relevant documents be provided to the Secretariat, providing an additional means to assess implementation.[1777]
4. Additionally, the Parties should be required to assess the effectiveness of these instruments in achieving the objectives of ACCOBAMS, as well as implementation of specific mandates in the Convention, an approach adopted in the Convention on Biological Diversity.[1778] This should be effectuated through metrics established by the Parties and incorporated into the reporting forms. This may include baseline performance standards or other quantitative or qualitative metrics. A good model in this context is the efforts by OSPAR and ICES to develop Ecological Quality Objectives (EcoQOs) to guide efforts to protect the North Sea ecosystem and assess progress in meeting this objective.[1779] It is contemplated that EcoQOs will include "both the desired level of ecological quality and baselines against which progress can be measured."[1780] Some of the "ecological quality elements," which comprise the EcoQO's objective of ecological quality, would be germane to the objectives of ACCOBAMS, include the spawning

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[1776] Michael M. Stahl, *Performance Indicators for Environmental Compliance and Enforcement Programs: The U.S. EPA Experience,* International Network for Environmental Compliance and Enforcement (2004), at 18, <http://inece.org/indicators/docs/StahlPaper.pdf>, site visited on Aug. 14, 2004..

[1777] Conference of the Parties to the Convention on Biological Diversity, 6th Meeting, The Hague, Apr. 7-19, 2002, Decision VI/25, Annex I, UNEP/CBD/COP/6/20, at 303.

[1778] Convention on Biological Diversity, *supra* note 564, at art. 26:

> Each Contracting Party shall, at intervals to be determined by the Conference of the Parties, present to the Conference of the Parties, reports on measures which it has taken for the implementation of the provisions of this Convention and their effectiveness in meeting the objectives of this Convention.

[1779] Fifth International Conference on the Protection of the North Sea, *supra* note 1774.

[1780] *Id.*

stock biomass of commercial fish species; nutrient concentrations; and assessments of habitat quality.[1781]

5. The Parties should also be required to report on how recommendations from the Meetings of the Parties are disposed of at the national level. A good model for this would be the reporting provisions of the Constitution to the International Labour Organisation, which requires members to bring ILO recommendations before competent authorities and to report on the disposition of the recommendations.[1782]

Finally, the Convention must develop methodologies that will assist the Parties in assessing the effectiveness of measures that they take individually to effectuate the objectives of the treaty and reporting protocols to capture this information on an ongoing basis. Excellent guidance for formulating such a mechanism can be found in Article 15 of the Stockholm Convention on Persistent Organic Pollutants.[1783] I would suggest that this effectiveness assessment procedure focus on the five evaluation criteria developed by Hempel and Morozova:

1. **Environmental effectiveness**. Does the policy or program accomplish its goals and objectives? In the context of ACCOBAMS, the focus should be on the effectiveness of measures taken by the Parties in attaining a "favourable conservation status" for cetacean species in the region.
2. **Cost effectiveness/efficiency**: Is the ratio of valued inputs to valued outputs and outcomes less than 1.0?
3. **Priority responsiveness**: Are the problems addressed by the policy or program the most significant and urgent ones needing a response?
4. **Equity**: Is the distribution of costs and benefits from implementation perceived by most parties as fair? Were all stakeholders permitted to participate in the policy process?

[1781] *Id.* at 49. However, the ICES has cautioned against hastily promulgating EcoQOs. First, one must have a thorough understanding of relevant ecosystems to ensure that such objectives do not inadvertently adversely affect other species. "[F]or example, positive action to reduce discarding in order to restore fish populations could have a negative impact on birds and mammals that scavenge discards." Royal Commission, *supra* note 1153, at 162. Additionally, the ICES emphasized the large costs associated with monitoring a large number of EcoQOs. *Id.*

[1782] Constitution of the International Labour Organisation, art. 19(6), <http://www.ilo.org/public/english/about/iloconst.htm#a19p6>, site visited on Oct. 16, 2002.

[1783] Stockholm Convention on Persistent Organic Pollutants, 40(3) I.L.M. 532 (2001), at art. 15.

5. **Sustainability**: Does the policy or program promote living within the means of nature indefinitely? Does it preserve as many or more opportunities for future generations as we have?[1784]

It must be acknowledged that establishing a mechanism to accurately assess regime effectiveness, especially in terms of the first criteria above, is an imposing task. As Young concludes, "the effort to pinpoint mechanisms through which institutions are causal forces with respect to ecological conditions and to demonstrate these connections is the most fundamental challenge in this field of study."[1785] However, given the importance of efficiently using scarce resources, it is critical that the Secretariat consult with experts in the field to develop methodologies to effectuate this objective, and to monitor the ongoing efforts to improve these mechanisms.

7.5.4 Establish a Regime Monitoring Body to Facilitate Assessment of Agreement Effectiveness

The absence of effective monitoring mechanisms severely undercuts the ability to assess the effectiveness of environmental regimes. This has negative ramifications for such regimes. First, it makes it very difficult for regimes to prioritize the application of scarce resources. Second, as indicated above, such

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[1784] Lamont C. Hempel & Svetlana Morozova, *Science into Policy: Designing Coral Reef Management from the Benthos Up,* 69(2) BULL. MARINE SCI. 945, 961 (2001). Of course, these criteria go beyond narrow conceptions of programmatic effectiveness to include equitable and sustainability considerations. However, any regime that fails to take these factors into consideration is unlikely to maintain its legitimacy, and hence its effectiveness, in the long term.
[1785] ORAN R. YOUNG, THE INSTITUTIONAL DIMENSIONS OF ENVIRONMENTAL CHANGE 12 (2002). *See also* Ronald Mitchell, *Compliance Theory: An Overview, in* Cameron et al., *supra* note 759, at 24-26; Thomas Bernauer, *The Effect of International Environmental Institutions: How We Might Learn More,* 49 INT'L ORG. 351 (352 (1995).

mechanisms can deter free-rider strategies,[1786] enhancing the prospects for maximizing regime participation and Party compliance.[1787] Unfortunately, ineffective monitoring has been a hallmark of environmental governance regimes,[1788] and ACCOBAMS may be heading for a similar fate.

While the text of ACCOBAMS contains several provisions calling on the Parties to conduct monitoring,[1789] these are likely to prove ineffective for several reasons. First, while the primary emphasis in ACCOBAMS is on national monitoring programs, such programs in other MEAs have been plagued by inadequate and untimely reporting.[1790] Moreover, States engaged in self-monitoring "face too many incentives for misrepresentation."[1791] Finally, the monitoring provisions in ACCOBAMS are extremely vague, and while the Parties

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[1786] *See* n.755, *supra* and accompanying text.
[1787] Scott Barrett & Robert Stavins, *Increasing Participation and Compliance in International Climate Change Agreements,* 3 INT'L ENVTL. AGREEMENTS: POL. L. & ECON. 349, 350 (2003).
[1788] List & Rittberger, *supra* note 730, at 87; Sampford, *supra* note 1739, at 86.
[1789] ACCOBAMS, *supra* note 1, at Preamble ("*Acknowledging* that . . . it is necessary . . . for monitoring of these species in order to fully implement conservation measures and "*Acknowledging* further that effective implementation of such an agreement will require that assistance be provided, in a spirit of solidarity, to some Range States for . . . monitoring of cetaceans"); art. VII(3)(d) ("[The Scientific Committee shall] advise on the development and co-ordination of international research and monitoring programmes"]; art. VIII(b) ("[Each party shall . . . prepare for each ordinary session] prepare for each ordinary session of the Meeting of the Parties, beginning with the second session, a report on its implementation of the Agreement with particular reference to . . . monitoring it has undertaken."); art. IX(3) ("The Meeting of the Parties may establish a supplementary conservation fund from voluntary contributions of Parties or from any other source in order to increase the funds available for monitoring . . ."); Annex 2, art. 4(a) (Parties shall, in particular: monitor the status and trends of species covered by this Agreement, especially those in poorly known areas, or species for which little data are available, in order to facilitate the elaboration of conservation measures").
[1790] Malgosia Fitzmaurice-Lachs, *Monitoring Compliance and Enforcement of Compliance Through the Helsinki Convention, in* MARINE ISSUES 80 (Peter Ehlers, Elizabeth Mann-Borgese & Rűdiger Wolfrum eds., 2002).
[1791] Peter M. Haas, *Choosing to Comply: Theorizing from International Relations and Comparative Politics, in* COMMITMENT & COMPLIANCE 54 (Dinah Shelton ed., 2000).

in the Implementation Priorities adopted at 1MOP emphasized the need for monitoring,[1792] these provisions are also vague and wholly underfunded.

Research indicates that organizations imbued with the authority to actively monitor regime compliance are more likely to be effective than those with little or no formal competencies in this context.[1793] Thus, the Parties should adopt a regime monitoring program to provide guidance to, and ensure the adequacy of, national monitoring programs mandated under ACCOBAMS. The program should be developed by the Scientific Committee and administered by the Secretariat.

The approach taken by several other MEAs may be instructive in developing the contours of the program. HELCOM, which seeks to protect the Baltic marine environment from pollution,[1794] has established the Monitoring and Assessment Group (MONAS) to assess pollutant loads and their impacts in the Baltic, coordinate national monitoring programs, and collect the resultant data.[1795] Strict protocols for national monitoring at more than 100 laboratories in the region are established under the Cooperative Monitoring in the Baltic Sea Environment (COMBINE) program, which encompasses physical, biological and chemical variables associated with marine pollution and will soon include monitoring of biodiversity and Baltic protected areas.[1796] Additionally, MONAS is responsible for assessing the effectiveness of national monitoring programs and

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[1792] Resolution 1.9, *supra* note 661, at Action #4; Action #5, Action #12.
[1793] Biermann & Bauer, *supra* note 1742, at 192.
[1794] Helsinki Commission, *About Us,* <http://www.helcom.fi/helcom/aboutus.html>, site visited on Aug. 7, 2002.
[1795] Helsinki Commission, *Monitoring & Assessment Group – HELCOM MONAS,* <http://www.helcom.fi/helcom/groupstaskforce/helcommonas.html>, site visited on Aug. 7, 2002.
[1796] *Id.*

for the establishment of priorities for these programs, as well as identifying and quantifying changes in the environment.[1797]

The Convention on Long-Range Transboundary Air Pollution's (LRTAP)[1798] Cooperative Programme for Monitoring and Evaluation of the Long-Range Transmission of Air Pollutants in Europe (EMEP) seeks to, *inter alia,* ensure adequate monitoring of pollutants regulated under the Convention and its protocols. Similar to MONAS, EMEP establishes guidelines for participating Party monitoring bodies to estimate and report emissions and independently assesses pollution trends, including concentrations of pollutants and exceedances to critical loads and thresholds.[1799] EMEP is also responsible for coordinating its monitoring program with other relevant programs,[1800] such the International Cooperative Programme on Assessment and Monitoring of Air Pollution Effects on Forests.[1801]

The following elements should be incorporated into an ACCOBAMS Monitoring and Assessment Program (AMAP):

1. AMAP, in cooperation with the Scientific Committee and representatives from each Party, will draft monitoring protocols for each Party, as well as Agreement-wide monitoring needs. Specific indicators for monitoring programs will include:

[1797] *Id.*
[1798] Convention on Long-Range Transboundary Air Pollution, Nov. 13, 1979, TIAS No. 10,541, 1302 UNTS 217.
[1799] Convention on Long-Range Transboundary Air Pollution, *What is EMEP?,* <http://www.emep.int/index_facts.html>, site visited on Aug. 7, 2002; Stacy D. VanDeveer, *Ordering Environments: Regions in European International Environmental Cooperation, in* EARTHLY POLITICS 319-322 (Sheila Jasanoff & Marybeth Long Martello eds., 2004).
[1800] Convention on Long-Range Transboundary Air Pollution, *The EMEP Strategy 2000-2009,* <http://www.unece.org/env/emep/strategy_es.html#vision>, site visited on Aug. 7, 2002.
[1801] United Nations Economic & Social Council, *Working Group on Effects,* EB.AIR/WG.1/2002/7 (2002), <http://www.unece.org/env/documents/2002/eb/wg1/eb.air.wg.1.2002.7.e.pdf>, site visited on Aug. 7, 2002.

a. Baselines for cetacean populations and regular surveys to ascertain population trends for discrete stocks in the Agreement Area;
b. Ongoing monitoring and assessment of the status of critical cetacean habitat, nursery and feeding grounds in the Agreement Area;
c. In conjunction with relevant national and regional fisheries bodies, ongoing monitoring of fish stocks identified as important prey species for cetacean. Monitoring should also be conducted on other important non-fish prey species;
d. Monitoring of cetacean behavior and physiological parameters to ascertain potential impacts of anthropogenic stressors, including pollution, climate change, noise and potential impacts of cetacean-watching operations.

2. AMAP, in conjunction with the Scientific Committee, and subject to the approval by the Parties, will establish a schedule for submission of monitoring data in the discrete categories agreed to by the Parties.
   a. Additional data may be requested from the Parties after data submission and suggestions for improved data acquisition may be made to the Parties;
   b. AMAP will provide technical and logistical assistance to help Parties fulfill their reporting tasks;
   c. AMAP will work with the Parties to improve the quality and completeness of monitoring reports, including validation, harmonization, and good practice;
3. Wherever relevant and possible, AMAP will cooperate with other organizations, programs and projects to obtain relevant data;
4. AMAP will compile data on the basis of submitted monitoring reports and make this data widely available to the Parties and other relevant sectors;
5. AMAP will conduct ongoing research on monitoring protocols, modeling, and reporting procedures;
6. AMAP will submit a report six months prior to each Meeting of the Parties on the state of Party monitoring and make recommendations where it deems it appropriate.

7.5.4.1 The Need for Counterfactual Analysis to Conduct Effectiveness Assessments of the Regime

Another critical component of efforts to facilitate assessment of regime effectiveness is the establishment of a framework to conduct counterfactual analysis. A counterfactual analysis "is a comparison of the observed outcome

and the analyst's best guess about the likely course of events if the treaty or commitment or particular institution had not existed."[1802] Such analysis is important because progress that may occur in any given arena may not be a function of the regime that is being studied, but exogenous factors, such as technological breakthroughs, the political efforts of a major state, or concurrent national intervention to address the same issues that are the focus of the regime.[1803] A framework for conducting counterfactual assessments can thus assist the Parties to ACCOBAMS to determine the effectiveness, and thus long-term value of the regime, a critical consideration where scarce resources must be regularly prioritized.

While counterfactual analysis is difficult to conduct,[1804] "it nonetheless seems to be the best tool available to assess the outcome of specific activities of

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[1802] Raustiala, *supra* note 745, at 397.

[1803] George W. Downs, *Constructing Effective Environmental Regimes,* 3 ANN. REV. POL. SCI. 25, 33 (2000); Carsten Helm & Detlef F. Sprinz, *Measuring the Effectiveness of International Environmental Regimes,* Potsdam Institute for Climate Impact Research, PIK Rep. No. 52 (1999), at 7.

[1804] As Weber concludes:

> In fact, what 'would' have happened if a certain conditional factor had been conceived of or modified in a certain way – this question, it will be asserted, is often *not* answerable definitely with any degree of probability by the use of general empirical rules even where the 'ideal' completeness of the source material exists.

Quoted in Thomas Biersteker, *Constructing Historical Counterfactuals to Assess the Consequences of International Regimes, in* Rittberger, *supra* note 6, at 326. Additionally, as Mitchell concludes, data deficiencies are also an imposing barrier to conducting such analyses:

> . . . data useful for distinguishing the influence of regimes from other factors often do not exist or exist but are not well known or readily available. In many cases, data collection begins only after agreements are signed, precluding pre-post analysis. In others, data is not systematically collected with the quality or precision needed. Mitchell, *supra* note 22, at 446.

international environmental organizations."[1805] Some of the methods can can be used to frame such an analysis, include: 1. reviewing documentation on options that were ultimately rejected by the drafters of ACCOBAMS;[1806] 2. going back in time to the latest branching point at which an alternative regime or response to the threats to cetaceans might have been established and seek to assess the potential effectiveness of such responses;[1807] and 3. assessing and including economic, technological, political and other drivers of behavior as explanatory variables in an analysis. These factors may be used as control variables to demonstrate that a covariation between the regime and the outcomes we focus upon persists, or does not persist, after we control for these other factors.[1808]

7.6 Enhance Awareness and Participation by Civil Society Within Party States

The domestic dimension of the operation of regimes is a critical consideration in maximizing their utility:

> Clearly, the way in which states bargain and co-operate cannot be understood except with reference to the changing nature of the state and the domestic political system. State interests are not fixed but vary according to the institutional context, to the degree of organization of the contending political forces within the state and wider political system, and to the leadership capacities.[1809]

[1805] Biermann & Bauer, *supra* note 1742, at 191.
[1806] Hurrell, *supra* note 6, at 70.
[1807] Biersteker, *supra* note 1804, at 334.
[1808] Mitchell, *supra* note 22, at 449.
[1809] Hurrell, *supra* note 6, at 69. *See also,* Tora Skodvin & Steinar Andresen, *Nonstate Influence in the International Whaling Commission, 1970-1990,* 3(4) GLOBAL ENVTL. POL. 61, 67 (2003).

As Haas observes, an important means to bolster the prospects for regime effectiveness is to "enhance national concern, so that government are held accountable by their populations for complying with international obligations . . ."[1810] Thus, every effort should be made to engender the participation of civil society within Party States, as well as prospective members, of ACCOBAMS.

In using the term "civil society" here I adopt the expansive definition of the Commission on Sustainable Development, which includes under this rubric not only citizen actors, but also several other sectors germane to efforts to address the primary threats to cetaceans: local authorities; non-governmental organizations; workers and trade unions; the scientific and technological community and business and industry.[1811]

Civil society's awareness of and involvement in the operation of treaty regimes can provide substantial impetus for treaty compliance and implementation,[1812] as well as for the development and enforcement of domestic environmental regulation.[1813] A critical aspect of this process is ensuring that "international norms resonate and are considered legitimate locally."[1814] Ultimately, this can result in international norms becoming embedded in domestic

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[1810] Haas, *supra* note 9, at 186. *See also Regime Effectiveness: Taking Stock*, *supra* note 769, at 276.
[1811] Barbara Gemmill & Adimbola Bamidele-Izu, *The Role of NGOs and Civil Society in Global Environmental Governance, in* GLOBAL ENVIRONMENTAL GOVERNANCE 4 (Daniel C. Esty & Maria H. Ivanova eds., 2002). *See also* Lakshman D. Guruswamy, *Cartography of Governance: An Introduction,* 13 COLO. J. INT'L L. & POL'Y 1, 3 (2002).
[1812] Dannenmaier & Cohen, *supra* note 1765, at 20; Hurell, *supra* note 6, at 71.
[1813] Salvatore Bimonte, *Information Access, Income Distribution, and the Environmental Kuznets Curve,* 41 ECOLOGICAL ECON. 145, 152 (2002).
[1814] Sonia Cardenas, *Norm Collision: Explaining the Effects of International Human Rights Pressure on State Behavior,* 6(2) INT'L STUDIES REV. 213, 215 (2004).

legal and political processes, "creating not only compliance but obedience."[1815] Civil society actors are important mediums for the transference of domestic norms and values to treaty making fora.[1816] In a broad sense, efforts must focus on inculcating civil society in the Agreement Area with the norm of global interdependence and the implications of this norm for cetacean conservation. As Hurrell notes, such a vision can "increase the weight given to aggregate global utility and lead policy-makers to act against narrow, short-term definitions of national self-interest."[1817]

Research supports efforts to engender stakeholder involvement because "the chance of becoming actually involved tends to increase stakeholders' willingness to co-operate and ultimately their commitment to the successful implementation of a policy."[1818] In addition to increasing commitment to the objectives of regimes and implementation of their mandates,[1819] civil society participation in issues related to treaty implementation can "catalyze previously untapped private- and voluntary-sector resources . . . and encourage the sharing of information and different perspectives among the many participants."[1820] Moreover, "where civil society . . . has specific expertise, its monitoring

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[1815] Raustiala, *supra* note 745, at 406. *See also* Hurrell, *supra* note 6, at 66.
[1816] W. Bradnee Chambers, *Towards an Improved Understanding of Legal Effectiveness of International Environmental Treaties,* 16 GEO. INT'L ENVTL. L. REV. 501, 526 (2004).
[1817] Hurrell, *supra* note 6, at 66. *See also* Andrew Cortell & James W. Davis, Jr., *Understanding the Domestic Impact of International Norms: A Research Agenda,* 2 INT'L STUD. REV. 65-87 (2000).
[1818] Biermann & Bauer, *supra* note 1742, at 192.
[1819] Karin Bäckstrand, *Civic Science for Sustainability: Reframing the Role of Experts, Policy-Makers and Citizens in Environmental Governance,* 3(4) GLOBAL ENVTL. POL. 24, 38 (2004); Harriet Bulkeley & Arthur P. Mol, *Participation and Environmental Governance: Consensus, Ambivalence and Debate,* 12 ENVTL. VALUES 143, 151 (2003); UNEP, *supra* note 175, at 26; Biermann & Bauer, *supra* note 1742, at 192.
[1820] EDWARD P. WEBER, BRINGING SOCIETY BACK IN 247 (2003).

capabilities can enhance transparency, increase certainty, and promote compliance."[1821]

While the implementation priorities established by the Parties at 1MOP emphasize at several junctures the need for public education and involvement,[1822] no specific programs were established to effectuate this, nor did public outreach efforts even warrant a line item in the budget promulgated at the meeting. This is despite substantial evidence that lack of public involvement and awareness of programs has been a serious impediment to the effectiveness of other environmental regimes in the region.[1823]

The Parties should commit themselves to national programs to engender public support for implementation of ACCOBAMS. Some of the specific means to engender meaningful public awareness and participation are suggested in the following sections.

7.6.1 Efforts to Foster Regime Transparency.

In the context of treaties, "transparency" can be defined as:

> . . . the adequacy, accuracy, availability, and accessibility of knowledge and information about the policies and activities of parties to the treaty, and of the central organizations established by it on matters relevant to compliance and effectiveness, and about the operation of the norms, rules, and procedures established by the treaty.[1824]

[1821] Glenn Wiser, *Compliance Systems Under Multilateral Agreements. A Survey for the Benefit of Kyoto Protocol Policy Makers* (CC99-2), Center for International Environmental Law (1999), at 4. *See also* Neenah Estrella-Luna, *Public Participation in Environmental Decision-Making,* 22 DEL. LAW. 11, 11-12 (2004).

[1822] ACCOBAMS Secretariat, *supra* note 61, at Resolution 1.9, Annex 1, *International Implementation Priorities,* Actions No. 4, 6.

[1823] Sampson, *supra* note 958, at 68-9.

[1824] Abram Chayes et al., *Managing Compliance: A Comparative Perspective, in* ENGAGING COUNTRIES: STRENGTHENING COMPLIANCE WITH INTERNATIONAL ENVIRONMENTAL ACCORDS, 39, 41 (Edith Brown Weiss & Harold K. Jacobson eds., 1998).

Transparency is a critical component of efforts to engender compliance with international environmental regimes. "Transparency makes non-compliance more apparent to the public, NGOs, and other member countries and makes it easier for international and domestic actors to take actions to encourage and enforce accountability and compliance."[1825] Moreover, effective transparency mechanisms foster compliance vis-à-vis other parties to regimes by facilitating observation of deviations from regime mandates, which can lead to pressure against the non-complying party.[1826] Also, transparency provides reassurance that other parties are not "free riding,"[1827] helping to foster overall compliance with regimes.[1828]

The treaty's objectives and national efforts to implement the agreement should be promoted through media campaigns, open meetings, initiatives to make treaty-related documents easily available, and efforts to engender public participation. This is particularly important in the Black Sea region where information about the status of cetaceans and the threats that they face, as well as conservation initiatives, is poorly disseminated and little known beyond cetacean researchers.[1829]

[1825] Mark R. Goldschmidt, *The Role of Transparency and Public Participation in International Environmental Agreements: The North American Agreement on Environmental Cooperation,* 29 B.C. ENVTL. AFF. L. REV. 343, 349 (2002).
[1826] *Id.* "[E]ven when direct retaliation seems unlikely, exposure alone can cause behavior to change." Chayes, *supra* note 1824, at 44.
[1827] Harold K. Jacobson & Edith Brown Weiss, *Assessing the Record and Designing Strategies to Engage Countries, in* Weiss & Jacobson, *supra* note 1824, at 549.
[1828] Goldschmidt, *supra* note 1825, at 349-50.
[1829] Birkun, *supra* note 653, at 98.

A particularly salutary way to further all of these objectives would be to encourage adherence to and effective implementation by ACCOBAMS Parties of the United Nations Economic Commission for Europe's Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (the Aarhus Convention).[1830] The Convention entered into force in 2001 and currently has 33 Parties, including four Black Sea States[1831] and 11 Mediterranean States.[1832] The European Commission has proposed a regulation to apply the Aarhus Convention's rules to European Union

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[1830] 38 I.L.M. 517 (1999), <http://www.unece.org/env/pp/ctreaty.htm>, site visited on Feb. 1, 2005 (hereinafter *Aarhus Convention*).

[1831] Bulgaria, Georgia, Romania, and Ukraine.

[1832] Albania, Croatia, France, Greece, Italy, Malta, Monaco, Portugal, Slovenia, Spain and the United Kingdom (Gibraltar and the two Sovereign Base Areas of Akrotiri and Dhekelia in the island of Cyprus). UNECE, *Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters*, <http://www.unece.org/env/pp/welcome.html>, site visited on Dec. 30, 2003. The European Commission, which is a signatory to the Aarhus Convention but has not yet ratified it, has also recently proposed a package of legislative proposals to align Community legislation with the Convention. These include:

- A proposal for a Directive of the European Parliament and the Council on access to justice in environmental matters;
- A proposal for a Regulation of the European Parliament and Council on the application of the provisions of the Aarhus Convention on Access to information, Public Participation in Decision-making and Access to Justice in Environmental Matters to EC institutions and bodies;
- A proposal for a Council Decision on the conclusion, on behalf of the European Community, of the Convention on access to information, public participation in decision-making and access to justice regarding environmental matters.

Europa – Environment, *The Aarhus Convention,* <http://europa.eu.int/comm/environment/aarhus/index.htm>, site visited on May 29, 2004. The Commission has also adopted a proposal for a Council decision to approve the Convention. Commission of the European Communities, *Proposal for Council Decision on the Conclusion, on Behalf of the European Community, of the Convention on Access to Information, Public Participation in Decision Making and Access to Justice Regarding Environmental Matters,* COM(2003) 625 Final, <http://europa.eu.int/eur-lex/en/com/pdf/2003/com2003_0625en01.pdf>.

Institutions[1833] and it has also put forth a proposal for a Council decision for the EU to become a Party to the Convention.[1834]

Under the Convention, each Party agrees to "guarantee the rights of access [by the public] to information, public participation in decision-making, and access to justice in environmental matters . . ."[1835] This objective is to be effectuated by, *inter alia,* ensuring public access to environmental information,[1836] establishing mandatory systems to ensure public access to information about "activities which may significantly affect the environment,"[1837] fostering public participation in decisions on a number of specific activities with potentially substantial environmental impacts;[1838] and ensuring access to judicial or administrative redress for environmental grievances.[1839] Moreover, the Aarhus Convention contains a provision requiring parties to promote transparency and participation in "international environmental decision-making processes and within the framework of international organizations in matters relating to the environment."[1840]

[1833] Commission of the European Communities, *Proposal for a Regulation of the European Parliament and of the Council on the Application of the Provisions of the Århus Convention on Access to Information, Public Participation in Decion-Making and Access to Justice in Environmental Matters toEC Institutions and Bodies,* COM(2003) 622 Final, <http://europa.eu.int/eur-lex/en/com/pdf/2003/com2003_0622en01.pdf>, site visited on Sept. 3, 2004.

[1834] Commission of the European Communities, *Proposal for a Council Decision on the Conclusion, on Behalf of the European Community, of the Convention on Access to Information, Public Participation indecision Making and Access to Justice Regarding Environmental Matters,* <http://europa.eu.int/eur-lex/en/com/pdf/2003/com2003_0625en01.pdf>, site visited on Sept. 3, 2004.

[1835] *Aarhus Convention, supra* note 1830, at art. 1.

[1836] *Id.* at art. 4.

[1837] *Id.* at art. 5.

[1838] *Id.* at art. 6.

[1839] *Id.* at art. 9.

[1840] *Id.* at art. 3(7).

The Aarhus Convention has been criticized for the vagueness of many of its provisions,[1841] as well as the alleged weakness of its compliance mechanisms and the failure of some Parties to fully comply with its provision.[1842] However, it does provide an excellent framework for addressing participation issues. Moreover, many of the problems with implementation may be resolved, at least in ACCOBAMS Parties that are members of the EU, through a package of legislative proposals to align European Community legislation with the requirements of the Convention.[1843]

A good potential source of funding for such efforts is the Regional Environmental Center for Central and Eastern Europe (REC).[1844] REC has funded a number of other similar programs in recent years, including an initiative

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[1841] Sean T. McAllister, *Human Rights and the Environment: The Convention on Access to Information, Public Participation in Decision-Making, and Access to Justice in Environmental Matters,* 1998 COLO. J. INT'L ENVTL. L. Y.B. 187, 188.

[1842] ROBYN ECKERSLEY, THE GREEN STATE 194 (2004); Madolna Toch Nagy, *Achievements and Challenges for NGOs and Citizens to Implement the Aarhus Convention in New EU Member States,* The Århus Convention and the Citizen Conference, Brussels, 5-6 July 2004, <http://europa.eu.int/comm./environment/aarhus/pdf/madolna_toth_nagy.pdf>, site visited on Sept. 3, 2004.

[1843] These proposals are: Directive 2003/4/EC of the European Parliament and of the Council of 28 January 2003 on Public Access to Environmental Information and Repealing Council Directive 90/313/EEC, L/41/26, <http://europea.eu.int/eur-lex/pri/en/oj/data/2003/l_04/l_04120030214en00250032.pdf>, site visited on Sept. 3, 2004; Directive 2003/35/EC of the European Parliament and of the Council of 26 May 2003 Providing for Public Participation in Respect of the Drawing up of Certain Plans and Programmes Relating to the Environment and Amending with Regard to Public Participation and Access to Justice Council Directive 85/337/EEC and 96/61/EC, L 156/17, <http://europa.eu.int./eur-lex/pri/en/oj/dat/l_56/l_15620030524en00170024.pdf>, site visited Sept. 3, 2004; and the European Commission's Proposal for a Directive of the European Parliament and of the Council on Access to Justice in Environmental Matters, COM(2003) 624 final, <http://europa.eu.int./eur-lex/en/com/pdf/2003/com2003_0624en01.pdf>, site visited Sept. 3, 2004.

The Aarhus Convention has also established a Compliance Committee to facilitate the development of a Party compliance review mechanism, as mandated under Article 15 of the Convention. United Nations Econoic Commission for Europe, *Compliance Committee,* <http://www.unece.org/env/pp/co0mpliance.htm>, site visited on Sept. 3, 2004.

[1844] Regional Environmental Center for Central and Eastern Europe, <http://www.rec.org>, site visited on Dec. 4, 2004.

to support access to public information and participation in environmental decision making in the Danube Basin,[1845] and support for implementation of the Aarhus Convention in Central and Eastern European States.[1846]

Governments and NGOs in the ACCOBAMS agreement area should also consider joining the Partnership for Principle 10 (PP10). PP10 is committed to translating the principles outlined in Principle 10 of the Rio Declaration on Environment and Development,[1847] which grew out of the 1992 United Nations Conference on Environment and Development. These principles include public access to information, participation in decision-making, and access to justice.[1848] PP10 is comprised of governments, international institutions and non-governmental organizations that establish shared agreements to operationalize Principle 10.[1849] Its activities include the development of a set of indicators to assess how well governments are performing at providing access to information, participation, and justice in decision-making,[1850] and development and promulgation of best practices in environmental governance in this context.[1851]

[1845] *Id.* at <http://www.rec.org/REC/Programs/PublicParticipation/DanubeRiverBasin/default.html>, site visited on Dec. 4, 2004.
[1846] *Id.* at <http://www.rec.org/REC/Programs/PublicParticipation.html>, site visited on Dec. 4, 2004.
[1847] Rio Declaration on Environment & Development, <http://www.unep.org/Documents/Default.asp?DocumentID=78&ArticleID=1163>, site visited on Feb. 14, 2005.
[1848] Partnership for Principle 10, *Overview,* <http://www.pp10.org/index.htm>, site visited on Feb. 14, 2005.
[1849] *Id.*, *Partners and Commitments,* <http://www.pp10.org/partners.htm>, site visited on Feb. 14, 2005.
[1850] *Id.*, *The Access Initiative and PP10,* <http://www.pp10.org/tai.htm>, site visited on Feb. 14, 2005.
[1851] *Id.*, *UK Expands Public Access to Environmental Decision-Making,* <http://www.pp10.org/PP10_Revised.doc>, site visited on Feb. 14, 2005.

7.6.2 Policy-making

As one commentator recently noted, "environmental governance is no longer understood as a function exclusively performed by governments," but rather is most effectively conducted by governments and international organizations striving to establish working relationships with businesses and other sectors of civil society.[1852] Network-style and bottom-up forms of policy formulation and implementation enhance the prospects for successful treaty implementation by facilitating support and a sense of ownership by implementing actors and opening up channels of communication with critical stakeholders, e.g. industry and the general public.[1853] Citizen input into the design of policies to engender compliance with the treaty and its implementation should be facilitated through public hearings, open meetings and notice and comment rulemaking. ACCOBAMS States should in particular consider experimenting with methods to engender citizen participation in decision making. This should include strategies to engender "deliberative democracy." As Van Tatenhove explains, deliberative democracy seeks to engender "argumentative consultation and a collective learning process in which participants (e.g. citizens, governments, NGOs) are not representatives of specific interests, but are aiming at correcting and

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[1852] Jan Martin Witte, Charlotte Streck & Thorsten Benner, Global Policy Institute Environmental Research Portfolio, *the Road from Johannesburg: What Future for Partnerships in Global Environmental Governance?* (2003), at 2.

[1853] *Id.* at 84. *See also,* David P. Robertson & R. Bruce Hall, *Public Ecology: An Environmental Science and Policy for Global Society,* 6 ENVTL. SCI. & POL'Y 399, 406 (2003).

reconsidering each other points of view."[1854] Such a process, if constructed effectively, can be transformative. As Eckersley observes:

> Public spirited political deliberation is the process by which we *learn* of our dependence on others (and the environment) and the process by which we learn to recognize and respect differently situated others (including nonhuman others and future generations). It is the activity through which citizens consciously create a common life and a common future together, including the ecosystem health and integrity that literally sustain us all.[1855]

One approach in this context may be the use of "citizen juries" or "planning cells," in which a group of randomly selected citizens hear from witnesses, deliberate on issues and report to the broader community.[1856] ACCOBAMS should also consider adopting the approach taken by the Organization of Economic Cooperation and Development (OECD), which has established business and trade union advisory committees that interact with government bodies and are permitted to make recommendations.[1857]

7.6.3 Monitoring and Verification.

[1854] Van Tatenhove, *supra* note 23, at 161.

[1855] Eckersley, *supra* note 1842, at 115. *See also,* James Meadowcraft, *Deliberative Democracy in* ENVIRONMENTAL GOVERNANCE RECONSIDERED 183-217 (Robert F. Durant, Daniel J. Fiorino & Rosemary O'Leary eds., 2004).

[1856] Jefferson Center, *Citizens Jury on Climate Change,* <http://www.jefferson-center.org/citizens_jury_on_climate_change_.htm>, site visited on Aug. 15, 2003; Tom Wakeford, *Citizens Juries: A Radical Alternative for Social Research,* University of Surrey, Social Update Research, Issue No. 37; D. Dunkerley & P. Glasner, *Empowering the Public? Citizens Juries and the New Genetic Technologies*, 8 CRITICAL PUBLIC HEALTH 181-192 (1998). Citizen juries and other forms of participatory discourse are most appropriate for developing solutions compatible with interests and values of potentially affected individuals and groups and resolving potential conflicts. Andreas Klinke & Ortwin Renn, *A New Approach to Risk Evaluation and Management: Risk-Based, Precaution-Based, and Discourse-Based Strategies,* 22(6) RISK ANALYSIS 1071, 1090 (2002).

[1857] United Nations University, *International Environmental Governance* 14 (2002), <http://www.ias.unu.edu/binaries/NYPrepComReport3.pdf>, site visited on Mar. 8, 2004.

"Citizen monitoring can increase efficiencies by reducing the burden on governments otherwise charged with data collecting."[1858] Additionally, given the fact that States are extremely reluctant to blow the whistle on other governments,[1859] domestic groups, acting domestically or transnatiannly, are often responsible for a substantial portion of the monitoring of international regimes.[1860] This may be particularly important in ACCOBAMS Member States with serious resource constraints for conducting such activities.

7.6.4. Citizen Suits

While foreign to the legal systems of many Parties, Member States should consider according citizens legal standing to seek relief for environmental threats or injuries as a means of enhancing enforcement of environmental statutes and regulations, including those germane to ensuring successful implementation of ACCOBAMS.[1861]

7.6.5 Enhance the Capacity of Non-Governmental Organization and Expand Their Orientation

Environmental non-governmental organizations (ENGOs)[1862] have played an increasingly active role in international environmental regimes over the past

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[1858] Dannenmaier & Cohen, *supra* note 1765, at 21.
[1859] von Moltke, *supra* note 757 and accompanying text.
[1860] Hurrell, *supra* note 6, at 71.
[1861] WORLD RESOURCES INSTITUTE, *World Resources 2002-2004: Decisions for the Earth: Balance, Voice, and Power* 49 (2003).
[1862] While the term "non-governmental organization" in the broadest sense encompasses a wide array of sectors, including business groups, members of the academic community, individuals, scientific organizations, and non-profit groups and associations, PHILIPPE SANDS, PRINCIPLES OF INTERNATIONAL ENVIRONMENTAL LAW: FRAMEWORKS, STANDARDS, & IMPLEMENTATION 95 (1995), I adopt the definition of Peel that restricts the term to "groups and associations that derive their legitimacy in the international arena, at least in principle, from their close link with general public constituencies. Jacqueline Peel, *Giving the Public a Voice in the Protection of the Global Environment: Avenues for Participation by NGOs in Dispute Resolution at the European Court of*

few decades.[1863] ENGOs now often "serve as active, legitimate co-participants and 'full partners' in the design and implementation of policies."[1864]

ENGOs perform several important functions in regimes. These include serving as independent sources of information and data that can be used by a regime,[1865] helping to develop regime capacity through techniques such as training;[1866] raising public awareness about the issues addressed by regimes,[1867] lobbying policymakers at both the international and domestic level,[1868] and, where non-compliance occurs, "they are key to public exposure, shaming, and popular political response."[1869]

Unfortunately, to date the major ENGOs that focus on cetacean issues, including World Wildlife Fund, Greenpeace, and the Humane Society of the United States, have either demonstrated a tepid commitment to helping to make ACCOBAMS viable, or haven't participated at all. This may not be surprising, as ENGOs have

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Justice and World Trade Organization, 12 COLO. J. INT'L ENVTL. L. & POL'Y 47, 48 (2001). I utilize this definition because I believe that such groups are most likely to contribute to the successful operationalization of ACCOBAMS at the national and international level. It should also be emphasized that while I refer only to "environmental" NGOs in this section, there are some NGOs that may focus on a broader, or different, set of issues, such as sustainable development or human rights, that might also play an important role in the ACCOBAMS regime.

[1863] J.P. Richards & J. Heard, *European Environmental NGOs: Issues, Resources and Strategies in Marine Campaigns,* 14(1) ENVT'L POL. 23, 24 (2005).

[1864] Bradley C. Karkkainen, *Post-Sovereign Environmental Governance,* 4(1) GLOBAL ENVT'L POL. 72, 90 (2004).

[1865] Chayes & Chayes, *supra* note 750, at 251.

[1866] Sarah Muscat, *Training on Stranding Rescue Techniques in Malta,* 1(1) FINS 11 (Mar. 2004).

[1867] Farhana Yamin, *NGOs and International Environmental Law: A Critical Evaluation of Their Roles and Responsibilities,* 10(2) REV. EUR. COMM. & INT'L ENVTL. L. 149, 153 (2001); Hilary French, *Coping with Ecological Globalization,* STATE OF THE WORLD 2000 (2000), at 202.

[1868] Yamin, *supra* note 1867, at 157-59.

[1869] CHAYES & CHAYES, *supra* note 750, at 251. *See also* Susan D. Daggett, *NGOs as Lawmakers, Watchdogs, Whistle-blowers, and Private Attorneys General,* 13 COLO. J. INT'L ENVT'L L & POL'Y 99, 105 (2002).

demonstrated very little resolve to bolster CMS institutions generally,[1870] but it is lamentable given the tremendous influence these ENGOs have exerted in other wildlife regimes, including those that focus on cetacean conservation and management issues.[1871]

Additionally, to date, the ENGOs that have participated in the ACCOBAMS regime have focused on assisting the regime in scientific research and capacity building. Among the projects that ENGOs have spearheaded or collaborated in with the Parties to ACCOBAMS include the following:

- Serving as Invited Participants in meetings and workshops held by the Scientific Committee, such as the recently held workshop to develop a program for population surveys in the Agreement Area;[1872]
- Assisting in the development of the conservation plan for short-beaked common dolphins in the Mediterranean Sea;[1873]
- Assisting in the conducting of surveys, such as the sperm whale survey in the Mediterranean;[1874]
- Conducting training programs in areas such as stranding rescues and proper techniques for conducting photoidentification surveys.[1875]

The importance of this assistance cannot be underestimated given the egregiously limited resources of the regime and Party States. However, it appears that ENGOs involved in the regime are failing to monitor Party compliance with ACCOBAMS and appear chary to criticize Parties where

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[1870] Lanchberry, *supra* note 758, at 75.
[1871] *See* note 1878, *infra*; Barbara Gemmill & Abimbola Bamidele-Izu, *The Role of NGOs and Civil Society in Global Environmental Governance, in* Esty & Ivanova, *supra* note 1811, at 12.
[1872] *Where Are They and How Many? Moving Towards a Major ACCOBAMS Survey,* Doc. 2/Doc. 50, 2MOP, *supra* note **Error! Bookmark not defined.**.
[1873] *Conservation Plan for Shortbeaked Common Dolphins in the Mediterranean Sea, supra* note 61.
[1874] Marie-Christine Van Klaveren, *News from the Secretariat,* 1(1) FINS 9 (Mar. 2004).
[1875] Muscat, *supra* note 1866, at 11; Alexei Birkun, Jr., *supra* note 432, at 12.

criticism appears warranted, such as the failure to provide adequate funding to develop effective conservation plans and an overemphasis on research over action.[1876]

This is unfortunate, because empirical research on regimes indicates that the "whistleblowing" and public mobilization functions of ENGOs may be their most important role within regimes,[1877] and, more specifically, have proven critical in cetacean regimes.[1878] As Koutalakis observed recently in assessing the role of ENGOs in the European Union's environmental policymaking arena:

> Adjustment costs imposed by EU policies shape the incentives of domestic actors to undermine effective domestic implementation of EU policies. Cost/benefit considerations of domestic actors are affected by a number of counter factors such as the effectiveness of monitoring and enforcement mechanisms and the impact of non-compliant behaviour on the country's reputation as a 'good European' or 'laggard' in environmental performance. Non-state actors' activism is a crucial factor that affects cost benefit considerations of domestic actors regarding compliance with with EU law by increasing the costs of non-compliance through the mobilization of domestic support for policy change . . . This can be achieved nont only through the use of pressure activities such as media campaigns, protects.[1879]

It is unclear why ENGOs have failed to fulfill this role within the ACCOBAMS regime to date. States and international institutions may have a strategic interest in limiting the role of ENGOs to "input and

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[1876] *See* secs. 4.8.1 & 4.8.2, *supra*.
[1877] Sonia Cardenas, *Norm Collision: Explaining the Effects of International Human Rights Pressure on State Behavior,* 6(2) INT'L STUDIES REV. 213, 215 (2004); Andreas Tjernshaugen & Ho-Ching Lee, *Shaming and Framing: Norwegian Nongovernmental Organizations in the Climate Change Negotiations,* CICERO Working Paper 2004:09 (2004), at 15.
[1878] CHAYES & CHAYES, *supra* note 750, at 265; Sali Jayne Bache & Nathan Evans, *Dolphin, Albatross and Commercial Fishing: Australia's Response to an Unpalatable Mix,* 23(3) MARINE POL'Y 259, 262 (1999).
[1879] Charalampos Koutalakis, *Environmental Compliance in Italy and Greece: The Role of Non-State Actors,* 13(4) ENVTL. POL. 754, 757 (2004).

implementation functions" while reserving monitoring and compliance functions to themselves.[1880] One possibility is that the Parties and Secretariat have intentionally, or unintentionally, sought to coopt participating ENGOs through techniques such as the "Partners" designation for ENGOs[1881] and enlistment of ENGOs in research programs. Or it simply may be that ENGOs have become coopted by too much direct collaboration with Party States in such programs.[1882]

Either way, it would be advisable for at least some of the ENGOs participating in the ACCOBAMS regime to consider the possibility of taking a more active role in monitoring and compliance functions and establishing a bit more distance between themselves and the Parties. A more independent stance by ENGOs would also yield the additional benefit of engendering more support by "potential popular bases who still mistrust government and favour a more critical, mobilization politics."[1883]

[1880] Ludivine Tamiotti & Matthias Finger, *Environmental Organizations: Changing Roles and Functions in Global Politics,* 1(1) GLOBAL ENVTL. POL. 56, 73 (2001); Kathryn Hochstetler, Ann Marie Clark & Elisabeth Friedman, *Sovereignty in the Balance: Claims and Bargains at the UN Conferences on the Environment, Human Rights, and Women,* 44 INT'L STUDIES Q. 591, 592 (2000).

[1881] *See supra* note 662 and accompanying text.

[1882] As Tamiotti & Finger observe:

> [NGO] involvement in international institutions and structures provides them with an opportunity to influence decision-making processes and outcomes while increasing their viability, but it also leads to a risk of cooptation not only by governments, but also by multilateral actors and TNCs. Tamiotti & Finger, *supra* note 1880, at 73.

[1883] Barbara Hicks, *Setting Agendas and Shaping Activism: EU Influence on Central and Eastern European Environmental Movements,* 13(1) ENVTL. POL. 216, 218 (2004). *See also* Yael Wolinksy-Nahmias, *The Environmental Movement and the Greening of the State,* 6(2) INT'L STUDIES REV. 275, 276 (2004).

Moreover, it would enhance the normative force of ENGO statements and arguments by bolstering their legitimacy.[1884]

7.7 Consolidation of MEAs?

As two commentators recently concluded, "[t]he proliferation of MEAs, and their COPs and interim meetings . . . makes it difficult for smaller and poorer countries to become effectively involved in the real decision-making."[1885] "Treaty congestion" or "regime saturation" manifests itself, *inter alia,* in overwhelming States that lack the staff and financial resources to effectively handle all of the procedural requirements under a burgeoning array of treaty regimes, including reporting requirements.[1886] This is clearly a serious consideration for many Mediterranean and Black Sea States given their severe resource constraints. Additionally, as Najam et al. recently observed, "[m]ultiple treaties within the same broad arena, or treaty balkanization, can cut the issue 'too thin' and

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[1884] David Humphreys, *Redefining the Issues: NGO Influence on International Forest Negotiations,* 4(2) GLOBAL ENVTL. POL. 51, 70 (2004); Tamiotti & Finger, *supra* note 1880, at 69.

[1885] Hyvarinen & Brack, *supra* note 1728, at 33; Comment, *Treaty Congestion in International Environmental Law: The Need for Greater International Coordination,* 32 U. RICH. L. REV. 1643, 1647 (1999). "The earliest multilateral treaty related to the environment dates back to 1868. Since then, the number has risen to at least 502 international treaties and other agreements related to the environment, of which 323 are regional." United Nations Environment Programme, *Multilateral Environmental Agreements: A Summary,* Open-Ended Intergovernmental Group of Ministers or their Representatives on International Environmental Governance, UNEP/IGM/INF/1 (2001), <http://www.unep.org/ieg/docs/working%20documents/MEA_summary/IGM-1-INF-1.doc>, site visited on Aug. 18, 2003, at 2.

[1886] Comment, supra note 1885, at 1647-48; Peter M. Haas, *Addressing the Global Governance Deficit,* 4(4) GLOBAL ENVTL. POL. 1, 11 (2004). *See also* Gulnara Roll & Evelin Lopman, *EU Water Policy and Implementation of Water Management Regimes on Transboundary Waters in the Baltic Sea Basin, in* Proceedings of the 2001 Berlin Conference on the Human Dimensions of Global Environmental Change, Global Environmental Change and the Nation State, Potsdam Institute for Climate Impact Research, at 281-287, <http://www.fu-berlin.de/ffu/akumwelt/bc2001/files/roll.pdf>, site visited on Feb. 1, 2003.

thereby miss out on critical connections and relationships."[1887] This can obviate efforts to achieve ecologically interegrated decisionmaking, which is a critical consideration for any successful cetacean conservation initiative.

Ultimately, Mediterranean and Black Sea States may wish to explore the possibility of "clustering"[1888] ACCOBAMS with the Barcelona and Bucharest Conventions, respectively, as well as with regional fisheries conventions. Proposals for clustering range from consolidating certain organizational elements of multilateral environmental agreements, such as conferences of the parties, to clustering common functions of regimes, such as scientific and technological assessments, monitoring regimes, reporting obligations, implementation reviews, and supporting activities, such as capacity building.[1889] For example, since the late 1990s, the European Environment Agency, the European Commission, HELCOM and OSPAR have sought to standardize reporting requirements, monitoring systems and data gathering and calibration procedures, with the hope of simultaneously improving data quality and availability, and reducing the administrative burden on State officials.[1890]

It might be worthwhile to explore an even broader approach that would create comprehensive environmental regimes for the Black and Mediterranean Sea regions, respectively. The Barcelona Convention is arguably already well

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[1887] Adil Najam, Ioli Christopoulous & William R. Moomaw, *The Emergent 'System' of Global Environmental Governance,* 4(4) GLOBAL ENVTL. POL. 23, 29 (2004).
[1888] "Generally speaking, 'clustering' has been defined as 'grouping a number of international environmental regimes together so as to make them more efficient and effective," Konrad von Moltke, *On Clustering International Environmental Agreements,* IISD, June, 2001, at 3, <http://iisd.ca/pdf/trade_clustering_meas.Pdf>, site visited on May 29, 2004.
[1889] *Id.* at 320-25; World Resources Institute, *supra* note 1861, at 155.
[1890] Selin & VanDeveer, *supra* note 1144.

positioned to assume such a role given its evolution through amendment of the primary agreement and development of protocols to address a wide array of threats to ocean ecosystems and species, including cetaceans.[1891]

While the threat that such consolidated institutions might evolve into inefficient, lumbering bureaucracies cannot be blithely discounted, it is likely that the benefits of this approach would eclipse such concerns. First, consolidation of regional regimes would likely reduce the onerous nature of reporting requirements on Contracting Parties given the substantial redundancies of requested information between regimes. Second, consolidated regimes might develop a better understanding of the interconnectedness of the components that make up regional ecosystems and human institutions, leading to sounder conservation and management decision making.[1892] Third, as Abbott observes, clustering a number of related issues or regimes under a single regime "also facilitates side payments: more potential *quids* are available for the *quo*":[1893]

> Since national bureaucracies are often organized along the lines of the international regimes in which they deal, it may be easier to gain domestic approval of side payments negotiated in a single forum. When regimes themselves are nested or linked, 'crossover' payments are facilitated in similar ways.[1894]

Finally, from a regimes perspective, combining regimes may enhance the prospects for State compliance by contributing to rule "coherence:"

[1891] *See* sec. 5.2, *supra*.
[1892] Steiner, *supra* note 1442, at 233.
[1893] Kenneth W. Abbott, *Modern International Relations Theory: A Prospectus for International Lawyers,* 14 YALE J. INT'L L. 335, 400 (1989).
[1894] *Id.*

> The concept of *coherence* refers to the interconnectedness of individual rules through higher-order principles. Coherence thus expresses how closely a rule is related to the 'underlying rule-skein which connects disparate *ad hoc* arrangements into a network of rules governing a community of states, the members of which perceive the coherent rule system's powerful pull towards voluntary compliance.[1895]

However, any clustering initiatives should proceed incrementally to facilitate empirical testing of the purported benefits of this approach and to engender political support between the respective regimes and Parties involved in the effort.[1896] This is particularly important given the salience of the latter consideration. It must be acknowledged that efforts at consolidation of regimes or regime functions could very well be scuppered by institutional resistance by the bureaucracies of the respective regimes that we may contemplate integrating:

> [W]hen different organizations are viewed as serving different constituencies, the constituencies have strong interests in keeping each organization alive and in assuring that it has role in maintaining environmental cooperation . . . Multiple agencies also serve governments' interests because they permit "forum shopping" either to affect problem definition and agenda setting by taking issues to one organization rather than another . . . or to search for an organization willing to extend aid on terms preferred by the recipient . . . thus, dreams of a fully "rational" set of intergovernmental organizations are unlikely to materialize.[1897]

There may also be similar resistance by national bureaucracies that perceive that they would "lose" in the process of consolidation of regimes.[1898]

[1895] HASENCLEVER, et al., *supra* note 17, at 172.
[1896] United Nations University, *supra* note 1857, at 14.
[1897] Peterson, *supra* note 756, at 149-50.
[1898] Robert O. Keohane, *The Demand for International Regimes, in* Krasner, *supra* note 8, at 157.

A good initial step might be to establish coordination structures for the convening of joint meetings between relevant regimes in the region, additional memoranda of understanding, joint implementation of common activities and the establishment of common communication networks. Should these efforts bear fruit, more formal structures of coordination can subsequently be established.[1899]

7.8 Establish a Black Sea Fisheries Convention

As indicated earlier, both overfishing of cetacean prey species and bycatch in fishing operations pose grave threats to the viability of many cetacean species in the Black Sea.[1900] Thus, there is a compelling case for adoption and quick ratification of the proposed Convention for Fisheries and Conservation of Living Resources of the Black Sea.[1901]

Among the pressing tasks for the new body that would be established to implement the Convention would include: conducting comprehensive fish stock assessments, establishing stock-specific target and limit reference points for major stocks in the region, developing methodologies for assessments of

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[1899] *Id.*

[1900] *See supra* notes 431-440 & 469-507.

[1901] *See supra* note 1425. As indicated, *supra,* sec. 5.8, the GFCM's jurisdiction extends to the Black Sea, and several Black Sea States are members. However, as Breuil recently observed, the GFCM's activity in the Black Sea has remained "at a low level when compared to other GFCM areas," largely being restricted to the improvement of the level of knowledge on the fisheries resource base in the region. Christophe Breuil, *The GFCM and the Management of Mediterranean Fisheries, in* Symes, *supra* note 1394, at 160. While the reasons for this are open to speculation, it is reasonable to surmise that Mediterranean States, greater in number in the regime, and longer for the most part in tenure, may exert a predominant and biased influence on the regime's priorities. Thus, despite the threat of redundancies and inefficiencies of having Black Sea fisheries issues addressed in two forums, it is likely that more progress will be made in a regime that is comprised solely of Black Sea States and other States conducting fishing operations in the region.

cetacean population losses associated with fishing operations, establishing a program to reduce bycatch and formulating responses to illegal fishing operations.[1902]

Regimes theory research indicates that increasing interdependence between actors, "leading to high levels of issue density," as well as the success of existing institutions, enhances the prospects for the establishment of new regimes among the same actors.[1903] ACCOBAMS may thus be able to help facilitate the establishment of a Black Seas fisheries regime, especially by focusing on the important role of fisheries in protecting the conservation status of cetaceans in the region.

7.9 Work to Expand the Number of Parties to ACCOBAMS

The potential effectiveness of ACCOBAMS's "sister agreement," ASCOBANS,[1904] has been plagued by a failure of key States in the region to join the agreement. For example, Norway has averred that it will only cooperate at a scientific level "owing to [its] desire to maintain a consistent national policy,"[1905] i.e. reserving its right to conduct commercial whaling operations. Moreover, five Baltic States, Estonia, Finland, Latvia, Lithuania, and Russia have indicated that

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[1902] *Id.* at 7 & 25-6.
[1903] Keohane, *supra* note 748, at 36; Helmut Breitmeier & Klaus Dieter Wolf, *Analysing Regime Consequences, in* REGIME THEORY & INTERNATIONAL RELATIONS 342 (1993)
[1904] *Supra* note 4.
[1905] *Progress Report on the Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas,* 2 CMS Bull. 2-3 (1996).

they do not with to ratify the agreement in the immediate future for financial or other reasons.[1906]

As Gillespie recently concluded, the viability of ACCOBAMS may be similarly denuded by the failure of the majority of range States in the region to join the treaty to date.[1907] (*See also* Figure 19) The Parties should actively work to expand treaty membership, especially in the Black Sea region where the two largest range States, Russia and Ukraine, remain non-members.

A very critical consideration for environmental regime success is the role of "leader countries." As Downs avers:

> [T]he history of environmental progress in particular areas suggests that 'what might be termed a leader is crucial to the negotiation of environmental accords and to the promotion of compliance with them. In fact, in the cases studied here, it is hard to see how effective progress would have been made without the efforts of leader countries.'[1908]

Monaco and the intergovernmental organizations involved in the initial negotiation of ACCOBAMS fulfilled this leadership function in the early stages of the regime's development. However, empirical evidence from other regimes indicates that, in the long term, this function is served best by an economically powerful State or bloc, that is, the United States, the European Union, or Japan.[1909] A recent example is the European Union's powerful leadership in the implementation of the Helsinki

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[1906] Gillespie, *supra* note 534, at 299.
[1907] "[U]nlike with ASCOBANS, a number of important range states have not signed the ACCOBAMS; as it stands, only 11 of 28 range states have signed." Gillespie, *supra* note 534, at 301.
[1908] Downs, *supra* note 1803, at 33 (quoting Weiss & Jacobson, *supra* note 1824, at 537).
[1909] *Id.* at 34.

Convention[1910] and its governing body, HELCOM's, mandates.[1911] The EU, which is a formal member of the Helsinki Convention, "has had an enormous impact on Baltic states' environmental policy agendas,"[1912] through leadership activities such as funding programs in poorer parties to implement the treaty,[1913] and engaging in agenda-setting activities in the Baltic region.[1914]

Thus, every effort should also be made to bring the European Union into the treaty given the resources that it could bring to bear in a regime that suffers from egregious resource and capacity problems and its integral (and steadily expanding) role in environmental decisionmaking in a large swath of the treaty's Agreement Area.[1915]

Given the importance of engendering maximum participation in the regime, in the case of poorer States in the region it may be judicious to pursue additional funding from sources such as the GEF.[1916] Efforts to consolidate the functions of regimes in the region, as discussed *supra*[1917] may also reduce the

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[1910] *Supra* note 1436.
[1911] *Supra* note 1438
[1912] Tamar Gutner & Stacy D. VanDeveer, *The Role and Imapcts of Mature Policy Networks in the Baltic Sea Region,* paper presented at the International Studies Association Annual Convention, Chicago, Illinois, Feb. 20-24, 2001, at 11.
[1913] *Id.*
[1914] *Id.*
[1915] Churchill has expressed concern that EU membership in ASCOBANS would engender some confusion among some third parties as to what aspects of the treaty's mandates would fall within the competence of the EU and its member States, respectively. Churchill, *supra* note 451, at 267. This argument would be equally apposite in the context of ACCOBAMS; however, I believe that it would be worth the effort to establish clear guidelines given the important role that the EU could play in the treaty's implementation.
[1916] *See supra* note 652 and accompanying text.
[1917] *Supra* sec. 7.7.

economic burden attendant to participating in the regime, as well as to reduce concerns about having to shift conservation priorities.

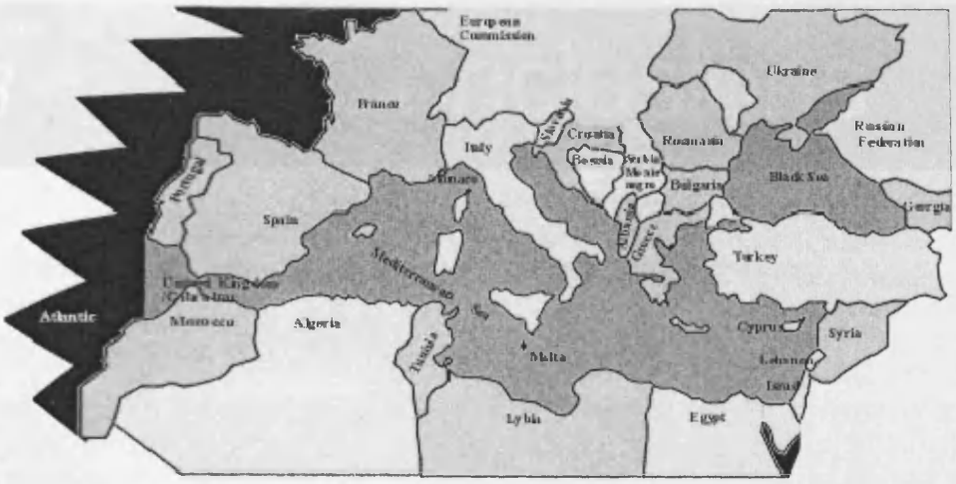

Figure 19: RIPARIAN STATES: ACCOBAMS AGREEMENT AREA

Chapter 8

Conclusions

While data and trends on cetacean populations in the Mediterranean and Black Sea regions remain speculative, the lion's share of the evidence in recent years points to a serious diminution of many cetacean species over the past few decades. Moreover, there are a large array of anthropogenic threats in the region that show little prospect for abatement in the foreseeable future. The seriousness of these threats is made all the more alarming by recent empirical evidence that many stocks of cetaceans that have suffered serious diminution due to overexploitation over the last century show little sign of recovery, even decades after this exploitation ceases.[1918]

While Black Sea and Mediterranean States could have sought to work through the International Whaling Commission to address the major threats to cetaceans in the region, this would have likely proved futile. Many IWC parties have resisted efforts to regulate small cetaceans, of which many of the species found in the ACCOBAMS area are so classified, resulting in little more than hortatory calls by the Commission for protection of these species.[1919] Moreover, the IWC lacks the resources to conduct the requisite research to assess threats

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[1918] *See* Swiss Coalition for the Protection of Whales/Global Survival Network, *Polar Exposure: Environmental Threats to Arctic Marine Life and Communities* 6 (1996) (Beluga whale stocks in the St. Lawrence River have show no signs of recovery after plummeting in 1970s "because they have been caught in a genetic bottleneck"); Michael Lipske, *A Whale of a Story,* NAT'L WILDLIFE 5, 8 (Feb./Mar. 1993) ("Along our [United States] East Coast, the northern right whale . . . has barely responded to a half century of protection from whaling"); N.A. MACKINTOSH, THE STOCKS OF WHALES 159 (1965) (Greenland right whale "has remained a rare species though hardly molested in the last 50 years or more").

[1919] *See supra* note 1005.

to cetaceans in the region.[1920] Finally, while the IWC has recently established a Conservation Committee to address many of the threats that are most significant for species in the ACCOBAMS Agreement Area,[1921] it is difficult to be sanguine about the prospects of this initiative. First, several key IWC members, including Japan and Norway, have signaled their intention to not cooperate with the new Committee, fearing that it will shift the ICRW's purpose from sustainable use of whales to total prohibition of commercial whaling operations.[1922] Indeed, several pro-whaling States have indicated that they may consider leaving the IWC to work through other regimes to conduct whaling operations.[1923] This may further undercut the viability of the regime, including its ability to address environmental change issues in a cohesive fashion. Second, as indicated *supra,* the IWC's effectiveness, including its ability to conduct substantive research on threats to cetaceans has been denuded by funding shortages.[1924] While the resolution establishing the new Conservation Committee calls for the Committee to explore the possible establishment of a trust fund to help it do its work,[1925] efforts to solicit additional funding for the IWC's environmental programs in the past have largely fallen on deaf ears.[1926]

[1920] *See supra* note 1000 and accompanying text; Burns, *supra* note 1000, at 351-42.
[1921] *See supra* notes 1001-1003 and accompanying text.
[1922] *Statement by Japan's Whaling Commissioner Mr. Minoru Morimoto,* Scoop, <http://www.scoop.co.nz/mason/stories/WO0306/S00302.htm>, site visited on August 14, 2003.
[1923] IWC, *Revision of RMP – Norwegian Notification,* IWC/56/22 (2004); High North Alliance, *End in Sight for the IWC?,* <http://www.highnorth.no/iwc2003/read_nws.asp?which=309.htm>, site visited on August 14, 2003.
[1924] *See supra* note 1503 and accompanying text.
[1925] *The Berlin Initiative on Strengthening the Conservation Agenda of the International Whaling Commission, supra* note 996, at para. 8.
[1926] Burns, *supra* note 1000, at 347 :

Thus, there was a compelling case for the establishment of a regional cetacean conservation regime. However, as Douglas Hykle, former Deputy Executive Director of the CMS observed, now comes "the difficult task of transforming a well-crafted legal document into concrete actions . . ."[1927]

Unfortunately, it is by no means clear that ACCOBAMS will prove to be a viable instrument to protect the region's cetaceans. As outlined above, there are serious inadequacies in the Convention's text and implementation mechanisms, including its provisions for monitoring compliance and assessing effectiveness, as well as the Convention's vague incarnation of the precautionary principle.

Moreover, the Parties' failure at the First Meeting of the Parties to take decisive steps to address some of the most pressing issues facing the regime may be a foreboding portent. Indeed, there may be a chilling parallel between the failure of the Parties to ASCOBANS to address the most serious issue facing cetaceans in that region, fisheries bycatch,[1928] and the rather tepid commitments made at ACCOBAMS 1MOP. There is a very real possibility that ACCOBAMS

> The IWC decided to provide approximately US $214,000 for core funding of environmental research programs in 1999/2000. However, it noted that the SOWER 2000 and POLLUTION 2000+ programs would cost more than US $510,000 in the first year alone . . . and called upon parties to the IWC, other governments, international organizations, and other bodies to provide supplemental funding for the programs . . . At the 52nd Meeting of the parties earlier this year, the IWC observed once again that the Scientific Committee's available funding for environmental initiatives was insufficient to facilitate implementation or development of these programs. *Id.* [citations omitted].

In the ensuing years, the IWC's environmental research programs have been plagued by egregious shortfalls in funding.

[1927] CMS Secretariat, Remarks of Douglas Hykle, *Allocutions D'Ouverture des Conférences Diplomatiques, Accord de la Convention de Bonn sur la Conservation des cétacés de la mer Noire, de la mer Méditerranée et de la zone Atlantique adjacente* 24 (1996).
[1928] Nijkamp & Nollkaemper, *supra* note 5, at 292; ASCOBANS, 8th Advisory Committee Meeting, 2-5 Apr. 2001, Doc. AC8/Doc. 8(0), *Statement by the World Wide Fund for Nature,* at 1; *Pingers Could Help Save North Sea's Dolphins, Porpoises,* CETACEAN NEWS, Apr. 17, 2001.

may fall into same pattern that has characterized ASCOBANS, i.e. an emphasis on peripheral issues and a failure to make substantive commitments. Of course, at this early date, this assessment would be too harsh. However, it is disturbing that the Parties were not even able to agree to a binding set of guidelines for whalewatching at 1MOP, one of the politically least malignant issues that the regime may have to confront,[1929] and opted for little more than further research in the context of most of the other major threats to cetaceans in the region. The establishment of a mechanism to assess the treaty's effectiveness on an ongoing basis might enhance the treaty's prospects by both providing a clear roadmap for progress and increasing public pressure on the Parties. However, this will require a level of political will and resources that have yet to be demonstrated by the regime's principal actors.

In a broader sense, the greatest obstacle to successful implementation of ACCOBAMS is likely to be the severe resource constraints faced by many nations in the Agreement Area, especially in the Black Sea region. Given the tremendous legacy of environmental degradation that occurred during the Soviet era, many Black Sea nations are confronted with a multitude of competing demands for scarce financial resources in this context.[1930] It would strain credulity to believe that the protection of cetaceans will attain primacy over many other

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[1929] Politically "malign" situations exist where the values and interests of State actors diverge. "Other things being equal, the more politically malign the problem, the more conflict it tends to generate," making it less likely that a regime will be able to effectively address the issue. STEINAR ANDRESON, ET AL., SCIENCE & POLITICS IN INTERNATIONAL ENVIRONMENTAL REGIMES 15 & 27 (2000).

[1930] Wolfgang Rudig, *Between Ecotopia and Disillusionment: Green Parties in European Government,* 44(3) ENV'T 20 (2002); David Holthouse, *Survival,* NEW TIMES LOS ANGELES, Nov. 1, 2001 (LEXIS-NEXIS, News Group File).

pressing environmental issues,[1931] especially those that have direct impacts on human welfare, not to mention the other burgeoning social welfare needs of these societies.

The effectiveness of the Parties to ACCOBAMS in effectuating the treaty's objectives may speak volumes about the future of the regional approach to cetacean conservation. ACCOBAMS may ultimately serve as a model for the continued development of a set of interlocking regional agreements to protect cetaceans, or an attestation to the failure of man to confront the anthropogenic threats that imperil an increasing number of cetacean species each year.

[1931] Countries of the former Soviet Union and in Central and Eastern Europe face "some of the worst environmental problems anywhere," including massive air and water pollution that imperils human health throughout the region. Victor Vovk & Thomas Prugh, *Red Past. Green Future?,* WORLDWATCH MAGAZINE, July/Aug. 2003, at 13-14

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