



Why Conferences Matter—An Illustration from the International Marine Conservation Congress

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OPEN ACCESS

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Specialty section:

This article was submitted to
Marine Conservation and
Sustainability,
a section of the journal
Frontiers in Marine Science

Received: 14 March 2017

Accepted: 26 July 2017

Published: 09 August 2017

Citation:

Oester S, Cigliano JA, Hind-Ozan EJ
and Parsons ECM (2017) Why
Conferences Matter—An Illustration
from the International Marine
Conservation Congress.
Front. Mar. Sci. 4:257.
doi: 10.3389/fmars.2017.00257

A major activity in the life of an academic is the professional conference. It is common knowledge that this is a place to present your research, but what about other benefits of attending a conference? Online surveys were distributed to delegates of the 3rd and 4th International Marine Conservation Congresses (IMCCs), with respondents' ($n = 100$) feedback including that the congresses provided useful new information that will aid: (1) their research (58%); (2) in-the-field conservation (29%); (3) conservation communication (46%); and (4) conservation and management policy making (45%). They also reported gaining new techniques (56%), skills (64%), and novel ideas (70%) to further their research/careers. Nearly all (91%) gained new contacts that improved their research, in-the-field conservation, science communication, and/or conservation policy making. Two thirds (64%) gained ideas, contacts, and/or lessons could lead to publications. Over a third (39%) gained new ideas, contacts and/or lessons that led to grant proposals, and 36% gained contacts that led to funding. A conference is not just an avenue for a scientist to present their research to the wider community, but it can be an important venue for brainstorming, networking and making vital connections that can lead to new initiatives, papers and funding, in a way that virtual, online meetings cannot. This is why conferences matter.

Keywords: conferences, communication, promotion of research, proposal writing, brainstorming, collegiality, writing manuscripts, collaboration

CURRENT ISSUES FOR ACADEMIC CONFERENCES

A major activity in the life of an academic, or graduate student, is the professional conference. It is commonly accepted that attending a conference is a great way to be exposed to the latest studies and ideas from your field. Conferences are also a way of getting face-to-face interactions with leaders in your field, and for those just starting in academia, they are a way to gain valuable advice and mentoring (Parsons, 2015). Additionally, they are a way to start collaborations on papers or projects, and to more directly advance your career by finding new positions or to build your program by using these meetings to recruit faculty, students, or interns or to even to make money, by selling your new technology or software to practitioners (Parsons, 2015). Conferences are an invaluable resource to academics beyond just the conference presentations themselves.

However, increasingly organizations are being more and more thrifty with funding attendance at meetings, with universities, agencies and NGOs often only providing funding for attendance if the potential participant has a presentation. From communications with potential delegates, the organizers of the International Marine Conservation Congresses (IMCCs) have found examples of those who proposed to present an oral presentation, but whose presentation was accepted as a speed/short talk or poster, often having their funding dependent on having a full spoken (oral) presentation—neither a poster, speed/short presentation, nor active participation in a workshop will be granted funding. Besides the fact that poster and speed/short presentations may often be the best and most effective way to present some data, and may allow more interaction with interested peers (Halligan, 2008), such funding restrictions mean that all the other benefits of conferences mentioned above are effectively discounted by agencies—the reality that conferences are a learning/training experience, not just an avenue to present your research, is ignored.

Secondly, there have been criticisms about the environmental impacts of conferences (e.g., Biggin, 2007; Mair, 2014). Conference travel does pose negative environmental impacts—air travel of hundreds to thousands of delegates most likely being the chief culprit. Indeed, technology is rapidly changing to make global meetings more accessible without leaving the home or office. Video conferencing, “Google + Hangouts,” instant messaging, and live streaming have become a norm for modern business. This is immensely beneficial for frequent communication and those who cannot travel due to physical and financial reasons. It is not surprising then that some are advocating for the exchange of in-person attendance at conferences with virtual attendance (Reay, 2003; Smythe, 2010; Arslan et al., 2011). However, such advocacy is again a position that does not always consider the benefits of in-person attendance at conferences.

In this position paper, organizers of the IMCCs re-emphasize the benefits of in-person conference attendance, strengthening the case for such attendance. They also describe limitations in advocacy for reduced in-person attendance at conferences, illustrating how the benefits of in-person attendance outweigh any negatives.

ATTENDEE FEEDBACK ON CONFERENCE ATTENDANCE

To get a deeper understanding of the additional benefits that participants receive from a conference, beyond simply presenting their work, conference organizers distributed online surveys via email to the delegates of the 3rd International Marine Conservation Congress (IMCC3)—held in 2014 in Glasgow, Scotland (organized by the Marine Section of the Society for Conservation Biology [the SCB Marine Section]), and the 4th International Marine Conservation Congress (IMCC4)—held in 2016 in St. John’s, Canada. The surveys were submitted to all conference registrants via “Survey Monkey” (IMCC3) and “Google Forms” (IMCC4) online survey instruments. While

these contained over 20 questions each, the only ones taken into account here are those relevant to this perspective paper. Responses to between two and five closed or open-ended questions are analyzed from each survey. The responses are summarized in Tables S1, S2.

The survey results demonstrated that there were numerous positive impacts of international conference attendance. Respondents for IMCC3 ($n = 100$; ~13% response rate; 95% confidence interval $\pm 9.16\%$) reported gaining useful new information that will aid: (1) their research (58% of respondents); (2) in-the-field conservation (29%); (3) conservation communication (46%); and (4) conservation and management policy making (45%). The most frequently made open-ended comments on the benefits of in-person attendance at IMCC3, emphasized networking opportunities, the hands-on building of communication skills, and the reflective environment for identifying knowledge gaps in conservation science. Respondents generally felt that networking, communication, and brainstorming are more successful when done in person.

Respondents also reported gaining new techniques (56%), skills (64%), and novel ideas (70%) to further their research and careers. One of the biggest impacts reported may have been new contacts leading to partnerships and funding for research and projects. Of total respondents, 91% answered they gained new contacts that improved their research, in-the-field conservation, science communication, and/or conservation policy making. Respondents commented more of an impression is made in person, leading to more successful long-term professional relationships. A majority (64%) stated they gained ideas, contacts, and/or lessons that have led, or may lead, to new publications. Moreover, 39% responded they gained new ideas, contacts and/or lessons that led to grant proposals, and 36% said they made contacts that led to funding.

Respondents for IMCC4 ($n = 83$; ~13% response rate) added that they made new contacts in their specific area of research (89%) and re-established old professional contacts (41%). They also established new working relationships with somebody from their own (24%) or another (31%) country. In comments, they noted that it was especially advantageous to be able to make collaborations in multiple continents and from within other disciplines or sectors.

INDIVIDUAL BENEFITS OF IN-PERSON ATTENDANCE AT CONFERENCES

Focus groups and meetings of small groups at conferences can have immense advantages. Gathering people with varied expertise, experiences, and from different parts of the world has led to new initiatives, publications, and enhanced multidisciplinary learning. An example of this is the special issue in the journal *Ocean and Coastal Management* that highlights some of the best outputs of IMCC3 (Cigliano et al., 2015a). It includes a paper written following an IMCC3 focus group attended by biologists, policy experts, and mathematicians, that models and assesses impacts from whale-watching tourism (New et al., 2015), as well as a manuscript that collates different and

diverse ideas on how to fill historical gaps in marine conservation datasets, where the ideas were contributed by scientists from Australia, the USA, and UK during an open discussion at the same conference (Thurstan et al., 2015). A paper in the more recent IMCC4 proceedings, is an output of several focus groups at that conference oriented toward supporting a new global initiative for increased diversity in marine conservation networks (Smith et al., 2017).

Political movements have also been started from in-person sessions at conferences, including cross-country agreements and legislation (Aswani et al., 2015), as have policy initiatives; efforts by members of the SCB Marine Section to save the most endangered marine mammal, the vaquita, started prior to the IMCC3. But, the international conference catapulted efforts after in-person talks and agreements. Now a formal movement, *Save the Vaquita* is effecting real-world change and having noteworthy sway on conservation efforts, including governmental support in Mexico (<http://conbio.org/groups/sections/marine/save-the-vaquita/>).

Put simply, virtual conferences cannot accomplish what in-person conferences can. Communication studies and research on deliberative methods have demonstrated learning and collaboration are better facilitated during two-way exchanges (Rowe and Frewer, 2000; Abelson et al., 2003). Although a speech or presentation can be posted online and viewed by an unlimited number of the people, video and written posts only facilitate one-way communication. For two-way or multi-way communication to occur, online meetings need to happen, allowing attendees to interact and ask questions. However, web conferencing can only accommodate a limited number of people—tens or hundreds of attendees cannot communicate together. Additionally, virtual meetings of any kind cannot ensure attendance.

Furthermore, international virtual meetings hoping to achieve multi-way communication depend on attendees in different time zones gathering online. A single time cannot oblige every time zone, and organizers are sure to lose those who live in regions where the online meeting occurs at night or other inconvenient times. Gathering everyone in the same place ensures attendees are operating in the same time zone. Even with jet lag, this is more effective. Face-to-face meetings similarly eliminate the many distractions that can be experienced by attendees at work or home resulting in decreased focus or a lack of attendance all together.

Online meetings also tend to operate in a vacuum, attracting attendees who are already interested or working in the same field or on a similar project. Physically gathering people together encourages people to attend talks and other sessions that may seem to be outside an individual's field or interests. One paper in the IMCC3 proceedings, for instance, is an output of a symposiums and focus groups at the conference orientated toward the creation of multidisciplinary toolkits to guide citizen science (Cigliano et al., 2015b). The toolkits are meaningful outputs that foster the opening of more citizen science projects in more disciplines and regions. It is authored by IMCC3 attendees from the diverse fields of biology, social science, and education studies. Multidisciplinary and cross-sectoral attendance at talks allows for the exchange of ideas and techniques across fields.

A theory or research technique common in one field may not have been adapted to another field, but could be beneficial. Conferences provide the means for exchange across disciplines and sectors.

Concerning people from underrepresented areas, grants to sponsor travel from developing countries are increasing (<http://conbio.org/mini-sites/imcc-2016/registration-participation/diversity-travel-grants/>). For those attendees, speaking about their home country and distinctive issues in person is an important experience. Although funding may be available for computers in developing countries, many areas still lack infrastructure for internet access or even reliable electricity. And even if there is internet access, the necessary bandwidth for virtual conferences might not be available (as we have experienced during quite a few board meetings). Although it seems, at first thought, virtual meetings may be better suited for people representing developing regions, researchers who live or work in these areas understand the difficulty of accessing online resources. Attending a conference can provide key knowledge, skills, and contacts that would not otherwise be achieved.

Frequently, much of the networking at conferences occurs in hallways or during social events. You cannot enjoy a virtual drink! Online conferences cannot facilitate this type of communication. Entire research projects have been started from casual interactions at regional and international conferences. Getting to know potential colleagues occurs more naturally in person. Social interactions have been vital for many researchers, especially students. Remote meetings are generally designed for efficiently meeting a goal or solving issues, strictly following agendas. This does not allow for important social connections (Harrison, 2010). Genuine impressions are made in person, not over the phone or via an internet connection.

Networking is a considerable benefit of traditional conferences. Survey respondents and past conference delegates have described the importance of face-to-face networking at conferences to gaining funding, career opportunities, research opportunities, and new partnerships and collaborations. Memorability and perceived authenticity can increase when meeting someone face-to-face over communication that only occurs online. Conferences can help deepen professional relationships and connections.

Interactive workshops are another benefit of conference attendance. Many science conferences offer workshops that are essentially mini-classes where delegates learn new skills and how to use new technology (Harrison, 2010). Attendees may not have time and resources to take lengthy courses, and online courses may not be available or effective for all types of learners. Workshops taken in conjunction with conference attendance allow delegates to learn new statistics programs, mapping programs, remote sensing skills, modeling software, and communications tools, to name a few. Interactive workshops can substantially advance research, projects, and careers. Some workshops even teach skills that can be used to have direct impact, such as marine mammal rescue courses.

Many times, techniques and projects that did not work out as planned are not published in scientific literature. Due to the limited space in journals and the suspected potential effect on the

researcher's reputation by publicizing work deemed as "failures," malfunctions in research design are not widely publicized. Speaking to other researchers personally at conferences is where these conversations of failed attempts occur. Learning what has not worked for other researchers can help scientists save precious resources, including time and money. These conversations can also help researchers redesign unsuccessful projects. Learning from the personal mistakes and missteps of others is an incredible resource, individually and collectively.

Moreover, conference presentations are considered necessary for a career in the sciences. A traditional means of presenting hypotheses, research results, and newly developed theories, universities require or reward students and professors who present in-person at scientific conferences. Presenting at an exclusively online meeting does not carry the same weight or prestige. In many cases, conference presentations are necessary to keep university positions or advance academic careers.

GROUP AND INSTITUTIONAL BENEFITS OF IN-PERSON ATTENDANCE AT CONFERENCES

In addition to individual benefits, non-governmental organizations (NGO) can also garner much-needed support by presenting and attending conferences. Online, non-profit charities and NGOs compete against a vast array of other organizations. It can be difficult to gather supporters through the daily background noise of online information. Conferences are an unequivocal means to meet people crucial to furthering organizations. In-person representation makes a greater impression on potential supporters, similar to the effects for individual attendees previously discussed. Increased support from conference attendees leads to increased online chatter, which can have exponential results. More support means more funding and increased real-world impacts made by NGOs.

Conferences also allow for exchanges across universities. Multi-university collaborations can be difficult, but conferences provide the interface for this to transpire. Combining resources and experiences can not only further specific research efforts, but also science in general. Examples of such fruitful collaborations from IMCCs include Parsons et al. (2014), Cigliano et al. (2015b), Hind et al. (2015), and Cigliano et al. (2016). Emails are not always effective for starting collaborations, and researching potential universities for partnerships takes time. Being in the same place as representatives from other universities accelerates the process and leads to real results. New research stations and enterprises have been established by multiple universities pooling resources as a result of meeting at conferences.

For certain conferences, registration fees help to financially support other initiatives of non-profits. Conferences can be a fundraiser for projects and grants that provide direct backing for environmental issues and endeavors. For example, funds collected at IMCCs help support marine conservation communication initiatives and policy projects of the SCB Marine Section, such as the *Save the Vaquita* campaign. Funds may also support other branches of an organization. For example, some registration fees received at a large international conference may

be used to support research projects in underrepresented regions, as is done with some of the fees collected at IMCCs by the SCB Marine Section. These regions may be comprised of developing countries with limited resources but ample biodiversity. The SCB Marine Section Conservation Research Small Grants program, for example, is made possible through registration fees collected at IMCCs.

OVERCOMING THE LIMITATIONS OF IN-PERSON ATTENDANCE AT CONFERENCES

Many science conferences, especially those concerning environmental issues, are increasingly taking steps to monitor (Hischier and Hilty, 2002) and counterbalance the environmental impacts of conference travel (Parsons, 2015). Moreover, agencies (such as the US Environmental Protection Agency <http://www.epa.gov/p2/green-meetings>) and industry (e.g., Doubledutch, 2014) even have websites offering advice for those wanting to reduce the impacts of their meetings. IMCCs, for instance, follow the Sustainable Event Policy of the SCB (<https://conbio.org/conferences/about-scb-meetings/scb-sustainable-event-policy>).

Additionally, conferences are now frequently offering or mandating the collection of required or optional carbon offset fees to help ameliorate the negative environmental effects of conference travel. Delegates to IMCC4 paid a compulsory offset fee as part of a policy adopted by the meeting organizers to bring the conference into alignment with the Paris Agreement (<http://conbio.org/mini-sites/imcc-2016/about/carbon-offsetting/>). Carbon offset fees fund environmental projects, such as native tree planting and wildlife conservation.

Although technology has advanced to levels once thought of as unattainable, these tools should supplement conferences, not replace face-to-face interactions. Fraser et al. (2017) rightly conclude that global virtual conferencing is possible for fields like conservation biology. These have been investigated by IMCC delegates in discussion sessions at OceansOnline, an affiliate conference of IMCC4, with a result of organizers subsequently looking to offer telepresence as an option for the forthcoming 5th International Marine Conservation Congress (Thaler, 2017). Yet, Fraser et al. (2017), while additionally noting the virtual approach's susceptibility to technical difficulties, are also among the scientists that cannot get past the social limitations virtual conferences impose. Psychology, management, and communications studies have shown that information exchange, collaboration, and networking multiply during face-to-face meetings (Duffy and McEuen, 2010). Effective collaborations require understanding the nuances of collaborators—nuances that cannot be perceived virtually. Physically gathering people with different backgrounds and expertise may be difficult on a regular basis, but large conferences allow for this to happen.

Suggestions that a number of regional meetings could replace global meetings, providing the same face-to-face benefits while reducing travel-associated carbon emissions (Smythe, 2010), may well be appropriate in some cases. However, history has shown that regional conferences provide a different face-to-face knowledge sharing experience to global meetings, capture few

non-regional issues, and lack the scope to address global problems like those typical of marine conservation (Craggs and Mahony, 2014). For large-scale environmental efforts to be successful, multidisciplinary endeavors and collaborations across regions are crucial.

Recent thinking associated with delegate carbon footprints is, anyway, beginning to ask whether groups like scientists are becoming a bit over-pious with refusals to travel. Calls, have instead been made for individuals and groups to perform a “net-benefit test” when making travel decisions (Favaro, 2017). In the case of attending an IMCC, this would mean them asking, “Is there a reasonable chance that by attending this conference I will be able to produce, directly or indirectly, a net benefit for conservation?” (Dr. Brett Favaro, personal communication). If their non-attendance is impeding career-advancing opportunities and important knowledge sharing, they may be slowing the development and advance of the marine conservation discipline to the detriment of ocean health. Accepted norms for scientists should allow the most effective pursuit of goals, such as those for marine conservation. IMCC organizers have already implemented the net-benefit approach by reforming their organizing approach to reduce carbon emissions, running in-situ applied workshops to improve conservation practitioners’ skills, integrating outreach activities in the conference host city (e.g., beach cleanups, marine education activities) as part of the official conference program, and through advancing conservation initiatives as part of scientific sessions. Although conference travel can have negative environmental impacts, the environmental benefits achieved by increased conference participation surely outweigh the travel factor.

Moreover, conference organizers can take steps to reduce their environmental impacts by picking a venue that uses sustainable practices (Draper et al., 2011; Parsons, 2015). Other ways in which the impacts of delegate travel can be offset or minimized include (Parsons, 2015):

- Trying to reuse, reduce, and recycle as much as possible—give delegates travel mugs and distribute water stations and recycling bins throughout the venue.
- Ensuring that food and drink are from as sustainable a source as possible (vegan and local options are best, but if not possible, then vegetarian and local options should be used).
- Having the program online (available to download as a.pdf or an online app). Have delegates order hard copies of programs in advance, to minimize printing costs and paper wastage.
- As noted above, having a carbon offset charge for the entire conference included as part of the conference budget (“opt in” carbon offset structures have a low rate of enrollment, i.e., <10%).
- Conference organizers and delegates uniformly applying the net-benefit test described in this section.

Finally, when hosting a conservation/environmental conference, organizers can make the most of having a large congregation of international conservation/environmental experts—recruit volunteers from attendees to participate in beach clean-ups, tree plantings, and similar activities; host advisory meetings

and capacity building/training workshops with local grassroots environmental groups; do educational visits to local schools, hospitals, and colleges (Parsons, 2015). The educational and practical, real world benefits provided by a conference delegate might have a major and long lasting benefit to the local host community and their environment.

SUMMARY

Conferences are so much more than simply listening to talks. In light of recent evidence that conference attendances are dropping (Stevens et al., 2016), their benefits must be re-emphasized in order to help prevent the inevitable decline that would then come in areas such as knowledge sharing, career development, and research collaboration. We have added a starter list of suggestions for maximizing the benefit from conferences, in order that an even more compelling case can be made for in-person attendance (see Table S3). Agencies, NGOs, and universities clearly benefit by sending people to conferences, even if attendees do not have an oral presentation. A conference is not just an avenue for a scientist to present their research to the wider community, but it can be an important venue for brainstorming, networking and making vital connections that can lead to new initiatives, papers, and funding, in a way that virtual, online meetings cannot. This is why conferences matter.

ETHICS STATEMENT

The research qualified for exemption for an IRB process as it fully met exemption criteria under Category 2 of the U.S. Code of Federal Regulation Title 45 Public Welfare Part 46 Protection of Human Subjects 46.101b. Qualification for this exemption was achieved as the survey procedures ensured (i) information was obtained and recorded in such a manner that human subjects could not be identified, directly or through identifiers linked to the subjects; and (ii) because any disclosure of the human subjects’ responses outside the research could not reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects’ financial standing, employability, or reputation. At point-of-taking, survey respondents were informed of the purpose of the IMCC feedback surveys and given the assurance that their answers were confidential. Precise personal identifiers (e.g., exact ages) were not sought. Written consent could not be obtained as the research instrument was an online survey. Consent was, therefore, obtained by virtue of survey completion.

AUTHOR CONTRIBUTIONS

All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: <http://journal.frontiersin.org/article/10.3389/fmars.2017.00257/full#supplementary-material>

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Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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