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1 **Hybrid, public and private environmental governance: The case of**
2 **sustainable coastal zone management in Quintana Roo, Mexico.**

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16 **Hybrid, public and private environmental governance: The case of**
17 **sustainable coastal zone management in Quintana Roo, Mexico.**

18 **Abstract.** Coastal zones (CZ) are social-ecological systems where rapid forms of
19 economic development are disrupting the existing patterns of relationships,
20 raising challenges for governance. Institutional flexibility, broad participation,
21 multilevel governance, and adaptability have been identified as critical conditions
22 for the governance of social-ecological systems. While the importance of agency,
23 through the substantive participation of private actors in rulemaking, has been
24 researched, there is need to examine the dynamics involved in, and consequence
25 of, hybrid governance arrangements. An empirical study is presented of hybrid
26 governance, involving federal and local government and locally-based private
27 actors from civil society organizations, environmental non-government
28 organizations and local business interest associations, in the state of Quintana
29 Roo, Mexico. The CZ of Quintana Roo is facing pressures from economic
30 development, mainly tourism, with consequences for water pollution and
31 fisheries. Through qualitative, mixed methods, we found that a thick network of
32 private actors has mobilized to play an important role in environmental
33 management and to act in collaboration with the State. Multiple rationales
34 account for this development, including high levels of environmental awareness,
35 particular with respect to water pollution, while the lack of institutional capacity
36 also motivates state actors to seek partnerships. While private governance is
37 emerging, our data reveal a complex case, where private actor mobilization seeks
38 to promote better regulations, to share data and resources, and to improve
39 implementation capacity within the public administration. Hybrid governance
40 contributes to effective environmental governance of the CZ. However, this can
41 also risk state retreat from its public responsibilities.

42 **Keywords:** governmentality; informal partnerships; multi-actor participation;
43 networks; social-ecological systems; state corruption.

44 **Introduction**

45 This paper examines the role of hybrid authority in the governance of complex adaptive,
46 social-ecological systems (SES). The literature has identified key conditions that are
47 critical for the governance of SES systems: (1) flexibility in institutions; (2) openness of

48 institutions to provide for broad participation, not least in local decision-making and
49 administration; (3) effectiveness of multilevel governance; (4) social structures that
50 promote learning and adaptability without limiting the options for future development
51 (Adger 2000; Binder et al. 2013; Folke et al. 2002; Folke 2006; Kooiman 2003; Walker
52 and Salt 2006). However, research often fails to take account of the multiple actors
53 involved across different governance levels. While the substantive participation of
54 private actors in rule making has been researched, the dynamics involved in, and
55 consequence of, opening institutions to provide for broad participation are less well
56 understood. Moving from earlier ideas that the state is simply being ‘hollowed out’, and
57 replaced by private actor governance, there is increasing recognition that the political
58 relationship between state and non-state actors is not a zero-sum game (Bäckstrand
59 2006; Newell et al. 2012), but is rather being replaced by hybrid forms that combine
60 public and private authority in governance. However, understanding the factors that
61 contribute to the development of hybrid forms of governance, and whether this ‘hybrid’
62 form enhances governmentality, that is, the practices through which matters are
63 governed, so as to improve environmental outcomes remains limited. This paper
64 identifies the conditions that motivate actors to co-mingle in governance arrangements
65 with public authorities to better understand the benefits and risks of hybrid authority. It
66 also addresses the need to have a deeper understanding of the outcomes of private
67 governance as they operate with the state in hybrid form. It specifically focuses on the
68 whether or not this contribute to sustainability.

69 The most prominent example utilized in the literature of SES are coastal and
70 marine ecosystems (Berkes 2011) and these systems form the empirical focus of this
71 paper. Coastal ecosystems are here seen as having biophysical subsystems and human
72 subsystems, the latter including economic, political, social and cultural components,

73 management and governance regimes (Paddock et al. 2018). However, while these
74 characteristics have been well described at the conceptual level, there is still need to
75 understand how they play out in practice, with a shortage of empirical studies in the
76 area. The paper provides an empirical study of hybrid governance in coastal zone (CZ)
77 governance in the state of Quintana Roo, Mexico. It examines the involvement of
78 federal and local government and locally-based actors from civil society organizations
79 (CSOs), environmental non-government organizations (ENGOS) and local business
80 interest associations (BIAs) representing small and medium enterprises (SMEs), all
81 operating in the CZ.

82 The paper begins by examining the current state of knowledge on the
83 governance of SES, including on the role of private actors. The challenges that the
84 emergence of hybrid forms of governance presents for analysis are then outlined.
85 Having described the methodology, the paper turns attention to the empirical case.
86 Information on both the ecological and social context of Quintana Roo provides the
87 backdrop for the presentation of the empirical findings. The paper concludes by
88 examining the significance of finding for our understanding of the governance of
89 complex, adaptive systems, highlighting the paper's key contribution.

90 **The Governance of Social-Ecological Systems**

91 In the classical understanding of governing, boundaries between the public and private
92 realms are seen as strict. Governing is equated exclusively with government, with
93 responsibility for public issues consigned to the public domain of the state. In this view,
94 public management is mainly rule-orientated, legalistic and rather formal. However,
95 recent decades have seen a shift in both our understanding and practice of governing,
96 with less emphasis placed upon the autonomy of the three domains of state, market and
97 civil society, and instead their interdependencies are stressed. The term 'governance'

98 captures this new emphasis (Glasbergen 2007). These interdependencies operate across
99 multi-level scales, ranging from international through to the regional and local levels.
100 However, in the context of neoliberalism, we need to be mindful that governments often
101 leave responsibilities to third parties, resulting in the private governance of public
102 goods. While this can bring positive benefits, such as when private provision allows the
103 state to channel scarce resources to other areas of need, private governance raises issues
104 about whose interests get served and how the wider public are affected (Rudder 2008).
105 Nevertheless, private governance can also be driven by the need for business
106 corporations to be seen to be socially responsible and enable them to derive moral
107 authority through showing leadership. This has led to the development of codes of
108 conduct, for example in in the tourism sector (Newell et al. 2012).

109 In addition, forms of multi-actor governance are also created through a
110 multitude of civil society coalitions, alliances, and networks, engagements that are often
111 about defending the rights of local and indigenous communities to natural resources as
112 much as they are about directly shaping formal policy (Newell et al. 2012). However,
113 the main focus of the literature has been on institutionalized hybrid authority, in
114 particular through co-management, public-private partnerships and social-private
115 partnerships (Lemos and Agrawal 2006). While partnerships themselves are broadly
116 understood (Börzel and Risse 2002), this focus is too narrow for our purposes
117 (Andonova 2010). There is need to widen the focus to examine hybrid form of
118 governance that involve a complex array of state led, regulatory governing, interacting
119 with self- organized interests, and with participatory forms of steering from social
120 actors, which are not necessarily formalized.

121 In relation to environmental governance, it is long recognized that civil society
122 actors and business interest association co-produce public environmental regulations

123 and are heavily involved in lobbying to shape regulation (Newell et al. 2012). Hybrid
124 governance is also a response to the complexity, dynamics and uncertainty of policy
125 making in the context of global environmental change, where traditional modes of state-
126 based regulation are limited in their reach, effectiveness, authority, and even legitimacy
127 (Kooiman 2003; Lemos and Agrawal 2006). Instead of a strong *state* to govern, a strong
128 *society*, which is at least partly based on engagement from the market and civil society
129 (Glasbergen 2007), is seen as critical for the promotion of sustainable futures.

130 Hybrid forms of governance help fill gaps in both the ‘regulatory deficit’ and
131 ‘implementation deficit’ in environmental policy. Pooling of resources, including
132 knowledge and finance, and burden sharing can increase the problem-solving capacity
133 of governance arrangements (Börzel and Risse 2002). This can include the provision of
134 place-specific information that may allow a more equitable allocation of benefits from
135 environmental assets (Lemos and Agrawal 2006; Baker and Chapin 2018). These
136 arguments are closely linked to the claim that participation increases the democratic
137 nature of policy (Baker and Chapin 2018). Partnership arrangements are seen as
138 reducing conflict, mediating the confrontational relation that has traditionally existed
139 between companies, governments, and civil society in relation to environmental
140 regulations. For their part, limited resources and high capacity requirements for the
141 implementation of regulatory environmental standards provide a partial explanation for
142 the willingness of the state to experiment with hybrid governance.

143 Despite its highly developed nature, the literature assumes that we are speaking
144 about changes taking place in the liberal democratic order. Such order is assumed in the
145 classic work of Glasbergen (2011) and in Börzel and Risse (2002), where new forms of
146 governance are explored in western, democratic welfare states. Thus, there is need to
147 distance research from a Weberian, state-centric narratives, grounded in the European

148 experiences of state formation (Colona and Jaffe 2016). This facilitates analysis of cases
149 that do not require some form of developed welfare state regime, to enables the
150 exploration of cases where there are high levels of state corruption. The case of
151 Quintana Roo provides an opportunity to examine governance in the context of weak
152 state presence, with the system of public administration only emerging as municipality
153 formation takes place.

154 **Methodology**

155 A case study approach (Gerring 2007) using qualitative, mixed methods was employed.
156 Qualitative fieldwork involved stakeholder focus groups, in-depth interviews, direct
157 observation, and document analysis to examine key actor perceptions, attitudes, and
158 interests. The study took place along the coastal corridor of the state of Quintana Roo
159 (Figure 1) throughout 2017-2018. The authors received ethical approval from their
160 respective Universities. Four stakeholder Focus Groups were held in Tulum, attended
161 by 24 participants in all; and one was held in Bacalar, attended by 7 participants. The
162 Focus Groups were held in March 2017, and drew representatives from local and
163 regional government, research institutions, representatives from the water, forestry, and
164 ecotourism sectors, and from CSOs, ENGOs, and members of BIAs. The discussions
165 were guided by a facilitator, while members of the research team took detailed notes of
166 the conversations in each group. Four follow-up stakeholder Focus Groups were held in
167 Playa del Carmen. One public meeting was held in Playa del Carmen in February 2018
168 to present preliminary results to the general public so as to create awareness and
169 generate feedback. Between May and September 2017, semi-structured interviews were
170 conducted in Chetumal, Cancún, Playa del Carmen, Felipe Carrillo Puerto, and Tulum
171 (29 interviews in all). Interviewees were drawn from the municipal (Tulum and Felipe
172 Carrillo Puerto), state and federal levels of government in the environmental sector, and

173 from BIAs, ENGOs and CSOs operating in the region. The interviews lasted between
174 60-90 minutes and explored a series of themes related to the mechanisms of multi-actor
175 collaboration and public participation, environmental policy integration, integration
176 across multi-level governance, and the presence of political influence and of corruption.
177 All the interviews were recorded and transcribed with the consent of participants.
178 Transcripts were analyzed through Atlas.ti 8 for Windows (Scientific Software
179 Development GmbH), using the qualitative content analysis method (Schreier 2012)
180 based on a deductive coding strategy (Mayring 2000; Hsieh and Shannon 2005). In
181 addition, grey literature from within the system of public administration, dealing with
182 technical reports, development plans, land and urban planning documents, etc., provided
183 background information, together with direct observations, for internal validity of
184 results through data triangulation. The research was also informed by the scientific
185 literature, in particular from within political science, public administration studies.
186

187 Figure 1. Map of the coastal zone of Quintana Roo showing the location of the study
188 sites

189 *The Coastal Zone of Quintana Roo as a Coupled System*

190 The state of Quintana Roo occupies the eastern portion of the Yucatan Peninsula
191 (Figure 1). Although the region has a long history of human occupation, including by
192 the Maya civilization (Faust 2001), the area now known as Quintana Roo was only
193 named as such at the beginning of the 20th Century. In 1902, the then Mexican
194 President, Porfirio Díaz, decreed jurisdiction over the Federal Territory of Quintana
195 Roo. Although the 1917 Constitution of Mexico saw the creation of the municipalities
196 of Cozumel, Isla Mujeres and Payo Obispo, the Governor continued to exercise power

197 over practically all decisions related to the management of the Territory, and was
198 directly appointed by the Federal government in Mexico City (Careaga Viliesid and
199 Higuera Bonfil 2011). From 1975 to 2016, all seven governors of Quintana Roo were
200 members of the *Partido Revolucionario Institucional* (Institutional Revolutionary Party,
201 PRI), which ruled the country for more than seven decades (Hernández 2017). The
202 imposition of external governors was combined with an open disregard for the lives of
203 the inhabitants and a lack of interest in generating institutions and local management
204 capacities (Samaniego 2010). It was not until 1974 that the Territory of Quintana Roo
205 became a free and sovereign State, but history has left a legacy of corruption and
206 neglect (Dachary et al. 1992; Careaga Viliesid and Higuera Bonfil 2011). As in the rest
207 of the country, the absence of separation of powers that enables checks and balances in
208 the political system has meant that the Executive branch continues to maintain an
209 excessive influence (Álvarez Tovar 2013), blocking the development of an independent
210 and professional system of public administration (Hernández 2017). The fact that
211 almost all of the State's financial resources come from the Federal government also
212 generates dependence. Corruption abound (Kaufmann et al. 2010), with high levels of
213 mistrust from citizens towards politicians and the political system more generally
214 (Transparency International 2016).

215 Quintana Roo can be conceptualized as a social-ecological system. A distinctive
216 topographical, geo-hydrological and biophysical characteristic makes up the Yucatan
217 Peninsula (Lutz et al. 2000). The Peninsula's karst aquifer is one of the most extensive
218 in the world and extends in a transboundary manner over an extensive area in Mexico,
219 Guatemala and Belize. The karst aquifer hosts large amounts of spring-fed groundwater
220 which maintain highly diverse groundwater-dependent ecosystems. The karstic
221 limestone has produced a network of underground rivers and sinkholes (*cenotes*) that

222 provide the only sources of freshwater in the Peninsula. The ecosystem also includes
223 significant wetlands, one of the most important of which is the Sian Ka'an Biosphere
224 Reserve. The CZ also encompasses an ecologically rich ecosystem of mangroves,
225 seagrass meadows and the extensive 600-km-long Mesoamerican coral reef that extends
226 along the mainland coast and around the Island of Cozumel. The reef provides
227 important ecosystem services for coastal populations, protects the coast from erosion,
228 moderates the damaging effects of hurricanes, sustains subsistence and commercial
229 fisheries, supplies sand for beaches that is critical for the tourism industry, and generate
230 recreational opportunities (Melbourne-Thomas et al. 2011). However, high permeability
231 in the karst system means that pollution can spread over large distances, making water
232 management very challenging (Bauer-Gottwein et al. 2011).

233 Quintana Roo also forms part of the Selva Maya (Maya Forest), which is the last
234 large block of tropical forest remaining in North and Central America (Primack et al.
235 1998). For centuries, the area has seen the harvest of quality timbers, such as Spanish
236 cedar (*Cedrela odorata*) and mahogany (*Swietenia macrophylla*). During the 20th
237 Century, the extraction of precious woods first took place as part of a state concession
238 (*Maderas Industriales de Quintana Roo*) and later through community management
239 (*Plan Piloto Forestal*). Although results are mixed, community forest management
240 tends to result in maintenance of forest cover and of biodiversity, and promotes local
241 wellbeing (Arts and de Koning 2017; Primack et al. 1998). The *milpa* cultivation system
242 has also helped maintain ecological diversity (Ellis et al. 2017). However, although
243 there are differences between ejidos, the ejido system in Mexico has suffered from a
244 narrow production, low wages, under-employment, low standard of living, and where,
245 at times, corruption is combined with high dependency on state agencies for capital
246 subsidies resulting in high levels of indebtedness (Climo 1978; Perramond 2008; World

247 Bank 2001). As a result, many ejidos within Quintana Roo are now seeking new forms
248 of economic activity, such as ecotourism, and new ways to protect the ecological
249 diversity within the system, for example, through reforestation. Nevertheless,
250 substantial deforestation continues within the State, arising largely from land-take for
251 tourism and urban development (Ellis et al. 2017).

252 **Governance of the Quintana Roo Social-Ecological System**

253 *Governance Challenges*

254 During the last decades, demographic growth has been triggered by a rapid expansion of
255 the tourism sector, and sees the population of the State predicted to reach 2 million by
256 2025, from 500,000 in 1990. Tourist resorts are highly concentrated in the coast, from
257 Cancún to Tulum, an area now known as the Riviera Maya, and on Cozumel Island. In
258 recent years, coastal development has rapidly extending southward to Bacalar,
259 Mahahual and Xcalak. The State has experienced a growth in hotel rooms of more than
260 800% during the period 1980-2015 (Poter-Bolland et al. 2015). Much of this rapid
261 urbanization and tourism infrastructural development has been piecemeal, as one public
262 official explains:

263 Coastal development is not planned, does not follow an integral plan, does not
264 follow a high-level strategic program, it follows the POEs (Ecological Planning
265 Programs), and perhaps the PDUs (Urban Development Programs), but it does not
266 conceive an integral vision of the state, much less of the region (Officer A, Federal
267 Government Environmental Sector).

268 Thus, as in other CZ, the system in Quintana Roo is experiencing pressures from inward
269 migration, economic development (mainly tourism) and resource exploitation. As a
270 result, the system is showing signs of intense environmental pressures. Environmental
271 degradation is now being experienced in many municipalities, including water pollution

272 from untreated waste water and sewage, increased sedimentation in the marine
273 ecosystem, and growing problems of waste management, especially in the
274 municipalities of Benito Juárez and Solidaridad, where the cities of Cancún and Playa
275 del Carmen, the main tourist sites, are located. Threats to ground water are particular
276 acute in the Riviera Maya coastal district. Large parts of the karst aquifer are now
277 affected by anthropogenic pollution (Bauer-Gottwein et al. 2011).

278 Given the tightly coupled nature of the system, all the more pronounced because
279 of its karst characteristics, land use and land use changes inland have had a direct
280 impact on the marine ecosystem, including through coastal sedimentation and nutrient
281 loading, with consequences for marine functioning and productivity on the coast (Bray
282 et al. 2004). The construction and operation of hotels close to the coast have, in
283 particular, brought negative impact on the crucially important Mesoamerican coral reef
284 system (Murray 2007).

285 The environment division of the State government of Quintana Roo is aware of
286 this problem:

287 We have a problem with deforestation due to the growth of the agricultural-
288 livestock frontier and due to urbanization, particularly in the coast. The
289 urbanization of the coast alters ecosystems, such as mangroves, coastal areas;
290 tourism development also affects the reef ... and the marine ecosystem. Also, the
291 management of solid waste is a very important problem... all kinds of pollution
292 (Officer A, State Government Environmental Sector).

293 This understanding is also shared by environmental groups, including the very active
294 *Healthy Reefs for Healthy People*, a Smithsonian partnership that aims to improve the
295 health of the Mesoamerican Reef and thus sustain the lives of those who depend on it:

296 Our biggest threats are the inadequate wastewater treatment ... and right now, solid
297 waste management (Interviewee D, ENGO).

298 The failure to ensure connection to the sewage system in the fast growing urban areas is
299 of particular concern:

300 The National Water Commission, together with the State of Quintana Roo, has
301 created the basic infrastructure, such as treatment plants, sewage mains, the entire
302 sanitation system; however, we have places like Playa del Carmen and Tulum itself
303 where they have the infrastructure, but people are not connected to the sewage
304 (Officer A, Federal Government Water Commission).

305 An interviewee from the local government pointed out that in Tulum, which is a major
306 tourist area, only 15% of the population are connected to the drainage system, and the
307 rest uses septic tanks (Officer C, Municipal Government Environmental Sector).

308 The impact of water pollution on the marine environment, in particular on the
309 Mesoamerican reef has drawn a lot of attention:

310 One of the main threats, not only for Mexico but for the whole Mesoamerican reef
311 is the macro algae cover because is increasing. From 2006 to 2014, it doubled, it's
312 a lot. And that's because we don't have the appropriate waste water treatment in
313 our municipalities, so we are fertilizing the water with all this... poop! that's the
314 truth! Yeah, and that's nutrients for the macro algae to grow, overcome the coral
315 cover (Interviewee D, ENGO).

316 Informants, although at times reluctant to go into specific detail, were keenly aware of
317 limitations of the system governance in the State. As one representative from a key BIA
318 dealing with tourism explained:

319 I think the biggest challenge is the government. When you talk with them, you can
320 see very easily that they don't necessarily have that position because they have the
321 skill to have the position. Because our reality in Mexico is that you get the
322 government positions because you are friend, or you are in the same political Party
323 or you have an... election commitment and sometimes, they don't do things
324 because they don't know how to do it, so we need to find out how we can train
325 ourselves as a society (Representative F, BIA Tourist Sector).

326 High levels of corruption helped fuel the rapid tourism development in the State,
327 particular along the coastal strip of the Riviera Maya:

328 Some of the constructions that are built along the coastline, like hotels and
329 restaurants, don't have all the requirements that are stipulated in the law, so there's
330 corruption because they [governmental officials] let them build as they want,
331 where they want, whenever they want, with whatever they find. It's a well-known
332 fact that hotels, well not all, I will not generalize but some of them, already have in
333 their budget a specific amount for fines, because they already know they are not
334 going to accomplish what is supposed to be, so they already have money line to
335 pay for that (Interviewee D, ENGO).

336 Similarly, a spokesperson for one of the ENGOs operating in the area reveals:

337 For example, we know that our last Governor [R. Borge] sold land that had a level
338 of environmental protection, and he sold the land to a family member (Interviewee
339 D, ENGO).

340 It is not difficult to see how this political context makes it very challenging to
341 effectively govern the environmental - and social - consequences of development, not
342 least because the system of governance has displayed limited regard for the common
343 good. However, since the early 1980s, pressures for democratization, economic crisis
344 and the implementation of market-oriented economic reforms encouraged moves
345 towards decentralization reforms. This has brought a strengthening of Mexican
346 federalism, which have increased the competencies and capacities of states and
347 municipalities (Cabrero Mendoza 2010). These reforms have transferred, in part, power
348 downwards, including in environmental policy. Today, sub-national political actors,
349 particularly governors and mayors, have access and control over important resources to
350 provide public services. However, key aspects of decentralization, in particular the
351 establishment of effective mechanisms to make public officials accountable and the
352 enhancement of fiscal decentralization, have not occurred. In this sense, it can be argued

353 that the decentralization process in Mexico has been shaped by the interests of the
354 political elite at the national level. In other words, decentralization served to strengthen
355 the capacity of sub-national political actors to insert their interests into national politics.
356 The local elites and *caciques* (local political ‘boss’ or leader) were able to take
357 advantage of the decentralization not only to gain more political and economic power,
358 but also to exercise impunity and corruption without federal controls (Nieto 2011).
359 Furthermore, this has meant that resources are not allocated according to the interests of
360 the citizens, which is one of the stated goals of decentralization (Salazar 2007). This
361 concern about the failure to take account of the social needs of local people was clearly
362 expressed by one CSO operating from Cancún:

363 We recently sent an urgent alert to the UN reporter on human rights of water and
364 sanitation because of the lack of sanitation for local communities, bearing in mind
365 that the government is expecting a lot of visitors from overseas and nationals as
366 well but they are not taking into account that we don't have enough infrastructure
367 in order to attend to the needs of the communities that are already living here
368 (Interviewee N, Environmental CSO).

369 These factors also help to provide an explanation as to why legislation dealing with
370 critical environmental stresses in Quintana Roo is often not adapted or made specific to
371 the local context or to the geo-topographical specificity of the area. This is especially
372 noticeable in the case of water management, including wastewater treatment, where a
373 reoccurring theme from the research is the failure of centralized legislation to take
374 account of the geologically specific feature of the Yucatan Peninsula karst aquifer
375 system.

376 We have a Norm [standard]... that tells you about the quality of the water, how it
377 should be. ... but there is no investment to change the law, to improve the law and
378 to apply a different norm for the state of Quintana Roo which has different

379 conditions than the rest of Mexico because ... here we have a karstic system, so all
380 our rivers are underground rivers (Interviewee D, ENGO).

381 In addition, waste management that relies upon landfills are particularly problematic in
382 this high permeability karstic area. In this system, pollution stress on groundwater
383 resources threatens both water supply and the entire groundwater-dependent ecosystem
384 (Bauer-Gottwein et al. 2011).

385 The devolution of administrative responsibilities downwards without the
386 corresponding strengthening of the system of administrative oversight and
387 accountability have heighten weaknesses in vertical and horizontal integration between
388 the levels of government within the country's multi-level governance system. Such
389 fragmentation across governance levels has had a negative impact upon policy
390 implementation and enforcement. As one representative from an association of dive
391 operators said:

392 The operations of the water sports businesses are overseen by the three different
393 governmental levels of control (federal, state, municipal). The diving shops are
394 located inland, under the jurisdiction of the municipality, but some of the "rules"
395 related with crossing to the beach and going into the ocean are under the state
396 control; and as soon as you go into the water, it becomes a coastal federal control
397 matter, because in Mexico, all public waters are under federal jurisdiction. So, we
398 have to be nice with all of them, at the same time, and that's a problem because if
399 we have an issue, sometimes they just leave the ball in the other court
400 (Representative F, Association of Dive Operators).

401 Corruption can mingle with institutional fragmentation to make for a very complex
402 context in which to seek to ensure appropriate governance of the system. A CSO
403 concerned with the application of the rule of environmental law in Mexico explains how
404 the two problems can intertwine:

405 For example, have heard about “The RIU” Hotels? [RIU Hotels & Resorts, a
406 Spanish hotel chain] they came here probably 10 or 15 years ago and they start
407 building without permission, building big hotels. You can find probably 5 RIUs all
408 over Cancún. Some of them were built without permission; they built more rooms
409 than those allowed, and they have more floors. The thing was that the municipal
410 government provide the permit to build a hotel, even though they were not allowed
411 to give that kind of permits because the coast is of federal jurisdiction and it should
412 be a federal permit. So, things like that happen (Interviewee N, Environmental
413 CSO).

414 Again, the interactions within the system of public administration are visible, as
415 corruption feeds into the problem of capacity shortfall, especially noticeable in relation
416 to the way in which public offices are filled. As a member of one CSO detailed:

417 High level public officers don’t have the capacity or the abilities or the
418 qualifications to be in that position. This is corruption of course because if you
419 review the authorizations to permits, you realized that they don’t even consider the
420 basic requirements according to the law. They are in that position because they are
421 from the same political party of a very high-level officer, or because they are
422 relatives, or friends. That happens all the time and we have seen also that this is an
423 issue of lack of accountability... (Interviewee D, Environmental CSO).

424 In short, the State of Quintana Roo is struggling to address the environmental
425 consequences of the rapid economic change that it has experienced in recent times,
426 change that have seen demographic, economic and social shifts, and which have
427 brought considerable stress on the highly vulnerable ecological system of the region.
428 Environmental degradation has been documented over the last decades: coral reef
429 degradation (Almada-Villela et al. 2002; Gardner et al. 2003), as well as macroalgae
430 proliferation due to nutrient pollution from inadequate sewage treatment and coastal
431 development (Mcfield et al. 2018), are some of the more critical impacts on the marine
432 ecosystem. Also, habitat destruction and mangrove cover decline are occurring at local
433 and regional scales due to land-use change driven by growing coastal urbanization (Ellis

434 et al. 2017; Brenner et al. 2018). Hardly any government agency has the capacity to
435 manage the public services for a State with the highest population growth in Latin
436 America (Boggio Vázquez 2008). But, in the case of Quintana Roo, these
437 environmental management problems are made all the more difficult by a system of
438 governance that is highly centralized at the Federal level and whose deep corruption
439 plays out at the local, place-based scale.

440 At least two decades ago, the Federal Government recognized the potential for
441 corrupt practices in Quintana Roo around large tourism developments. This is seen, for
442 example, in statements made by the then Environment Secretary that public officials
443 must act within the law when giving construction permits, and that hotels investors must
444 also fact legal consequences if they start building without the required permit (May and
445 Guillén 2003; Proceso 2004). However, despite these pronouncements, there has been
446 limited progress to date in ensuring the application of the law and in instilling good
447 governance practices into planning decisions (Morris 2018).

448 Having detailed the environmental challenges of the State, attention is now
449 turned to how and in what ways these challenges are being addressed.

450 ***Hybrid Governance Arrangements***

451 It is in the context of the inability and even unwillingness of the State to address
452 environmental degradation that private, local non-state actors have begun to mobilize.
453 These include CSOs, ENGOs, SMEs and BIAs. These actors have begun to play an
454 important role in the governance of the environment in Quintana Roo. The role played
455 by private investors in changing land-use and environmental planning in order to
456 facilitate the development of the tourism sector in the coast of Quintana Roo has been
457 well documented (Manuel-Navarrete and Pelling 2015). Furthermore, BIAs, including
458 Chambers of Commerce, have exhibited strong capacity to shape economic policy in the

459 region, especially through lobbying (Boggio Vázquez 2008). However, our research
460 paints a more complex picture than one that simply displays local business interests as
461 merely being at odds with environmental protection and regulation.

462 In part, the engagement of local private actors is driven by a reactive response to
463 the growing threats caused by pollution, in particular in the marine environment. BIAs
464 linked to the tourism sector have developed in the area primarily to represent the
465 interests of the sector, such as providing commercial, financial and legal advice to their
466 members. They have also become an important provider of professional training for
467 employees in the sector. Business self-interest thus plays a key role in the organizations'
468 mobilization on environmental issues, as is evidenced by the following comment:

469 If we work trying to get a sustainable destination, we are working on having our
470 business. A better business. Because if we finish our resources, human resources,
471 economic resources, natural resources, we're not going to have any more business.
472 We're going to go broke (Representative G, BIA Tourist Sector).

473 Similarly, the need to protect the environmental resource base of economic (tourism)
474 activity is reflected in the comment made by an association dealing with coastal and
475 marine tourism:

476 ... we need to protect the ecosystems we are using to do our activities... because
477 we need to have healthy places to offer to people in the water sports sector
478 (Representative F, Association of Dive Operators).

479 There are strong echoes here of an ecological modernization agenda, which stress the
480 synergy between environmental protection and economic growth. In this view, actions
481 to protect the environment can protect businesses, including through cost reductions
482 that, in turn, improve profitability (Baker 2015). This is presented rather starkly by one
483 of the main hotelier associations in the State:

484 ... I'm going to teach you how to save water because you're going to save money,
485 it's going to be good for your finance and you're going to take care of the
486 environment. So, we started working for the first two years with 12 hotels, and the
487 third year we started working with 100 hotels (Representative G, BIA Tourist
488 Sector).

489 Over time, this action can become significant, particularly at a place-based scale,
490 not only in mobilizing new environmental advocates but also in improving
491 environmental management:

492 We changed our speech and said hey, we're going to take care of the environment
493 but also, you're going to save energy, water and gas, diesel, and you're going to
494 recycle, - you are throwing your money to the garbage, literally, because you're not
495 recycling, so we reached them with the economic part, and then their eyes shine -
496 oh that's very good! I like that. And we reach them like that, so I think that was
497 how hotels are working in the environmental management system in an area; I
498 think that it's a huge achievement (Representative G, BIA Tourist Sector).

499 It is here that we see a move from re-active to more proactive engagement, which shifts
500 actions beyond the *ad hoc* to a more considered intervention. Consistent with its role as
501 an organization formed to provide institutional support to its members, the above
502 mentioned hotelier association explains:

503 We provide the guidance for the hotels to implement good practices in the hotels,
504 using a framework of management system for sustainability in the hotels operation
505 (Representative G, BIA Tourist Sector)

506 The informant goes on to clarify the significance of these good practice guides:

507 So, even if these documents are not mandatory, for the law in Mexico, inside the
508 association ... we take it as mandatory for our members (Representative F,
509 Association of Dive Operators).

510 In relation to these guidelines, transfer of good practice has also occurred beyond the
511 local membership, outwards in a transboundary manner:

512 We have a good practices booklet for the operations in the Mesoamerican reef. We
513 work together in workshops with people from Honduras, Belize and Guatemala,
514 the four countries share the Mesoamerican reef, and we got the good practices for
515 diving, snorkeling and for boat operations (Representative F, Association of Dive
516 Operators).

517 Even more significantly, institutionalization embed members in a global system of
518 private governance:

519 We started with this vision, then we moved to promote the GSTC¹, the criteria [of]
520 global sustainability and promoting best practices, mainly for hotel operations.
521 What we try to do is to implement a management system based on these criteria ...
522 in order to manage the sustainability in the hotels (Representative G, BIA Tourist
523 Sector). (Footnote 1)

524 This provides an excellent example of the rise of private governance and the resulting
525 variety of norm and rule systems, from reporting schemes to certification and
526 environmental management standards, which they endorse. As mentioned in the
527 opening sections of this paper, this form of private governance goes beyond mere co-
528 operation, as it involves rule implementation by private actors (Pattberg 2005). Our data
529 also suggests that, while several of the associations have introduced voluntary codes of
530 practice to govern the environmental behavior of their member's economic operations,
531 they are also concerned to promote better *public* regulation of such activity. While this
532 can be driven by fear that some operators gain competitive advantage by not having to
533 abide by such codes of practice, a logic of collective action well researched by Ostrom
534 (2009), this desire for government regulation is also of deeper significance. It shows
535 that the argument that private self-regulation merely provides an *alternative* response to

536 the lack of effective norms and rules by the state is insufficient, because here private
537 governance co-mingles with a push for public governance, creating complex forms.

538 Speaking about this Association's efforts, for example, to control diving with
539 Bull Shark, an increasingly popular tourist activity that is strongly promoted in Playa
540 del Carmen, but raises several concerns related to altering the feeding pattern of sharks
541 and, by encouraging them to congregate at the same site, increases the risk of shark kills
542 by fishers, our informant explains:

543 We have got good practices, for diving with the sharks. It's not mandatory. We are
544 looking for ... the government to support and put in the law rules or something to
545 go mandatory (Representative F, Association of Dive Operators).

546 Similarly, a hotelier association reveals:

547 And we are also working on trying to enhance the water quality legislation for the
548 karstic system, so that's what we are doing with the NGOs and with Healthy Reefs,
549 we have a collaboration agreement signed (Representative G, BIA Tourist Sector).

550 Working within the system of public administration, one informant from a dive operator
551 association explains to us that this often involves sharing experience and expertise,
552 especially in relation to rule making:

553 We work together, with the three different levels [of public administration], and we
554 are participating with them, we try to help them when they are looking for new
555 rules ... and we offer our experience and, yeah, our support ... we work with them
556 and we keep the goal to be nice with the municipality and the federation
557 (Representative F, Association of Dive Operators).

558 While the desire for a level play field may motivate this request for a regulatory
559 framework to govern such dives, and involvement in rule making may also be driven by
560 a desire to ensure that any new regulations align with their interest, it would be cynical,
561 and indeed unjustified by our data to suggest that this regulatory push by BIAs is

562 motivated only by narrow self-interest. Our data also shows that BIAs are concerned to
563 ensure sustainable tourism more broadly understood, through practices that take account
564 not only of economic, but also the social and cultural dimensions of development. As
565 the representative from the hotelier association argues:

566 ... now, we're talking to have a destination management office, that includes all
567 the vision of ... sustainable development, working on the culture... to set up an
568 organization that could manage the tourism, but with the destination vision that
569 includes economic, environmental, culture, but also having the responsibility to
570 work together to have a plan (Representative G, BIA Tourist Sector).

571 Here there is also the sense that private governance is motivated by moral
572 concerns, including the desire to provide voluntary 'beyond compliance' regulation.
573 This can be driven by a sense of responsibility as it is by economic self-interest:

574 ... going into multi-interest meetings with the government, other private sectors
575 organizations and working together ... some of the damage in the reefs, in the
576 cenotes are because of the diving operations. So we work on that and we try to
577 present a different face, telling them we are maybe more concerned to protect that,
578 because we work every day in that site, so we are not damaging the areas, we are
579 trying to protect them, and that's why we are participating in this kind of initiatives
580 (Representative F, Association of Dive Operators).

581 The mutual nature of the relationship between public and private sector actors is
582 also clear, especially the instrumental value that such collaboration brings to public
583 administrators, including in the area of capacity enhancement, especially for
584 implementation and enforcement. Speaking about their relationship with public
585 officials, one of the associations dealing with dive operations explains:

586 They recognize our position, our participation. The people recognize us inside the
587 government, the other private sectors do the same. They invite us, because they
588 recognize [us] the people that is in the municipality right now, ... we have

589 worked with them for a long time ago, so it's easy for us to go and discuss the
590 different topics and they ask us to participate in different projects and studies.
591 (Representative F, Association of Dive Operators).

592 Giving an example, the informant goes on:

593 we have worked recently in the declaration of a Biosphere Reserve in the
594 Mexican Caribbean ... and we really fought to get the Biosphere Reserve closer to
595 our coast ... also to protect the coral formations in front of Playa del Carmen,
596 which even if it's not a continuous barrier, there are still coral around
597 (Representative G, BIA Tourist Sector).

598 Network operate both vertically – upwards through the system of public administration,
599 but also outwards to other groups and actors operating in the area. Several interviewees
600 from BIAs pointed out that they are increasingly working with environmental NGOs.

601 One association provided an example of their work:

602 For example, with Amigos de Sian Ka'an, we've worked together for more than 10
603 years, to plan the Marine Protected Area project for the Riviera Maya. We did the
604 workshops, we invited the fishermen, the government, the National Commission of
605 Protected Areas... (Representative F, Association of Dive Operators).

606 In some cases, collaborative agreements have been signed between BIA and ENGOS.

607 For their part, ENGO have, as expected, themselves form relationships with government
608 offices. Speaking of this, one ENGO representative explains how this can also extend to
609 offices sharing information with them:

610 the National Commission of Protected Areas, CONANP, we work a lot with them,
611 they provide some of the data, depending on how much they did about monitoring,
612 (Interviewee D, ENGO).

613 In turn, the ENGOS reciprocate, particular in relation to training for monitoring of
614 environmental quality and in relation to regulatory compliance:

615 we also give a lot of training to check [monitor] on the reef, so we do the training
616 every two years to increase the number of people that are certified to check
617 (Interviewee D, ENGO).

618 In addition, ENGOs play a key role in data collection:

619 We do the monitoring [Eco-Audits of marine and reef health] in all the cities,
620 Cancún, Puerto Morelos, Playa del Carmen, Mahahual, Xcalac, Cozumel, Akumal,
621 that's pretty much all the coast (Interviewee D, ENGO).

622 The results of the eco-audits are widely shared. These reciprocal arrangements help
623 capacity building within the governance system overall, better supporting efforts to
624 address environmental degradation. However, the relationship between agents and
625 actors can nonetheless be complex, and many expressed their frustration with the slow
626 pace of response and reform from government agencies. As one ENGO laments:

627 For example, about improving the wastewater management, we have been asking
628 for that for five years and it's not in their priorities. It's recognized, the problem is
629 recognized, but there's no money or... financial aid to improve that part, [we] want
630 to see the changes needed very fast and sometimes they don't... (Interviewee D,
631 ENGO).

632 Such frustration can bolster their own private efforts. Nevertheless, most of networking
633 arrangements between private and public actors have, over time, become stronger. This
634 thickening of the networks between public and local private actors add stability to
635 collaboration, provides a means of strengthening input legitimacy for public policy, that
636 is, it helps to better ensure that decisions are made in a way that involves those being
637 governed (Scharf 2003). It also strengthens environmental governance, including
638 through capacity enhancement especially for problem solving (Baker and Chapin 2018).
639 The thickening can bring positive environmental outcomes:

640 For example, in Puerto Morelos, in Limones, we have 30% coral cover of
641 Acropora, which is one of the most threatened species and it builds the reef. So that
642 site was protected like two or three years ago, because it is so special, because they
643 used to fish there and also do snorkeling activities, because it's very shallow, so it
644 was used for that. Now, with all the data from CONANP, UNAM, and Healthy
645 Reefs, CONANP realized that they have to protect it, so no fishing... nothing is
646 allowed there, only research with a special permit, it's like the crown of Quintana
647 Roo (Interviewee D, ENGO).

648 **Conclusion**

649 This paper explored the governance of complex, adaptive SES systems, focusing on the
650 challenges of governance as new and rapid forms of economic development disrupts
651 existing patterns of relationships within that system. It examined whether hybrid modes
652 of governance can promote sustainability within the context of such dynamics. The
653 paper provided an empirical study of the role of hybrid, public and private actor
654 engagement in the State of Quintana Roo, Mexico. It detailed the motivations of private
655 actors and asked if and how such hybrid governance enhances governing capacity, or
656 governmentality, and the consequences of this for sustainability.

657 From the opening discussion we recall that the literature has identified key
658 conditions that are critical for the governance of socio-ecological systems as: (1)
659 flexibility in institutions to deal with changes, (2) openness of institutions so as to
660 provide for broad participation, not least in local decision-making and administration,
661 (3) effectiveness of multilevel governance, (4) social structures that promote learning
662 and adaptability without limiting the options for future development.

663 The paper has addressed each of these conditions. Turning in particular to the
664 conditions of openness and participation (2), the paper has identified the factors that
665 motivate local, private actors to co-mingle with government authorities, and the
666 willingness of such authorities to open up and reciprocate. The study has shown the

667 multiplicity of factors that motivate private actor mobilization, and that, while driven by
668 economic self-interest, wider ethical concerns and a sense of moral obligation motivated
669 by place attachment also mobilized these actors to engage in environmental protection.
670 The resultant multi-actor initiatives were shown to constitute genuine attempts to build
671 and improve upon the limits of State responses to environmental threats.

672 In relation to private, economic actors, we have shown evidence of self-
673 interested engagement in environmental governance, including in relation to rule
674 implementation, such as through voluntary codes of conduct, motivated by a desire to
675 protect the ecological recourse base of their businesses. These findings resonate with the
676 current literature that contends that multi-actor governance has considerable effects
677 through the imposition of voluntary environmental rules and standards; but we have
678 also shown that the thick relationships that have developed between the actors allows
679 for norm transfer. Networks have been shown to provide the conduits through which
680 learning (4) can take place. This helps to explain, at least in part, the strong normative
681 dimensions to BIA engagement. These networks have also been shown to extend
682 learning into the system of public administration. This not only enhances the
683 governability of the environment but serves to support government in their wider, public
684 functions. Here, hybrid governance offers the potential to contribute to the much-needed
685 institution building for the effective promotion of public goods. For their part, CSO and
686 ENGOs come with an influx of finance, technology, information and other resources
687 that provide data, ecological monitoring, training and evaluations of the 'fit' of
688 regulation for the place-based context that they are designed to govern. Thus, the
689 research has revealed the opportunities that hybrid governance brings, both in terms of
690 instrumental but also normative benefits that can make a positive contribution to dealing

691 with specific environmental issues and, more generally, to the promotion of
692 sustainability.

693 We have used the concept of ‘hybrid governance’ as a conceptual lens in this
694 paper to explore the characteristics of SES governance in detail. This concept has
695 enabled us to focus on the motivation for, and consequences of, private actor
696 mobilization to better understand SES governance. While the literature on hybrid
697 authority has, to date, been largely restricted to the examination of hybrid arrangements
698 that involve formal partnerships, this paper has turned its attention to the richness and
699 diversity of forms of *informal* relationship that emerge in practice. Adopting a wider
700 understanding of hybrid governance arrangements has de-centered the focus that has
701 hitherto existed in the literature on the Weberian state, that is, on public organisations
702 and administration and its authority as it extends over various areas of public policy.
703 Shifting attention to the relationships between the state and various other governance
704 actors outside formal institutionalization has proved important, revealing in a new way
705 the capacity of the system to responding to change (1), in this case, to the threat posed
706 by environmental degradation.

707 In the Mexican context, the origins and rationale for multi-actor governance
708 have to be placed in a political context – one of deep corruption and state failure, and
709 where the system of multi-level governance is ineffective as a mechanism for the
710 promotion of the common good (3). It is tempting to say that in this context, multi-actor
711 mobilization acts as an alternative to condition 3 above, in effect amounting to a by-
712 passing of the authority and involvement of the state. There is always the risk here that
713 their mobilization and engagement results in a zero-sum game, where the state can use
714 private governance as an excuse to retreat from its public obligations and
715 responsibilities. However, our data reveals a more complex picture – where private

716 actor mobilization also seeks to engage with the state and the Federal authorities. This
717 includes through efforts to enhance and promote better regulations, designed to co-exist
718 with voluntary codes of conduct, to share data and resources, and to improve
719 implementation capacity within the system of public administration.

720 The paper has provided empirical contribution, generating new data on the
721 governance of coastal zone SES in the state of Quintana Roo, Mexico. The paper has
722 also provided theoretical contribution. It goes beyond the literatures' focus on formal
723 partnerships arrangement, to reveal the practices that exist outside of formal
724 institutionalization. It is important to recognize that hybrid authority can exist through
725 both formal and informal arrangements, not least so as to enable exploration of cases
726 other than those characterized by western models of governance and public
727 administration. Furthermore, while the literature has identified the conditions necessary
728 for the governance of sustainable social-ecological systems, this paper goes beyond to
729 show how these conditions are themselves interrelated and dynamic. These conditions
730 need to be understood not simply as a list of characteristics of system governance, but
731 as a set of conditions that are characterized by their own feedback dynamics. This was
732 seen for example when lack of governance effectiveness (3), in turn stimulates openness
733 (1), participation (2) and learning (4) across the system. It also shows how these
734 conditions play out in context in ways to reveal both the opportunities provided by
735 hybrid governance but also the potential risks involved in hybrid steering.

736

737 **Footnotes**

738 1. The Global Sustainable Tourism Council (GSTC) establishes and manages global sustainable
739 standards, known as the GSTC Criteria, for the tourism sector. The GSTC Criteria form
740 the foundation for Certification Programs that certify hotels/accommodations, tour
741 operators, and destinations as having sustainable policies and practices.

742

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749

750 **Authorship contribution statement**

751 All authors contributed to the primary research, data analysis and writing of this article.

752

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