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Fishing Livelihoods as Key to Marine Protected Areas: Insights from the World Parks Congress

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ABSTRACT

1. Marine protected areas (MPAs) have become a widely used tool for marine conservation and fisheries management. In coastal areas, it has become clear that the success of MPAs, and the achievement of sustainable fishery production, requires a combination of effective management and conservation frameworks, maintenance of decent fisheries livelihoods, and effective participation of coastal communities, fishing people, and other ocean users in considering, designing and implementing MPAs. These ingredients are crucial to provide the social sustainability needed to achieve ecological sustainability, and in particular, to reconcile fisheries and marine conservation objectives, in light of the United Nations Sustainable Development Goals and Aichi targets of the Convention on Biological Diversity (CBD).

2. Since its inception in 1962, the series of World Parks Congresses (WPC) has focused on protected areas, in both terrestrial and marine domains. The 2014 WPC in Sydney reinforced the apparent movement, started at the Durban WPC of 2003, towards recognition of social and economic issues related to MPAs, including the importance of food security and livelihoods, and the crucial nature of interactions between MPA and fisheries. Many discussions at the 2014 WPC focused on these human dimensions of MPAs, and the need to incorporate them into MPA decision-making.

3. The process of producing a Marine Statement at the 2014 WPC, as a component of the "Promise of Sydney" declaration, led to a range of concerns. These included process issues over transparency and inclusiveness, and content issues focused on representation of the social and economic conclusions, and especially the advocacy of a specific MPA target put forward for no-take areas.

4. This article examines the WPC process and outcomes, with emphasis on the role of people (in particular, fishers) in marine conservation, focusing on coastal MPAs. The article also discusses potential strategies for moving constructively beyond the still existing tensions between environment- and people-focused conservation and development.

KEYWORDS

Coastal; Ocean; Fisheries; Marine Conservation; No-Take Marine Reserve; Protected Area Targets; Sustainable Livelihoods; Food Security; Participatory Governance; Human Dimensions.

1. Introduction

Given the right empowerment and support, fishing people around the globe are among the world's strongest conservationists (Cochrane *et al.,* 2014). Conservation, for fishers, is clearly a balancing act of taking enough now, using appropriate methods, while leaving enough for the future. Indeed, many small-scale fishing communities have been able to pursue this balance – local-level 'sustainable development' – for millennia before the Brundtland Commission coined the term (WCED, 1987). In challenging situations of poverty and food insecurity, fishing may focus on short-term food and livelihoods, but otherwise, fishers want to be catching fish not only this year but for years to come. Furthermore, traditional communities are aware that their fisheries rely not only on the maintenance of the targeted stocks but also on the ecosystem that supports these stocks. Traditional ecological knowledge (TEK) is accordingly an important ingredient for ecosystem-based management (Berkes *et al.,* 2000; Golden *et al.,* 2014).

Accordingly, a key lesson for those focusing on the goals of nature and biodiversity conservation is that having the support of fishing people – whose lives depend on the resources they use – may well make the difference between success and failure in meeting conservation objectives (McClanahan *et al*., 2006; Pomeroy *et al*., 2007, Ban *et al*., 2011). Indeed, if conservation initiatives are imposed without fisher support and involvement, the results can be very negative – both to conservation goals and to the wellbeing of fishers. The greatest opportunities for success will come when such fisher support and involvement is combined with comprehensive attention to the underlying causes of any overfishing and/or destructive fishing practices.

These lessons are crucial for marine protected areas (MPAs), which have been receiving increasing attention over recent decades (FAO, 2011; Weigel *et al*., 2014). Though initially viewed mainly as a tool for biodiversity conservation, the potential for MPAs as a means to improve fisheries management has also been postulated for some time (e.g. Ballantine, 2014). This should not be surprising given that MPAs are a form of spatial management, and spatial management measures are frequently used by fisheries managers (Charles and Sanders, 2007). There are, however, ongoing debates regarding (i) how effective are MPAs (especially no-take closures) for improving fishery yields when established primarily to meet biodiversity conservation objectives, and (ii) whether MPAs can deliver social and economic benefits to local communities as well as positive conservation outcomes (FAO, 2011; Bennett and Dearden, 2014). MPAs have been the subject of considerable discussions and reviews from these different perspectives within the journal literature, as well as by a range of organisations and in many conferences and meetings.

A key focal point for discussions of MPAs and other protected areas, and indeed the most important international legal instrument related to the establishment of MPAs, is the Convention on Biological Diversity (CBD), which includes objectives for both conservation of biological diversity and sustainable use of its components. Article 8 of the Convention refers specifically to protected areas and, in 2004, the CBD's decision-making body, the Conference of Parties (COP) agreed that "marine and coastal protected areas are an essential tool for the conservation and sustainable use of marine and coastal biodiversity" (Decision VII/4). The Aichi Biodiversity Targets, agreed by governments in 2010, include, among other things, quantitative targets for "equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures" (Aichi Target No 11). These targets also refer to fisheries and the need to avoid overfishing and to limit the negative impact of fisheries on stocks, species and ecosystems (Aichi Target No 6) (CBD, 2015).

In the fisheries arena, a corresponding emphasis on more explicit recognition of broader ecosystem aspects in fisheries management is evident through the increased attention to and application of ecosystem-based approaches (FAO, 1995; Charles, 2014) including the FAO-developed ecosystem approach to fisheries (EAF) (FAO, 2003). Management that combines more specific fisheries management measures with biodiversity conservation measures – such as MPAs – is increasingly recognized as an important advance, and is indeed becoming more common, within the overall objective of fisheries management: sustainable utilisation of fishery resources for the benefit of people, while maintaining biodiversity (FAO, 2011). The important role of fisheries, especially small-scale fisheries, for food and nutrition security and poverty eradication is increasingly recognised (FAO, 2015).

Noting these developments, there seems to be a level of convergence between biodiversity conservation and fisheries management objectives (Charles, 2005; Garcia *et al*., 2014) – objectives that in the past may have been treated more separately (Weigel *et al.*, 2014). Despite this convergence, there remains a clear tension between biodiversity conservation and fisheries management objectives.

This article examines these themes by focusing on interactions of MPAs with fisheries and fishing livelihoods, and more broadly on the range of perspectives regarding the role of people (in particular fishers) in marine conservation. The emphasis is on coastal fisheries and MPAs. With no single agreed definition of MPAs, there is commonly confusion between MPAs established for conservation purposes and other spatial management tools designed specifically for fisheries management. In this article, we focus on conservation-oriented MPAs, according to the IUCN definition, i.e. ones in which conservation of biodiversity is a primary objective of the protected area (Day *et al.*, 2012). Within this definition, multiple-use MPAs (IUCN categories V and VI) that can contain fisheries are included, but with a central objective of conservation.

Examination of the relative importance given, in the objectives and the governance of MPAs, to generating livelihoods and food security benefits is carried out by examining both the discussions and specific outcomes of the World Parks Congress (WPC) held in Sydney, Australia, in 2014. That event was one of a WPC series organised by the IUCN every ten years, as major gatherings for those interested in protected areas – including scientists, practitioners and other stakeholders concerned with land- and/or water-based protected areas. Our analysis of the WPC 2014 focuses on (i) the interactions between fisheries and MPAs and the extent that the human dimension was covered in the sessions and outcomes, and (ii) the relative extent of marine-based sessions compared to those with an emphasis on land-based protected areas. We also discuss some of the challenges and opportunities involved in increasing the effectiveness of MPAs, in regard to better meeting both biodiversity and fisheries livelihoods objectives.

2. MPAs for sustainable livelihoods and food security

In considering the effects of MPAs on fishing for food and livelihoods, the focus should naturally be on coastal small-scale fisheries and fishing people because, with a majority of the human population globally living near the coast, this is where dependence on fisheries is greatest and where fisheries contribute most to food security. The classic statistic is that 90% of the world's fishing people (capture fisheries) are in small-scale fisheries (Mills *et al.,* 2011a; World Bank, 2012). There should be no disputing that livelihood issues are crucial to such fisheries, with small-scale fishing providing food for others, and ensuring food security for fishery-based communities themselves. Consequently there is a widespread aspiration for coastal waters that are productive, diverse and healthy. As noted above,

experience from around the world demonstrates that it is only by engaging with people on the coast that we can effectively protect the coastal marine environment. There is a potential for cooperation between conservation and fishing sectors at the community level illustrated through shared stewardship efforts by coastal communities and ocean users, working together with governments and others toward environmental, economic and social sustainability (Pomeroy and Rivera-Guieb, 2005).

These local stewardship initiatives can benefit especially when coastal communities "possess their own self-governance structures that show significant conservation value" (Garcia *et al.*, 2014). Over the past century, many of these systems have, however, been placed under pressure or have been eroded through "external" factors such as changes in governance, broader rural and agricultural activities, population growth and demographic shifts, climate change, or global economic policies (Ruddle, 1993; FAO, 2013). These negative impacts have led to situations where overfishing or other unsustainable practices have developed. Thus, attention to restoring or reinforcing effective participatory governance is seen as an essential element.

These insights can be usefully applied in addressing the shortcomings in current MPA and other marine conservation processes. Among the crucial determinants of success for coastal MPAs, in particular, are (i) a suitably clear and well-defined purpose, and (ii) proper engagement with coastal communities and small-scale fishers, including suitable participatory governance arrangements, with community-based or related forms of co-management. The latter can build on arrangements often used in small-scale fisheries (Kooiman *et al.*, 2005; Charles and Wilson, 2009; McConney and Charles, 2009). Stakeholders must be involved from the start, i.e., in deciding whether creating an MPA to solve a specific fishery problem is even appropriate, or if some other management approach would better fit in their situation.

A full appreciation of the effect of MPAs on fisheries, livelihoods and food security, and of their potential in fisheries management, requires more holistic assessment protocols than those used up to now, covering not only the resources but also the people and their social and economic conditions, within a territory encompassing the MPA and all the space around it affected by resource migrations, transfers of fishing effort, modification of fishing patterns, trade flows, etc. The actual impact can be positive, neutral or negative, depending on the context and the manner of MPA establishment and implementation. Indeed the High Level Panel of Experts on Food Security and Nutrition (HLPE) statement on MPAs and food security noted that there is no clear causal link of MPAs and food security, with MPAs being neither uniformly good nor bad (HLPE, 2014). It is important, therefore, to systematically identify specific vulnerable ecosystems, human communities and food security scenarios, and to consider these in relation to overall management objective(s), in order to assess whether MPAs will be effective in any given circumstances and to improve their contribution to meeting relevant objectives.

In exploring the links of MPAs with fisheries, livelihoods and food security, consider first the hundreds of Locally Managed Marine Areas (LMMA) that are actively managed in the Pacific Islands, Southeast Asia and the Western Indian Ocean (Govan *et al.*, 2009, Rocliffe *et al.*, 2014). This constitutes a success story in designing protected areas that are locally driven and achieving positive fishery and conservation results. In the Pacific, conservation is closely linked to sustainable use. In Fiji, for example, where 79% of inshore fishery areas are in LMMAs, both food security and conservation goals are being achieved (FLMMA, 2014; Jupiter et al., 2014). With LMMAs having "been established with sustainable livelihoods as the major driver" (p.73, Govan and Jupiter, 2013), the only doubts arise over whether these areas are accepted as MPAs in accordance with IUCN definitions.

Contrasting with the LMMA approach are MPAs that focus on strong biodiversity conservation objectives and on no-take zones (NTZ) in which fishing is prohibited. The result of such NTZ, in addition to potentially improving biodiversity, is to reallocate access away from fisheries to other users (e.g. the tourism sector). Even if fishers maintain access in areas around a no-take MPA, it is important to note that (i) having a higher biomass inside the NTZ will not increase recruitment of fish unless the area closed is a major reproduction area and a shortage of recruitment outside the area as well as a lack of effective fisheries management (leading to overfishing); and (ii) the bigger the closure is relative to the species distribution area, the less spillover there will be (Hilborn *et al*., 2004; Walters *et al*., 2007; Buxton *et al*., 2014). These points reflect the reality that fishers may or may not gain from no-take MPAs, depending on many ecological and socioeconomic considerations related to the system in which the protected area and its impact range will be operating. While increased yields may occur in fisheries that surround no-take zones, if those areas were heavily exploited (Kerwath *et al*., 2013), no-take zones may generate a drop in total catch either with some increase in catch per unit effort (Boncoeur and Alban, 2013) or with no increase, in areas that were not heavily exploited (Fletcher *et al*., 2015).

Overall, the range of approaches, from LMMAs to no-take MPAs, demonstrates that there are diverse space-based protected areas that could be called MPAs, and that there is also a diversity of impacts on fishers, livelihoods and food security. From a fishery perspective, management may use many spatial and other regulatory methods; finding the most appropriate set for a given situation is crucial. An outcome-based process is needed, in which all forms of management-based closures and other types of management measures or approaches are considered, in order to reach specified goals (Cochrane and Garcia, 2009). By focusing on outcomes, an evaluation of the full suite of fishery and conservation management tools, including spatial measures, should be undertaken. This may lead to the use of various types of space-based management measures, including MPAs, within the mix of management tools. For example, while the prohibition of one type of gear in an area may not be sufficient to consider that area as an MPA, in many cases fishery-based management arrangements (e.g. closing areas to all destructive forms of fishing to protect critical habitats) are consistent with IUCN Protected Area Categories 4, 5 and 6, but may not be recognised as such.

In order to understand the effects of MPAs on food security and livelihoods, it is important to consider their impacts on fish stocks and fisheries over the entirety of their area (e.g., the EEZ) and beyond (in nested ecosystems of various magnitudes). Few studies look at and evaluate the wider impact of MPAs, e.g. at the broader regional level, although this may change with the growing importance given to MPA functional networks and ecoregions. As a result, there is a need for holistic management, looking beyond the fishery to take into account interactions (e.g. run-off from land affecting reefs), and coordinating across sectors of government and economic sectors (i.e. bringing all the relevant groups together). The impact of ongoing climate change on MPA performance and of MPAs as adaptation instruments for climate change is a case in point. However, such multi-agency, multi-objective systems, in which MPAs are seen as part of a holistic system of management, are hard to generate (NSW MEMA, 2013; Cochrane *et al*., 2014).

Finally, as noted earlier, it is important to examine governance and decision-making approaches related to MPAs, and the effect these have on the allocation of access to fisheries resources. Indeed, food insecurity, which has become recognized as a major global challenge, is now seen as resulting not only from crop failure or fishery collapse, but also from governance failure (Sen, 1981; HLPE, 2014). Designating MPAs through poor governance processes, without considering wider social and economic outcomes, especially in developing countries, has been described by Bennett *et al.* (2015) as a form of "Ocean Grab". How decisions are made, and the priorities involved in decision making, are thus crucial

issues to address. We already know some key lessons from experience in terms of how decisions should be made with regard to MPAs, and in particular how to link people and MPAs (Charles and Wilson, 2009; Garcia *et al.*, 2013). This includes the importance of properly dealing with rights (e.g., Capistrano and Charles, 2012), with distribution of costs and benefits, and with displacement of people from MPAs (and the corresponding need for alternative livelihoods, compensation or other measures). Overall, success depends especially on how the MPA is instituted in the first place (Pomeroy *et al.*, 2005). Outcomes can be expected to be especially different through a bottom-up (community-based or fisher-created) compared to a top-down process (with the latter having led to serious conflicts in some countries).

3. A brief history of the WPC

Since their beginning in 1962, there have been a total of six WPCs. Each was a major "congress" that provided an open forum in which a diversity of views can be expressed. The WPC has no mandate for decision-making, nor does it include the kinds of controls one would find in decision-making international bodies. In particular there is no due process to set priorities, to obtain "the best scientific advice", to reach consensus or to make binding decisions. We return to these points later. Although the WPC is not a decision-making body, it is nevertheless an important forum for future thinking with regard to protected areas. Indeed, the previous WPC, held in 2003 in Durban, South Africa, was influential in that its resulting action plan was adopted by the COP of the CBD as its Programme of Work on Protected Areas (IUCN/WPC, 2015).

Reviewing the main themes established, and resulting outcomes, of the complete set of congresses provides an idea of how the focus has evolved (IUCN/WPC, 2015):

- 1962 – Seattle, USA: "Definitions and standards for representative systems leading to the United Nations list of protected areas";
- 1972 – Yellowstone / Grand Teton National Park, USA: "Conservation of ecosystems, genesis of World Heritage and Wetlands Conventions";
- 1982 – Bali, Indonesia: "Protected areas in sustainable development, development assistance in protected areas";
- 1992 – Caracas, Venezuela: "Global change and protected areas; Protected area categories and management effectiveness";
- 2003 – Durban, South Africa: "Governance, sustainable finance, capacity development, linkages in the landscape and seascape, equity and benefit sharing";
- 2014 – Sydney, Australia: "Parks, people, planet: inspiring solutions".

From the perspective of how resource use (as with fisheries) and protected areas (MPAs) interact, and especially in relation to the consideration of human dimensions, there appears to have been an expanding emphasis on the social and economic aspects of protected area establishment and management. However, despite a perception that the 2003 WPC in Durban had many sessions that reflected on the human dimensions of protected areas and a sense by many participating local and indigenous people that they were finally placed centre stage, the emphasis of the final outcomes was more biocentric. The latter reflected the directions provided by the congress steering committee (Terborgh, 2004; Govan, pers. comm.). We will return later to this disconnect between the major narratives of the WPC and their final outcomes, when discussing the 2014 WPC.

It can also be noted that concerns about protected area effectiveness date back at least to the third WPC (Bali, 1982), although little was done to develop systems for assessing management effectiveness until after the 4th WPC (held in Caracas, 1992) (Hockings *et al*., 2004) These themes were evident in the Durban WPC of 2003, which dealt with evaluation and improvement of management effectiveness and governance of protected areas both within its sessions and among its recommendations. Others key recommendations included enhancing communication and education efforts; empowering youth to become involved in conservation; establishing a global system of protected areas that link landscapes and seascapes; recognising indigenous peoples; mobilizing peoples and local community rights as related to biodiversity conservation; and utilising partnerships to generate support for protected areas (IUCN, 2004).

4. The WPC 2014: the human dimension and the marine theme

The 2014 WPC was largely organized around 8 "streams" together with 4 cross-cutting themes (including the "marine theme"). The hundreds of sessions and events, primarily organized into the eight streams, were labelled according to whether they dealt with one or more of the cross-cutting themes.

Streams	Cross-cutting themes			
	Marine	World Heritage	Capacity Development	New Social Compact
1. Reaching conservation goals				
2. Responding to climate change				
3. Improving health and well-being				
4. Supporting human life				
5. Reconciling development challenges				
6. Enhancing the diversity and quality of governance				
7. Respecting indigenous and traditional knowledge and culture				
8. Inspiring a new generation				

In this section, we examine two aspects of the WPC: (i) the presence of human dimensions in considering protected areas, both terrestrial and marine, and (ii) the presence of marine-related sessions across the various streams of the WPC. We then connect these two elements together, to discuss the interaction of human dimensions and marine conservation (including MPAs), at the WPC.

On the first of these topics, it is notable that the 'people side' of conservation was very prominent in the formal structure of WPC, and indeed in the majority of the streams and themes. There was remarkable consistency across these groupings in how their final statements emphasized the importance of involving people, and particularly resource-dependent communities, in conservation initiatives. Notable in this regard are "Improving health and well-being" (Stream 3), "Supporting human life" (Stream 4), "Reconciling development challenges" (Stream 5), "Enhancing the diversity and quality of governance" (Stream 6), "Respecting indigenous and traditional knowledge and culture" (Stream 7) and "Inspiring a new generation" (Stream 8), as well as the themes "World Heritage", "Capacity development" and "New social compact" (focused on how human interact with and use the natural world). In contrast, "Reaching conservation goals" (Stream 1) had the least recognition of human dimensions. Tables 1 and 2 provide examples of how human dimensions – in particular, the need for participation of natural resource users in conservation decision-making, and issues of governance, respectively – are reflected in the final statements of the various streams and themes.

Turning to the marine theme at the 2014 WPC, this built substantially on the 2003 (Durban) WPC, which also had a marine cross-cutting theme (as well as various people-focused themes such as ties between

natural and cultural heritage conservation, and community and equity issues). Importantly, the 2003 WPC noted that the marine environment is under-represented in existing protected areas (IUCN, 2004). The marine presence at the 2014 WPC also benefited from the series of International Marine Protected Areas Congresses (IMPAC) that take place under the IUCN banner, looking at the role of MPAs in conservation and sustainable development of oceans. The third of these (IMPAC3) took place in 2013, specifically examining strategies to meet CBD Aichi Target 11[1] under the Strategic Plan for Biodiversity 2011-2020.

The 2014 Sydney WPC had the potential to build on the results of the 2003 Durban WPC and IMPAC3. In the discussion here, we will examine how, in particular, the 2014 WPC drew on IMPAC3 conclusions concerning: (i) the potential contribution of MPAs to food security and livelihoods and their utility as a fisheries management toolbox, (ii) the tension between their costs and benefits for fishing communities, along with the distribution of these costs and benefits in time and space; and (iii) the need for "good governance" with a dual fisheries and conservation mandate, and effective participation in design and implementation of MPAs (Weigel *et al*., 2014).

An impressive achievement of the 2014 WPC was the high level of energy created around the marine theme. This was particularly the result of the "Ocean+ Pavilion", set up by IUCN's marine program. The Pavilion hosted a wide-ranging series of marine presentations, and most importantly, successfully served as a hub and meeting place for marine participants. The more formal marine-related discussions were held in the various streams of the WPC, and the extent to which these discussions were explicitly highlighted varied across the different streams. This is indicated in Table 3, which shows the percentage of the sessions in each stream that Congress organizers labelled in the WPC program as having a marine aspect. Note that this labelling was an *a priori* assessment, based on what was proposed for each session, rather than the discussion that actually happened, but this does enable our analysis to be consistent across streams.

While the "Reaching conservation goals" Stream (#1) had a relatively high portion of sessions labelled as "marine" (29%), the fraction of marine-labelled sessions was much lower for those streams that focused on human aspects (especially Streams 4-7, as noted above). Understanding this structure can help to inform the interaction of marine conservation, and specifically MPA, discussions with that on fisheries, livelihoods and food security.

To examine whether these lower percentages actually reflected the reality of what was contained in the sessions, let us examine three representative streams. While only 11% of the Governance stream was labelled as marine-related, examining the presentations listed within sessions of the Governance stream indicates that a high percentage of presentations were relevant to governance of small-scale fisheries (together with other small-scale resource sectors). Furthermore, these sessions had considerable involvement of marine participants. Sessions in the Supporting Human Life stream (#4) were supposedly only 9% marine-related, but in fact this stream was co-organized by FAO (including both fisheries, and forestry and agriculture components) and as a result, not surprisingly had fisheries (marine and inland) well represented, along with agriculture, as human uses of the environment, with which protected areas interact. Finally, examination of the sessions in Stream 5, on Development challenges, demonstrates

[1] *By 2020, at least … 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes (https://www.cbd.int/sp/targets*)

that while only 2 sessions (5%) were indicated as having a marine connection, in fact considerably more than that explicitly included a fishery or marine presentation as part of the session. Table 4 illustrates the presence of marine content within the more people-centred streams, providing listings of selected sessions, with brief descriptions, within Streams 4, 6, and 7.

The reality therefore seems to be **not** that marine content was less prevalent within sessions of streams focusing on human aspects, but rather that errors arose in the labelling of WPC sessions. Specifically, the fact that many human-oriented sessions with a strong marine element were not labelled as "marine" may have reflected a lack of understanding of what is involved in discussing topics of governance, development, "supporting human life", indigenous issues, etc. – as opposed, say, to the more ecosystem-focused discussions of the "Reaching conservation goals" stream. This is consistent with the common disciplinary differences in classifying activities into themes. Greater care is needed in the future to ensure proper recognition of the diversity of approaches to issues, and of participants themselves.

We can draw two key conclusions from this analysis. First, many sessions at the WPC examined interactions of protected areas with food and livelihoods, and of these, a large number related to the use of natural resources, definitely including fisheries. Specifically, since many streams were people-centred, and included substantial marine components, we can certainly conclude that there was strong incorporation of human dimensions in the coverage of MPAs within sessions of the WPC. Second, and related to this, the need to involve fishing people (and other ocean users and coastal communities) in considering, designing and implementing MPAs was covered at the WPC in many streams (and themes). In most cases, this coverage was not specific to the marine environment, but more about involving users of the natural environment in all aspects of protected areas. Indeed, that necessity is more longstanding in its recognition within terrestrial environments than in marine settings – one of the features distinguishing the current reality of marine versus terrestrial protected areas. The extent to which these two conclusions were reflected in the final WPC outcomes is discussed below.

5. The WPC 2014 Marine Statement

The key written output from the WPC was the "Promise of Sydney", a statement developed by core WPC organizers and supporters. Associated with the "Promise" were a series of statements from each of the WPC themes and streams. These statements are not directly connected to any formal policy processes, though they do provide a series of goals for the IUCN community. Further, they may well appear, in one form or another, at the 2016 IUCN World Conservation Congress, where IUCN members and other stakeholders guide the IUCN work plan for the next four years. It must be stressed that while not mandatory in any way, the statements of the WPC have substantially influenced environmental policies in the decade after each congress, including in non-environmental organizations. As already mentioned, the outcomes of the 2003 Durban 2003 were adopted by the COP of the CBD as its Programme of Work on Protected Areas.

The Marine Statement for the 2014 WPC, entitled "A strategy of innovative approaches and recommendations to enhance implementation of marine conservation in the next decade", began as an initial draft, developed by a steering committee, and made available before the WPC, with an invitation to submit comments. A revised draft of the Marine Statement was released near the end of the Congress, and after the WPC, work on the Marine Statement continued, until it was eventually finalised on 22 December 2014. The final Marine Statement contains a description of the current state and future potential of the world's oceans, followed by a set of 10 recommendations. These include aspects relating to the target extent of MPAs globally, increased effectiveness and integration with other

conservation tools, generating benefits for people, creating partnerships and funding arrangements, and specific points about the high seas and about illegal fishing.

The Statement contains elements of the contributions from the different streams of the WPC, although not necessarily in proportion to their prevalence at the Congress. In particular the human dimensions of MPAs, including the links between people and conservation, do not appear to an extent commensurate with their overwhelming importance in the various discussions of the WPC streams.

Nevertheless, the human dimensions are present in the Statement's preamble – noting that MPAs "must reflect indigenous, local community and other stakeholder needs, aspirations and knowledge" and "must be complemented by … community empowerment and capacity building". Further, as indicated in Tables 1 and 2, the Statement contains two recommendations that – while not prominent in the Marine Statement (placed near the end of the list of ten recommendations) – do provide important coverage of (i) how communities and ocean resource users interact with and support marine conservation, and (ii) the importance of participation in conservation decision making, and MPAs in particular.

Recommendation 8 states:

> *Design and manage MPAs for human as well as ecological benefits, through committed partnerships and engagement with indigenous and local coastal communities, resource users and other stakeholders, as well as new partnerships with humanitarian, development and human rights organizations.*

Recommendation 9 states, in part:

> *Strengthen support for marine conservation actions by (a) scaling up the many effective and inspiring solutions being undertaken by coastal communities and resource user groups around the world…*

These recommendations reflect the spirit of the people-focused marine discussions at the 2014 WPC, and represent important directions for MPAs. Despite these positive elements, there are, within the Statement, indications of ongoing tensions over MPAs within the marine conservation community. We turn now to a particularly contentious issue.

5.1 Protected area coverage targets and effective marine conservation

At the end of the Congress, the "Reaching conservation goals" stream (#1) (which, as we have seen, was less people-centred) issued a call for 30% of the oceans to be devoted to MPAs, later specified as no-take MPAs. That call was then quickly supported by IUCN's World Commission on Protected Areas (WCPA) marine leadership. Despite reflecting only one of 12 streams/themes at the WPC, this numerical target, and its focus on no-take MPAs, were treated by media as if reflecting a WPC consensus.

Some marine participants at WPC celebrated the high level of media interest around that target, considering this to have made the Marine theme "one of the big winners" at the WPC. However, many marine participants, including many MPAs practitioners in the developing world, were very concerned over this development. The controversy over the 30% no-take MPA target highlights tensions between the biodiversity conservation and the people-oriented objectives of MPAs. In particular, it points to a dichotomy between two different approaches – one broadly based around advocates of the 30% target,

the other considering that target to be ill-advised and likely to damage the progress achieved in many coastal areas in gaining buy-in and cooperation from coastal communities.

The first group saw the 30% target as building on the recommendation of marine participants at the previous WPC, in Durban, 2003, which called for systems of MPAs that "should be extensive and include strictly protected areas that amount to at least 20–30% of each habitat". In other words, for this set of discussants, the hope seemed to be to shift to the upper end of the "20-30%" range coming out of Durban. The target of 30% no-take MPAs is higher than that agreed at Durban and certainly much higher than the 10% coverage agreed internationally at the CBD under Target 11 which states that "by 2020 …10 per cent of coastal and marine areas…are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures".

The second group argued that strategically, it would be better to bring coastal people and ocean users together collaboratively, through phased-in, feasible targets, rather than risk negative impacts of what was feared to be a frighteningly high 'aspirational' target, the consequence of which, in densely populated areas in developing countries, would be very serious. It was argued that such a target may provoke negative reactions from the global community of marine resource users, which seeks people-centred rather than top-down marine conservation. A potential loss of credibility with key stakeholders could even result in undermining marine conservation. A concern was also expressed that a call for 30% no-take MPAs in every habitat was not feasible, given that (i) at present the less than 1% no-take areas globally are mostly in very large, little-populated regions, while (ii) a high density of MPAs in densely populated coastal areas probably could not be obtained without significant loss of livelihoods.

Those opposing the 30% target were concerned not only about the number itself, but also the strong focus on no-take areas. This was seen to be downplaying the over two-thirds of MPAs that are open to certain extractive uses, and achieve benefits for both nature and coastal communities. This group noted that each habitat, and indeed each national and subnational situation, will have not only its own appropriate target for protected areas, but also its own optimum tools for management. In particular, some approaches are more likely than others to achieve success in local and sometimes crowded, multiple-use contexts. Referring to our discussion above on MPAs for sustainable livelihoods and food security, the successful use of MPAs in the context of fisheries is complex and can at best only be part of the required management mix. Therefore only in some cases would strict no-take areas be the best environmental, let alone societal, choice. Thus a concern about a single numerical target is that it treated all cases 'with the same medicine' – almost certainly distracting from, and limiting strategies for, achieving 100% sustainable management, and to a large extent disregarding the overwhelming dominance of "paper parks" in the global MPA landscape.

Debates continued after the WPC, and eventually when the Marine Statement was finalized, its first recommendation read as follows:

> "*Urgently increase the ocean area that is effectively and equitably managed in ecologically representative and well-connected systems of MPAs or other effective conservation measures. This network should target protection of both biodiversity and ecosystem services and should include at least 30% of each marine habitat. The ultimate aim is to create a fully sustainable ocean, at least 30% of which has no-extractive activities.*"

As is evident, the 30% target is included in the Statement, and indeed the number appears twice, in different ways – 30% coverage of each marine habitat, and 30% no-take overall. Despite the reality that the 30% target is merely a recommendation arising from the WPC, not a binding agreement in any official way, the Marine Statement's focus on the 30% target has received abundant publicity, and may influence practice. This could be problematic, for several reasons. First, it may create negative impacts on food security and livelihoods. Second, there are well-known problems involved in applying a coverage target to conservation; this remains a subject of controversy, particularly when management performance is poor or large new areas are established in areas with no threats to biodiversity (cf. Spalding *et al*., 2014). However, two aspects of the recommendation's wording may reduce potential negative impacts. First, it recognizes the validity not only of MPAs but also "other effective conservation measures" such as multi-use MPAs (or LMMAs) – e.g., in the Philippines, Western Indian Ocean and Pacific Islands (Govan *et al.*, 2009; Lowry *et al*., 2009; Jupiter *et al*., 2014; Rocliffe *et al*., 2014). Ocean users and managers may find such alternatives more suitable, especially in heavily-used coastal areas. Second, the call for 30% of ocean space globally to be no-take has no time frame attached (instead being stated as an "ultimate aim"), and does not apply to every country or coastal area individually. These aspects provide some flexibility for individual nations to choose a timing and an approach that best fit the context at hand.

Unfortunately, the 30% target was put forward without proper review and discussion of social, economic, governance and implementation issues. With greater consultation, there may have been better approaches determined to significantly contribute to a sustainably managed marine environment. Such issues of process are examined in the following section.

5.2 Process

Much of the preceding discussion over the labelling of 'marine' sessions at the WPC, the development of summary marine highlights from the Congress, and most notably the drafting of a final Marine Statement leads to a recognition of the need to examine process issues arising in the context of the WPC (and perhaps conservation decision making more broadly). Underlying these issues are the points noted earlier, that the WPC is not a recognized decision-making fora, and that while there were some mechanisms for participation in development of final positions, within the streams and themes, the overall process was non-transparent. Although the small sets of actors that debated the wording of final statements were undoubtedly well-intentioned people, the results could not match the illusion that these were actually recommendations to the world from the whole Congress. Furthermore, not only were the stated outcomes not formally agreed by all participants in a representative mechanism, they were not transparently related to science. This contrasts with other international fora – such as the CBD Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) and expert consultations of the FAO – that have established mechanisms for incorporating science into recommendations, which can then be accepted or not by politicians.

This seems to have produced a situation in which, as noted earlier, what is offered as WPC outcomes may be narrower, in some cases, than the discussion space covered under each topic during a congress (Terborgh, 2004). In particular, at the 2014 Sydney WPC, it is not clear that the wide range of backgrounds and interests represented among marine participants was adequately reflected in the Marine Statement drafting process. This arose notably in terms of the overall balance between biodiversity conservation and sustainable resource use interests.

An illustration of this arose at the end of the Congress, when, in a full plenary, the major conclusions of the marine theme were presented. Five points were made, of which the two substantive ones emphasized (i) the high seas and (ii) the Arctic, Antarctic and Southern Oceans and Sargasso Sea. This choice of 'highlights' surprised many marine-oriented participants at the Congress, for two major reasons. First, the focus was solely on parts of the ocean where few if any people live – contrasting with the major emphasis of many sessions on coastal areas, where most people live and where one finds the greatest pressures on oceans. Second, these 'highlights' missed the biggest message of many marine sessions: the crucial role in marine conservation of coastal communities and those who depend on the ocean for their livelihoods. From a process perspective, this choice of highlights also inadvertently marginalized those at the WPC who focused on the "people side" of marine conservation.

More inclusivity and collaboration throughout the process would have helped to ensure that the final Marine Statement reflected, as best possible, the diversity of marine-oriented WPC participants, along with their experience, perspectives and potential solutions. This could have taken place through a meeting of the statement's drafters with convenors of the many marine sessions at WPC, or even a broader forum for participatory discussion of the statement. This would be a suitable principle to apply more broadly at future WPC events. Achieving a more diversified outcome, better reflecting the range of realities and tensions, including potential solutions (each with their pros and cons) would be more demanding, but also more appropriate for a gathering (the WPC) that has only the broad mandate of informing and advising IUCN. It must be left to the World Conservation Congress, and national and international decision-makers, to take responsibility to make the difficult decisions.

6. Discussion and Conclusions

It is well accepted in the world's conservation community that promoting human considerations – supporting sustainable uses of nature, and ensuring involvement of local people in decision-making – is essential if conservation initiatives are to succeed. Recognition of the crucial need for this approach has a long history in terrestrial realms (even if the means to achieve it are still being debated) and now the marine side is catching up. While a participatory mechanism does not guarantee solutions to conservation challenges, failure is much more likely without it. This is why there is support in the CBD for engaging with stakeholders and for community-based approaches; indeed it is an important reason for the CBD having more signatories than any other international agreement.

There are practical and policy-level approaches already available to develop synergies, e.g. management approaches, that are mutually supportive of marine conservation (especially MPAs), and of resource use (i.e., fishing for food and livelihoods). This includes the many co-management arrangements in existence, as well as the ecosystem approach to fisheries - within which MPAs are recognized as one of the possible instruments (CBD, 2000; FAO, 2003). While there are, in many cases, fundamental conflicts between the two interacting governance streams of fisheries management and of biodiversity conservation (Garcia *et al*., 2014), and evidence that these streams can never fully reconcile, nevertheless strategies are available to better harmonize their actions in pursuing multiple objectives. Here we consider two possible strategies.

First, it could be useful to draw on synergies of livelihoods and food security with protected areas. Many examples arose from sessions at WPC dealing with the role of MPAs in "supporting human life" (Stream 4), resolving development challenges (Stream 5) and improving governance (Stream 6), as well as in relation to indigenous communities (Stream 7). Some of the synergies are reflected in Table 4 earlier in this paper. Many examples have arisen in which protected areas, if designed and implemented properly,

can support, not hurt, livelihoods and food security, while also making fisheries more sustainable. If this result can be "scaled up" and widely achieved, that would be clearly a desirable result. Accordingly, it would be useful to assess the applicability (and possibly the weaknesses) of the strategy, with a conscious effort to measure also the impacts of MPAs on people (both within and externally to the MPA).

In this regard, it is essential to recognize that there is no generic "MPA-fishery" issue, but rather that there are variations in how the MPA is planned and instituted in the first place (Charles and Sanders, 2007). In particular, it is important to draw a distinction between, on the one hand, coastal areas and their fisheries, and on the other hand, the open ocean and deep seas, along with associated fisheries. Different MPA approaches will be needed for these very different realms, reflecting differing tensions between objectives, approaches to governance and consequences for people.

A second possible strategy to draw on synergies between livelihoods and food security, on the one hand, and protected areas on the other, is a rather significant departure from conventional practice in forming MPAs. Might protected areas, especially in coastal areas, be more widely accepted and supported if developed with human objectives at least as prominent as biodiversity conservation ones? This would require a reshaping of the usual thinking about MPAs, and would require a recognition of trade-offs – perhaps between human and ecosystem wellbeing, but also between the 'ideal' MPA and the best supported and 'embraced' one – as well as the reality of an "acceptable level of impact". Such an approach may well lead to a greater focus on multi-zoned MPAs, but not necessarily a disappearance of no-take MPAs. Indeed, given the right empowerment and support, fishers themselves sometimes choose to include no-take areas within zoned MPAs (Jupiter *et al*., 2014) and may even achieve the dual goals of 10% national protected area coverage (Mills *et al*., 2011b). The approach of nesting no-take zones within spatially larger management/planning frames may also help in distributing their costs more broadly and equitably.

Many challenges will arise in linking livelihoods and food security with conservation-focused MPAs, and developing strategies to improve their compatibility. One is to find the right mutually supportive policies, management approaches and implementation processes – whether community-based conservation, market-based incentives, space-based integration or other means. Another is to allow for the "natural dynamics" of the broader social-ecological system, including impacts of climate change. Overall, however, the key goal is to find the "sweet spot" in which MPAs support, not hurt, livelihoods and food security, while also making fisheries more sustainable and resilient.

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Table 1. Participation Messages in Final Stream/Theme Statements from the 2014 World Parks Congress.

Stream 2. Responding to climate change

"Protected areas must actively engage new thinking in planning and management to ensure equitable participation from society, including youth, women and indigenous and local communities, building on traditional knowledge …" (IUCN, 2014b, p.2).

Stream 3. Improving Health and Well-being

"Learn from indigenous and local communities, which have multi-dimensional approaches to health and well-being including connection to country and spiritual and traditional knowledge and practices" (IUCN, 2014c, p.2).

Stream 4. Supporting human life

"Sustainable hunting and fishing should be supported as a viable aspect of protected area planning and management to support livelihoods and cultures, increase food security, generate income, maintain populations within the ecological and societal carrying capacity of the environment, and build crucial support for the conservation of biological diversity and habitats" (IUCN, 2014d, December, p.3). "Governments, NGOs and other actors should … systematically put people in the centre when planning and managing aquatic and terrestrial protected areas" (IUCN, 2014d, p.3).

Stream 5. Reconciling development challenges

"Protected areas agencies need to update the design, management and governance of protected areas to consider a wide array of social and economic benefits such as jobs, livelihoods, community safety nets, and social and environmental resilience in order to build constituency and political will for protected areas" (IUCN, 2014e, p.3).

Stream 6. Enhancing the Diversity and Quality of Governance

"It is crucial that existing traditional knowledge, customary laws, institutions and wisdom for conservation – currently neglected or even repressed in some countries – be fully valued and integrated…" (IUCN, 2014f, p.3).

Stream 7. Respecting indigenous and traditional knowledge and culture

"… not enough has been done to put people at the centre of the protected area movement. Indigenous Peoples and local communities have not yet been fully recognized as equal partners in conservation efforts and their traditional knowledge, cultural practices and governance are not being fully harnessed in ecosystem management" (IUCN, 2014g, p.2).

Marine conservation theme

"Design and manage MPAs for human as well as ecological benefits, through committed partnerships and engagement with indigenous and local coastal communities, resource users and other stakeholders, as well as new partnerships with humanitarian, development and human rights organizations" (IUCN, 2014h, p.2).

Table 2. Governance Messages in Final Stream/Theme Statements from the 2014 World Parks Congress.

Stream 1. Achieving conservation goals

"Conservation goals will require a broad system of governance types. Privately protected areas and indigenous and community conserved areas are increasingly recognized for their key contributions to reaching conservation goals" (IUCN, 2014a, p.2).

Stream 4. Supporting human life

"Governments, NGOs and other actors should focus on local solutions that can accommodate different governance mechanisms, including community-owned, community-managed and co-managed areas and systematically put people in the centre when planning and managing aquatic and terrestrial protected areas" (IUCN, 2014d, December, p.3). Need "equitable and secure access to natural resources and formal recognition of legitimate tenure rights", especially "for small-scale fishers, hunters and farmers in developing countries where food security and sustainable livelihoods tend to be critical concerns" (IUCN, 2014d, p.3).

Stream 5. Reconciling Development Challenges

"Protected areas agencies need to update the design, management and governance of protected areas to consider a wide array of social and economic benefits such as jobs, livelihoods, community safety nets, and social and environmental resilience in order to build constituency and political will for protected areas" (IUCN, 2014e, p.3).

Stream 6. Enhancing the diversity and quality of governance

"Territories and areas voluntarily conserved by indigenous peoples, local communities and private landowners are still largely unrecognised and unsupported" (IUCN, 2014f, December, p.2). "recognise and secure …the collective land and resource rights and responsibilities of indigenous peoples and traditional peasant, forest, herder and fishing communities… This will strengthen their commitment to sustainable livelihoods and foster their engagement in conserving nature" (IUCN, 2014f, p.4).

Stream 7. Respecting indigenous and traditional knowledge and culture

"A large task remains to equip mainstream protected area and resource managers to recognize the centrality of Indigenous and community lands to the future of global conservation and support rights-based approaches to achieving conservation outcomes" (IUCN, 2014g, p.2).

Marine conservation theme

"Strengthen support for marine conservation actions by (a) scaling up the many effective and inspiring solutions being undertaken by coastal communities and resource user groups around the world…" (IUCN, 2014h, p.2).

New social compact theme

Need to strengthen "protected and conserved areas as well as improve social justice, equity and rights of governance and management" (IUCN, 2014i, December, p.1). "IUCN must go further in enhancing diversity, quality and vitality of governance systems; sustainable economies; and the valorization of indigenous and traditional knowledge systems and values" (IUCN, 2014i, p.1-2).

Table 3. For each WPC stream, the percentage of its sessions labelled in the WPC program as having a marine aspect.

Stream	Total Sessions	Marine-Related	Percent Marine
1 Conservation goals	49	14	29%
2 Climate change	49	5	10%
3 Health / wellbeing	43	5	12%
4 Support human life	44	4	09%
5 Development	44	2	05%
6 Governance	44	5	11%
7 Indigenous	47	5	11%
8 New generation	39	8	21%
TOTAL	**359**	**48**	**13%**

Table 4. Sample of WPC sessions, from three of the Congress' thematic streams, that link MPAs with fisheries, food and livelihoods. Session titles (in italics) and excerpts from corresponding session descriptions (in quotes) have been obtained from IUCN (2014j).

Stream 4: Supporting Human Life	
Marine protected areas and sustainable livelihoods	**"**case studies of how MPAs can positively or negatively affect livelihoods… best practices with regard to MPA governance and support needed for ensuring positive livelihoods outcomes".
Marine protected areas and community livelihood: sharing experiences on participatory management	**"**sharing experiences on how [MPAs] improve the livelihoods of the communities associated with them, as well as how community participation in the management of [MPAs] improves the likelihood of success in conservation".
Marine protected areas as a tool for food security	"How can MPAs have positive outcomes for both conservation and food security? …the importance of local governance, engagement of communities, and consideration of how costs and benefits created by MPAs are distributed".
Marine protected areas as solutions for resilience	**"**the role that MPAs play in increasing resilience for livelihoods, food security, disaster risk reduction and healthy watersheds".
Stream 6: Enhancing the Diversity and Quality of Governance	
Effective and equitable governance of the seascape	**"**challenges and successes in addressing power imbalances, promoting equity, and engaging policy makers, the private sector, communities".
Inspiring solutions – better governed seascapes as models for sustainable living.	**"**Can effective governance bridge spatial scales, draw lessons from traditional, indigenous and local models of governance and implement inspiring solutions for sustainability?"
Stream 7: Respecting Indigenous and Traditional Knowledge and Culture	
Locally managed marine areas providing ecological, social and economic benefits at multiple scales	**"**Local marine management undertaken by communities has often achieved benefits that may have eluded top-down MPAs… LMMAs in the Pacific are implemented by over 600 communities spanning 17 independent countries and territories".
Indigenous sustainable uses and rights in marine protected areas	"The sea country of the Great Barrier Reef has been traditionally managed by Aboriginal and Torres Strait Islander Traditional Owners groups for many thousands of years."
Traditional marine manage-ment systems & international policies and targets	**"**traditional and local marine management, its contribution to international policies and targets, and potential solutions to conflicts that can result between conservation approaches, such as MPAs, and sustainable uses by communities.".
Migratory Indigenous Peoples, livelihoods and marine protected areas	**"**migratory or semi-nomadic maritime Indigenous groups in insular Southeast Asia… are important resource users and vital actors in developing sustainable management strategies."