SAFEGUARDING THE BLUE PLANET: SIX STRATEGIES FOR ACCELERATING OCEAN PROTECTION

Jesse Hastings[1], Sebastian Thomas[2], Valerie Burgener[3], Kristina Gjerde[4], Dan Laffoley[5], Rod Salm[6], Laurence McCook[7], Lida Pet-Soede[8], William M. Eichbaum[9], Mariska Bottema[10], Ginette Hemley[9], John Tanzer[3], Callum Roberts[11], Hugh Govan[12], Helen E. Fox[9]

* Corresponding author: Helen.Fox@wwfus.org
[1] Blue Globe Consulting, 10 Anson Road, International Plaza, 079903, Singapore
[2] School of Geography, Planning and Environmental Management, The University of Queensland, St Lucia 4072, Australia
[3] WWF International, Avenue du Mont-Blanc, 1196 Gland, Switzerland
[4] IUCN, Global Marine and Polar Programme, 28 rue Mauverney, 1196 Gland, Switzerland
[5] IUCN WCPA, 28 rue Mauverney, 1196 Gland, Switzerland
[6] The Nature Conservancy, 923 Nu'uanu Avenue, Honolulu, Hawaii 96817
[7] Great Barrier Reef Marine Park Authority and ARC Centre for Excellence for Coral Reef Studies, Townsville, Queensland, Australia
[8] WWF Indonesia, Graha Simatupang Tower 2 Unit C 8th Floor, Jl Letjen TB Simatupang, Jakarta Seletan 12540, Indonesia
[9] WWF US, 1250 24th Street NW, Washington D.C. 20037, USA
[10] WWF Netherlands, Boulevard 12, 3707 BM Zeist, The Netherlands
[11] Environment Department, University of York, York YO10 5DD, UK
[12] LMMA Network, PO Box S-37, Tamavua, Suva, Fiji Islands

ABSTRACT

The oceans are facing greater pressures now than at any other time in human history. Marine protected areas (MPAs), nested within a wider approach of ecosystem-based management, have consistently emerged as one of the most important tools in halting the oceans' decline and promoting their recovery. The Convention on Biological Diversity (CBD) Aichi Target 11 calls for at least 10 per cent of coastal and marine areas to be conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas by 2020; unfortunately, most of the Parties are not on track to meet this commitment. To contribute to this effort, this paper details six strategies that can accelerate MPA establishment and create resilient MPA management models around the world. These strategies (build public-private partnerships to change how MPAs are designed and financed; strengthen links between MPAs, local communities and livelihood needs; manage MPAs to enhance carbon stocks and address climate change; act on high seas conservation and initiate MPAs immediately; reframe thinking about the benefits of MPAs; and use technology to connect people with the oceans) can help ensure that the oceans are protected, well managed, and provide livelihood benefits for humanity far into the future.

INTRODUCTION

The oceans are facing greater pressure now than at any other time in human history. Coastal development, unsustainable fisheries and aquaculture, shipping, marine pollution, and oil and gas activities are causing documented harm to coastal and offshore ecosystems (Halpern et al., 2008; Waycott et al., 2009; Jernelöv, 2010; Burke et al., 2011). Rising atmospheric carbon concentrations are leading to increased ocean temperatures and alterations in seawater chemistry, with impacts including coral bleaching, sea level rise, and ocean acidification (Harley et al., 2006; Doney et al., 2009). Beyond these well known threats, the oceans face impacts that are still relatively uncertain, including shifts in species distribution and ocean circulation (Toggweiler & Russell, 2008; Cheung et al., 2009). In the context of the 'unknown unknowns' – changes to marine ecosystems resulting from interactions between existing threats and climate change impacts that result from

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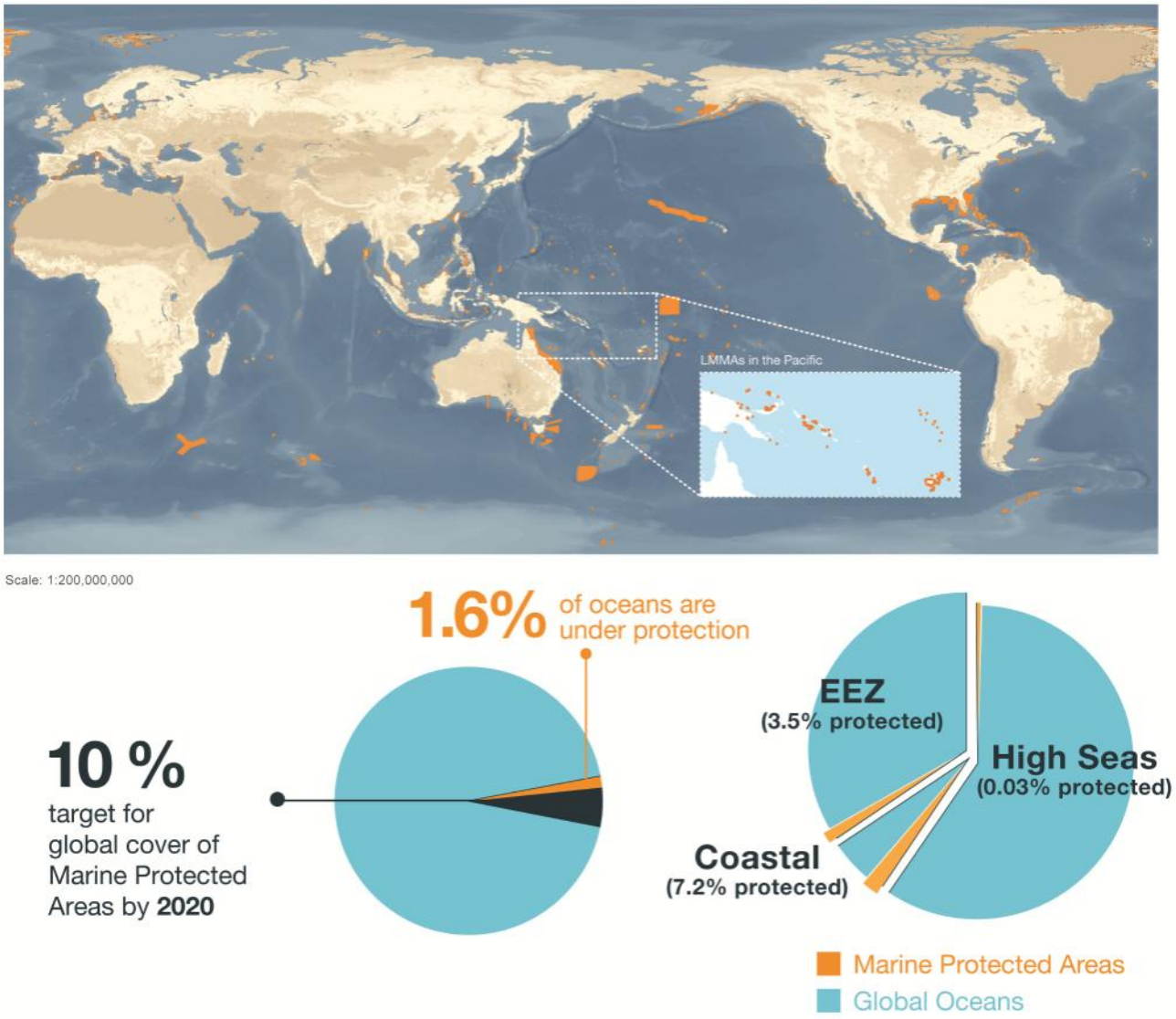

Figure 1: Only 1.6 per cent of global oceans are currently protected, leaving an 8.4 per cent gap to meet the 10 per cent protection target agreed by the Parties to the Convention on Biological Diversity by 2020 (left pie). A much smaller proportion of this consists of 'no-take' marine reserves. MPA protection differs by ocean governance regimes: 7.2 per cent, 3.5 per cent and 0.03 per cent are protected in coastal waters (0-12nm), Exclusive Economic Zones (EEZs; 12-200nm) and High Seas (beyond national jurisdiction) respectively (right pie). Some parts of the world have been successful at scaling up their MPA networks (see zoomed area in the Pacific), often via small coastal MPAs, which can be important for local food security © UNEP-WCMC, WWF-International, and the LMMA Network.

global, rather than local, drivers – it is critical to examine current marine protected area (MPA) establishment and management models, and instigate new approaches that reflect the challenges of the decades to come (McLeod et al., 2009; Driscoll et al., 2011).

For many years, amidst debate over how to reverse the degradation of the oceans, MPA networks have consistently emerged as one of the most important tools for promoting the oceans' health and recovery. MPAs are not the only marine spatial management strategy available to control human impacts, and should ideally be nested within a wider approach of ecosystem-based management. However, the efficacy of MPAs in reducing the decline of marine systems, enabling climate change adaptation, and building social-ecological resilience has been firmly resolved in the scientific literature, and in practice (Gell & Roberts, 2003; Dudley et al., 2010; Selig & Bruno, 2010).

In 2002, global leaders at the World Summit for Sustainable Development adopted a target for the establishment of representative networks of MPAs by 2012. In 2010, parties to the Convention on Biological Diversity (CBD) pushed back the goalposts to 2020. They developed a *Strategic Plan for Biodiversity 2011-2020*, in which Aichi Biodiversity Target 11 calls for at least "*10 per cent of coastal and marine areas … conserved*

through effectively and equitably managed, ecologically representative and well connected systems of protected areas." MPAs are relevant to other Aichi Targets as well, including Targets 1 (values of biodiversity), 6 (sustainable fisheries), 10 (coral reefs) and 15 (C stocks) (www.cbd.int/sp/targets/). Unfortunately, most of the Parties are not on track to meet this 2020 CBD commitment. Wood et al. (2008) calculated that based on growth rates to 2008, the 10 per cent goal would be met only by 2047. The most recent (2011) World Database on Protected Areas analysis indicated that only 1.6 per cent of global oceans are protected in MPAs (Figure 1). These MPAs protect 7.2 per cent of coastal waters (0-12 nautical miles), 4.0 per cent of marine areas under national jurisdiction (0-200 nautical miles), 3.5 per cent of Exclusive Economic Zones (12-200 nautical miles), and 0.03 per cent of the high seas (beyond 200 nautical miles) (IUCN & UNEP-WCMC, 2011).

IUCN's World Conservation Congress and the CBD's 11th Conference of the Parties in September and October 2012, respectively, are critical opportunities for fostering international collaboration, ensuring effective MPA management, and scaling up MPA establishment efforts for the 21st century. To contribute to this effort, this paper offers six strategies that designers of MPAs and policymakers advocating for their creation can use to accelerate MPA establishment and effectiveness and create resilient MPA management models around the world. Strategies one, two and three are emerging concepts for MPA function and management; strategies four, five and six are innovative policy approaches. A high degree of innovation is essential to close the 'designation gap' between the area of the oceans that is already in well-managed MPAs and the much larger area that needs to be protected. To accommodate the rapid changes the world is undergoing, conservation policies need 'business unusual', with a creative and entrepreneurial spirit, and will require regular review and revision as new challenges and knowledge emerge. These six strategies present inventive and adaptive MPA establishment and management models, and can help ensure that the oceans are protected, well managed, and continue providing livelihood benefits for humanity far into the future.

STRATEGY ONE: BUILD PUBLIC-PRIVATE PARTNERSHIPS TO CHANGE HOW MPAS ARE DESIGNED AND FINANCED

Marine resources are crucial to the activities of private sector stakeholders – including fisheries, transport, mining and tourism companies. These stakeholders possess valuable technical capacity, information management skills and financial assets, and could play a crucial role in creating a business case for the establishment and effective management of MPAs. Businesses are interested in sustainable resource use as a risk management strategy, and increasingly willing to invest in long-term solutions (Michalisin & Stinchfield, 2010). Environmental degradation and change are also matters of strategic risk, and businesses that fail to recognize and proactively engage with these issues are likely to prove uncompetitive (Hoffman, 2005; Porter & Reinhardt, 2007).

Business investment in MPAs could offer valuable opportunities to offset the cumulative impacts of industrial activities. For example, a 'Financial Institution for the Recovery of Marine Ecosystems' (FIRME) has been proposed as a means to invest in fish habitat and biodiversity conservation, thereby catalyzing fisheries' recovery and sustainability (Rangeley & Davies, 2012). This initiative recognizes that MPAs are unlikely to be established in high conservation value locations at the scales they are needed without a variety of investment strategies. The FIRME would work through loans, based on a credible sustainable management plan, and secured against the value of future fish stocks. Loans, repaid with interest once a certain baseline on profitability is reached, would allow the FIRME's original capital to be reinvested into the fishery. WWF is currently partnering with stakeholders interested in helping to create a global FIRME, with Canada's Grand Banks of Newfoundland as the most likely candidate for a pilot.

Scaling up public/private partnerships and business-funded MPAs will increase the quantity of cost-effective MPA management models that mitigate investment risk, develop public and private finance streams, reduce illegal activities, conserve and enhance biodiversity, and encourage wider stakeholder participation and support (Riedmiller, 2003; Teh et al., 2008). California's *Marine Life Protection Act 1999* mandated a review and extension of regional MPAs, but implementation initially failed due to lack of funding and resources. In 2004, a new approach involved extensive stakeholder engagement and private sector finance to reinvigorate successfully the Act's implementation process (Scholz et al., 2011). Similarly, in the Malaysian part of the Coral Triangle, the proposed one million hectare Tun Mustapha Park has been developed through collaboration between local industry associations and community groups engaged with an international alliance of national and local government agencies, research institutions, and non-governmental organizations (WWF-Malaysia, 2012).

A chief in Marou community, North Efate, Vanuatu establishing an MPA using a modern approach (signing a management plan) hybridized with a traditional ceremony (using a pig) © Tevi Obed

STRATEGY TWO: STRENGTHEN LINKS BETWEEN MPAS, LOCAL COMMUNITIES AND LIVELIHOOD NEEDS

The engagement and participation of local communities and stakeholders is recognized as critical to the effective implementation of spatial marine management (Pomeroy & Douvere, 2008; Rodríguez-Martínez, 2008). There needs to be more extensive use of innovative strategies – such as hybridizing conventional conservation approaches with traditional practices, ensuring MPAs are linked to livelihood needs, and developing community advocates for MPAs through participatory research – that deliver bigger and better grassroots support for MPAs.

In the Pacific Islands, the Locally Managed Marine Area (LMMA) network has helped communities to address their livelihood needs through implementation and adaptive management of MPAs and associated management activities. The LMMA approach - which hybridizes conventional conservation approaches and science with traditional ecological knowledge and revived traditional marine management practices, such as the *tabu* in Fiji or *sasisen* in Indonesia - has spread across the region, with word travelling through clan-based and other networks (Hastings et al., 2012). As of 2009, the LMMA approach had expanded to over 500 communities in 15 countries, with 12,000 km^2 under management and 1,000 km^2 in traditionally protected, no-take areas (Govan, 2009).

One of the benefits to the LMMA strategy is that it can be incredibly cost-effective from a management perspective. For example, the Navukavu LMMA in Fiji was estimated to cost supporting institutions only US$760 yearly (Govan, 2009), but research showed that the fisheries, bequest value, and coastal protection provided by the coral reefs and mangroves within this area was worth US$1.795 million per year (O'Garra, 2012). The success of the LMMA approach, while owing much to regional tenure systems, demonstrates that local communities can be cost-effective stewards of marine resources, provided that they feel involved and that their livelihood needs are accounted for.

Developing advocates for MPAs from local communities can greatly increase public support for MPA establishment. Environmental non-governmental organizations and public-sector organizations can assist with this capacity-building process by involving community members in MPA research. Near the town of Caravelas in the Bahia state of Brazil, Conservation International-Brazil nurtured dozens of young community advocates by actively involving local secondary-school students in ongoing MPA research and analysis. This participatory research programme, called 'Open Your Eyes to Science', gave students an appreciation of the social-ecological system of the Abrolhos Bank and encouraged them to talk about the benefits of marine protection with their friends and family. This discourse ultimately helped to build

Students work with experienced marine researchers to make discoveries about the Abrolhos Bank in the state of Bahia, Brazil. Open Your Eyes to Science was supported by the State University of Maringá (UEM), Conservation International Brazil, the Brazilian Ministry of Science and Technology, and Bahia state organizations. Getting community members involved in MPA research has the potential to increase enthusiasm for MPA establishment © CI-Brazil

community support for the creation of the *Cassurubá* Marine Extractive Reserve in 2009 (Hastings, 2011).

STRATEGY THREE: MANAGE MPAS TO ENHANCE CARBON STOCKS AND ADDRESS CLIMATE CHANGE

The oceans work to absorb carbon dioxide and shape the weather – without them, the world would already be experiencing runaway climate change. The oceans remove almost a third of the carbon dioxide released into the atmosphere yearly, and regulate local climate. Carbon sinks in coastal ecosystems such as mangroves, seagrass meadows, kelp forests, and salt marshes – called 'blue carbon' – account for as much as 71 per cent of all organic carbon captured in the oceans, and provide other benefits including provision of habitat, production of food, regulation of disease vectors, nutrient cycling, and the stabilization and protection of coastal areas (Harborne et al., 2006; Laffoley & Grimsditch, 2009; Nellemann et al., 2009; Donato et al., 2011). Ongoing research continues to highlight the extent to which the carbon and ecosystem service values of blue carbon resources have been underestimated (Eyre & Maher, 2011; Fourqurean et al., 2012).

Management focused on maintaining and rehabilitating intact ecosystems can be a cost-effective strategy to achieve positive emissions mitigation and climate adaptation outcomes (Murray et al., 2011). MPAs protect coastal carbon sinks, which can be lost very quickly when these habitats are damaged by human activities (Laffoley & Grimsditch, 2009). By reducing stresses on habitats and promoting recovery, MPAs can increase resilience to climate change impacts and sustain benefits to people. They may be selected, designed and managed specifically to address both ecological and social resilience in the face of environmental change (West & Salm, 2003; McLeod et al., 2009; Lawler, 2009).

Coastal sinks, such as mangroves, can assist with carbon removal and help mitigate climate change. Here, a mangrove wetland reforestation project in West Java, Indonesia © Sebastian Thomas

Recognition of the mitigation and adaptation values of MPAs can also help harness climate finance. For example, conservation and rehabilitation of blue carbon resources are suitable as Nationally Appropriate Mitigation Actions (NAMAs), which are the responsibility of all developing countries that are signatories to the United Nations Framework Convention on Climate Change (UNFCCC, 2011). Blue carbon offset projects can be attractive to private investors due to sustainability benefits (Venter et al., 2009), and there is increasing evidence to support the recognition of blue carbon resources as integral to the global carbon accounting system (Mcleod et al., 2011), and calls for a dedicated international blue carbon policy and finance instrument (Herr et al., 2012). MPAs are one way that blue carbon resources can be conserved and rehabilitated, and novel forms of both public and private finance are potentially available. Although a dedicated international blue carbon fund is yet to be established, the United Nations (through key agencies) is working towards this goal in conjunction with the World Bank and other partners. Creating a blue carbon fund and market is the first specific proposal of the UN's '*Blueprint for Ocean and Coastal Sustainability*', presented in June 2012 at the Rio+20 Conference on Sustainable Development (UNCSD, 2012; IOC/UNESCO et al., 2011). While the outcome document of the UNCSD has been criticised as lacking firm commitments (e.g. Climate Connections, 2012), the language on 'Oceans and seas' is relatively strong (UNCSD, 2012: p27), with parties committing to pollution and debris reduction as well as enhancing fish stocks and supporting biodiversity, and calling for initiatives that address ocean acidification and the impacts of climate change on marine and coastal ecosystems. The document recognises the social, economic and environmental benefits of coral reef and mangrove ecosystems, and calls for international cooperation to support this, paving the way for financial instruments such as a dedicated blue carbon fund (UNCSD, 2012).

Anemone Reef, Phuket, Thailand © Dawnelle Froehler 2006

STRATEGY FOUR: ACT ON HIGH SEAS CONSERVATION AND INITIATE MPAS IMMEDIATELY

High seas and seabed areas beyond national jurisdiction are critical components of the global ocean ecosystem. Spanning nearly two thirds of the world's oceans, they are both under-protected and essential to reaching the CBD 10 per cent target. Regional conservation organizations already exist with the authority to designate high seas MPAs. The Oslo/Paris Commission in the Northeast Atlantic, the Commission for the Conservation of Antarctic Living Marine Resources in the Southern Ocean and the Barcelona Convention in the Mediterranean have established eight high seas MPAs (Reeve et al., 2012). Financial assistance, scientific support and public pressure could accelerate progress by these and other regional bodies towards wider MPA networks.

However, these regional agreements are only binding on members (Druel, 2011). To establish a common, global mandate for precaution, protection and ecosystem-based management, many governments are now calling for a global agreement for the conservation and sustainable use of marine biodiversity beyond national jurisdiction (Gjerde & Rulska-Domino, 2012). Such an agreement – created under the Law of the Sea Convention – would provide a platform for a truly global MPA network, as well as ensure the effective and equitable management of the global ocean commons beyond national boundaries. Political commitment to such an agreement by governments could accelerate progress towards the 2020 MPA target.

While working towards the global agreement, governments, scientists, NGOs and industry leaders can act now to initiate *ad hoc* alliances to pursue protective measures on the high seas. The Pacific Oceanscape Framework is one example where Pacific regional leaders have agreed upon an ambitious goal of MPA networks that includes high seas areas (see forumsec.org for more information). The Sargasso Sea Alliance (sargassoalliance.org), led by the Bermuda government, is paving the way for protection in the western north Atlantic. Similar initiatives to establish high seas MPAs are needed to address the huge gap in ocean management.

Priority areas for protection and collaboration can be derived from work underway within the CBD regarding areas of ecological or biological significance (EBSAs) based on scientific criteria adopted by CBD COP10 in 2010 (Gjerde & Rulska-Domino, 2012). Since 2010, the CBD in conjunction with governments and regional organizations has been convening workshops to describe areas that meet the scientific criteria. So far, regional workshops have been held in the North-East Atlantic, the Western South Pacific, the Wider Caribbean and Western Mid-Atlantic and the Southern Indian Ocean. Additional workshops are planned for the Eastern Tropical and Temperate Pacific, the North Pacific and the South East Atlantic, and elsewhere. Reports from the initial workshops and a similar Mediterranean process were reviewed by the CBD's scientific advisory body (SBSTTA) in May 2012, and have been submitted for endorsement to CBD COP11.

As in the Pacific and the Sargasso Sea, states may work through regional organizations or informal alliances to pursue measures through the relevant sectoral bodies, e.g., for fishing, shipping, or seabed mining, to enhance an area's conservation and management. They can even agree amongst themselves to designate the area as an MPA, and adopt other measures consistent with international law such as environmental impact assessments.

The development of apps such as this one on Marine World Heritage sites demonstrate the ability to go beyond desktop systems and put ocean exploration literally in the hands of the user © Andy Jeffrey

STRATEGY FIVE: REFRAME THINKING ABOUT THE BENEFITS OF MPAS

Political and public debate about MPAs often centres upon their perceived economic and societal costs, as opposed to their myriad economic, cultural, and environmental benefits (Mascia et al., 2010; Smith et al., 2010). For example, public discussions over the Great Barrier Reef Marine Park (GBRMP) have often focused upon immediate direct costs, whereas in fact the economic returns from rezoned MPA networks within the GBRMP have been estimated at approximately 130 times greater than the costs of management (McCook et al., 2010). MPAs can contribute not only by generating alternative revenue streams, but can also be designed to enhance fisheries' productivity (Gaines et al., 2010; Harrison et al., 2012). There is an immediate need to 'reframe' thinking about MPAs to pursue proactively more balanced appraisals of their benefits relative to costs, while also being conscious and transparent about trade-offs that are often involved between biodiversity conservation and livelihoods. At the very least, such information will lead to better informed political and public debate; at best, it will allow win-win solutions to emerge and be recognized, and grow a larger and better informed constituency of support for MPA establishment and management.

Research in the Pacific has already shown that in addition to economic and conservation benefits, MPAs can deliver development, cultural and governance benefits, including improved children's health, reduction in internal conflicts, and better community organization (Leischer et al., 2007; Govan, 2009; Pascal, 2011). Reframing thinking could be done by undertaking additional case studies detailing the relative and distributional benefits and costs of MPAs at different scales (Fox et al., 2012). Case studies should evaluate benefits with the MPAs' primary purposes in mind (evaluating fisheries benefits when that MPA has been designed in part for fisheries, for instance), acknowledge additional benefits (such as coastal stabilization or nutrient cycling), include explicit consideration of the likely long-term costs of *not* having an MPA, and analyze – or at least acknowledge – the indirect and non-financial benefits of MPA protection. Indeed, several international initiatives, including The Economics of Ecosystems and Biodiversity (TEEB, www.teebweb.org) and the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES, www.ipbes.net/), are highlighting the global economic benefits of biodiversity and the growing costs of biodiversity loss and ecosystem degradation.

STRATEGY SIX: USE TECHNOLOGY TO CONNECT PEOPLE WITH THE OCEANS

The power of social media to create change is clear. The 'Arab Spring' in the Middle East and North Africa was propelled by these communication tools, helping activists share ideas and coordinate action (Soper & Demirkan, 2012). Ocean protection has yet to mainstream such opportunities, but early examples demonstrate its utility: in the Bahamas, a social media "crowdfunding" campaign raised almost US$500,000 for MPA management (Davis et al., 2012), and by early 2012, Google Earth™, with its a new perspective on the oceans, surpassed one billion downloads. Mainstreaming social media for ocean conservation can enable greater sharing of scientific findings, create new opportunities for MPA

The rescue of a pygmy killer whale at Tanjung Aru, Sabah, Malaysia was greatly assisted by social media © Scubazoo, 2012

funding, and increase public mobilization, engagement, and ownership. Strategies include showing locations of MPAs on mobile apps, sharing news of MPA successes or challenges via Twitter™, raising funds for MPA management through crowdfunding apps, or expanding use of YouTube™ for dissemination of informative and riveting talks on MPA issues.

Social media also represent the extraordinary power of immediacy, the ability to connect people instantly with critical events. For example, in January 2012 a pygmy killer whale was stranded on a beach in Kota Kinabalu, Sabah, Malaysia. As a result of text messaging, Twitter™ and Facebook™, there were more than 100 volunteers on site to assist within two hours of the first incident report. With expert leadership, these volunteers worked around the clock for 36 hours to support the animal and return it to a safe location (Fong & Vanar, 2012).

Social media can be strategically deployed to empower policymakers, managers, scientists, and environmental advocates to increase awareness and create personal connections to the oceans. Just as Facebook™ targets advertising toward different demographics, there is an opportunity to connect communities with their local marine environments, to build global constituencies of interest or concern and to direct specific, high-impact messages to the right people. Information technologies can promote wider recognition not only of threats and impacts (acidification and bleaching, for instance) and unique events (such as dolphin sightings or whale strandings) but also of the oceans' significant climatic role and the value of MPAs in biodiversity conservation, and climate change mitigation and adaptation. Powerful messages and personal engagement are crucial to building understanding and support.

CONCLUSION

MPAs are vital tools for long-term sustainable management of the oceans. The design and operation of MPAs in the 21st century must be reconsidered, as the oceans are facing new and greater threats than ever before. This paper has explored six strategies that offer innovative approaches to the design, management, implementation and marketing of MPAs.

The oceans are in serious decline, and we must increase the number and area of MPAs, reform management approaches, and increase the effectiveness of the MPAs already in place. 'Business unusual' is needed to fill the designation gap, and the strategies presented here are key components of this necessary innovation. Action is needed now, for the sake of the oceans' health and humanity's future.

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ABOUT THE AUTHORS

Jesse Hastings is a marine conservation social scientist and head of Blue Globe Consulting, an environmental consulting firm based in Singapore.

Sebastian Thomas is a doctoral candidate at the University of Queensland, working on the economics and policy of blue carbon, climate change resilience, and the business of carbon offsets.

Valerie Burgener is the Development and Communications Manager for the MPA Action Agenda at WWF-International.

Kristina Gjerde is an expert in the law of marine conservation, and the high-seas policy advisor for IUCN.

Dan Laffoley is the Senior Advisor, Marine Science and Conservation for IUCN's Global Marine and Polar Programme, and is also Marine Vice Chair for the World Commission on Protected Areas.

Rod Salm is the Director of Coastal Marine Conservation for The Nature Conservancy's Asia Pacific and California Division.

Laurence McCook is an Adjunct Senior Principal Research Fellow, ARC Centre of Excellence for Coral Reef Studies, and manages the production of the Great Barrier Reef Outlook Report for the Great Barrier Reef Marine Park Authority.

Lida Pet-Soede leads WWF's Coral Triangle programme, coordinating activities with the strategy, communications and policy teams to achieve the programme's goals.

William M. Eichbaum is the Vice-President for Marine and Arctic Policy at WWF-US.

Mariska Bottema is a Marine Advisor at WWF-NL.

Ginette Hemley is Senior Vice President for Conservation Strategy and Science at WWF-US.

John Tanzer is the Director of the Global Marine Programme at WWF-International.

Callum Roberts is a marine conservation biologist in the Environment Department at the University of York, England.

Hugh Govan is an advisor and trainer for the LMMA network and director of Sustainable Island Innovations, based in Suva Fiji.

Helen E. Fox is the Director of Marine Science for WWF-US' Conservation Science Program.

RESUMEN

Nunca antes se habían enfrentado los océanos a tantas presiones. Las áreas marinas protegidas (AMP), dentro de un enfoque más amplio de la gestión basada en los ecosistemas, han surgido como una de las herramientas más importantes para la gestión sostenible, o incluso la recuperación, de los océanos. La Meta 11 de Aichi del Convenio sobre la Diversidad Biológica (CDB) hace un llamado para que para el año 2020 el 10 por ciento de las zonas marinas y costeras se conserven por medio de sistemas de áreas protegidas gestionados de manera eficaz y equitativa, y ecológicamente representativos, pero desafortunadamente, la mayoría de las Partes no está en camino de cumplir con este compromiso. Este documento pretende apoyar este esfuerzo reseñando seis estrategias que podrían acelerar el establecimiento de AMP y crear modelos para la gestión de AMP resilientes en todo el mundo. Estas estrategias (establecer alianzas público-privadas para cambiar la forma en que las AMP son diseñadas y financiadas; fortalecer los vínculos entre las AMP, las comunidades locales y sus necesidades; gestionar las AMP para hacer frente al cambio climático e incrementar las reservas de carbono; implementar la conservación en alta mar mediante AMP; replantear el discurso sobre los beneficios de las AMP; y utilizar la tecnología para conectar a la gente con los océanos) pueden mejorar la protección y gestión de los océanos, y deparar beneficios futuros para la humanidad.

RÉSUMÉ

Depuis l'apparition de l'homme sur terre, les océans n'ont jamais subi de pressions aussi fortes. Les aires marines protégées, prise dans un contexte plus large de gestion écosystémique, se sont toujours présentées comme l'un des instruments les plus efficaces pour lutter contre la dégradation des océans et promouvoir leur régénération. Selon l'Objectif d'Aichi n° 11 de la Convention sur la diversité biologique, au moins 10% des espaces marins et côtiers devront être conservés d'ici à 2020, au moyen de réseaux écologiquement représentatifs et bien reliés d'aires protégées. Malheureusement cet objectif sera loin d'être atteint par la plupart des États Parties. Pour contribuer à cet effort, six stratégies sont ici détaillées, afin d'accélérer l'établissement d'aires marines protégées et de créer des modèles de gestion résilients. Ces stratégies (établir des partenariats de type public-privé pour changer le mode de création et de gestion des aires marines protégées ; renforcer les liens entre les besoins des aires marines protégées et ceux des communautés locales et leurs moyens de subsistance ; gérer les aires marines protégées de façon à accroître les stocks de carbone et à répondre aux effets du réchauffement climatique ; favoriser la conservation de la haute mer et y établir des aires marines protégées sans plus attendre ; recadrer et repenser les bénéfices liés aux aires marines protégées ; faire usage de la technologie pour connecter les gens et l'océan) peuvent contribuer à une meilleure protection et gestion des océans en vue de subvenir durablement aux besoins de l'humanité.