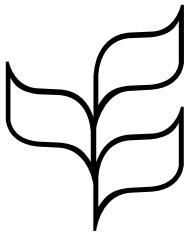




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EXPERT WORKSHOP ON MARINE PROTECTED AREAS AND OTHER EFFECTIVE AREA-BASED CONSERVATION MEASURES FOR ACHIEVING AICHI BIODIVERSITY TARGET 11 IN MARINE AND COASTAL AREAS

Montreal, Canada, 6-9 February 2018

BACKGROUND DOCUMENT ON OTHER EFFECTIVE AREA-BASED CONSERVATION MEASURES (IN NON-FISHERIES MARINE SECTORS)—DELIVERING OUTCOMES TOWARDS THE ACHIEVEMENT OF AICHI BIODIVERSITY TARGET 11

Note by the Executive Secretary

1. The Executive Secretary is circulating herewith, for the information of participants in the Expert Workshop on Marine Protected Areas and Other Effective Area-based Conservation Measures for Achieving Aichi Biodiversity Target 11 in Marine and Coastal Areas, a background document on other effective area-based conservation measures (in non-fisheries marine sectors) – delivering outcomes towards the achievement of Aichi Biodiversity Target 11. The document was prepared by the Australian National Centre for Ocean Resources and Security and the Commonwealth Scientific and Industrial Research Organisation of Australia, as commissioned by Secretariat of the Convention on Biological Diversity, with financial support from the Government of Canada.
2. The document is being circulated in the form and language in which it was received by the Secretariat.

Other Effective Area-Based Conservation Measures (in Non-Fisheries Marine Sectors)—Delivering Outcomes Towards The Achievement Of Aichi Biodiversity Target 11

Background Information Document for the CBD Expert Workshop on Marine Protected Areas and Other Effective Area-based Conservation Measures for Achieving Aichi Biodiversity Target 11 in Marine and Coastal Areas

(6 - 9 February 2018 - Montreal, Canada)

Prepared by Kamal Azmi (Australian National Centre for Ocean Resources and Security (ANCORS), University of Wollongong, Australia and Piers Dunstan (Oceans and Atmosphere Flagship, Commonwealth Scientific and Industrial Research Organisation (CSIRO))

Commissioned by: the Secretariat of the Convention on Biological Diversity

Disclaimer: This paper is intended to stimulate discussion. It is not a position paper. It does not represent the opinions of the CSIRO or the University of Wollongong, or the positions of any national governments. Examples used for illustrative purposes in the paper should not be construed as reflecting an intention of the relevant national governments to declare the example areas as “other effective area-based conservation measures”.

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1. Introduction

Aichi Biodiversity Target 11¹ states that

“By 2020, at least 17 per cent of terrestrial and inland water areas and 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 landscape and seascape.”

This target contributes to Strategic Goal C: “To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity”.

Since 1993 when the Convention on Biological Diversity entered into force, marine protected areas have increased almost more than 20-fold, from 0.29% to 7.0%. Since the adoption, in 2010, of the Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity targets, the area of marine protected areas has more than doubled, from 2.4 to 7.0%. With commitments made as of today by a number of Parties to the Convention on Biological Diversity, an additional 3.4% percent of marine area will be covered by marine protected areas by 2020. Out of which 2.9% comes from additions in national waters, while 0.5% is from additions in areas beyond national jurisdiction (all in Antarctica). These national commitments include: increases in protected areas expected from projects already funded; national priority identified by countries under their plans submitted to the Convention; and voluntary commitments announced in advance of the UN Oceans Conference held in New York, June 2017. Three quarters of these new commitments have been made with implementation plans giving confidence that they will be carried out. Focusing only on areas under national jurisdiction, 16.0% are currently protected; this is projected to rise to over 23% by 2020.

As much of the growth in MPA coverage has been slow and localised, suggests that other effective area-based conservation measures (OEABCMs or OECMs) will play an important role in achieving the target.

Target 11 defines several qualitative elements that define how MPAs and OEABCMs should function, specifically: (1) areas of particular importance for biodiversity and ecosystem services; (2) management equity and effectiveness; (3) ecologically representative and well-connected; and (4) integrated into wider landscape and seascape. Submissions provided by Parties, other Governments and relevant organizations to the Secretariat of the Convention on Biodiversity (CBD) in response to notifications [2017-084](#) and [2017-065](#) reveal significant experience in understanding these elements from parties.

Areas of particular importance for biodiversity and ecosystem services have been identified through a number of different initiatives. The CBD criteria on Ecologically or Biologically Significant Marine Areas (EBSA)² provides a broad-based set of criteria that can be applied to many systems and are linked to other approaches to the identification of significant areas.³ Other approaches include Key Biodiversity Areas (KBA), Vulnerable Marine Ecosystems (VME), World Heritage Sites, Ramsar Sites and Important Bird Areas. Submissions in response to the above-noted notifications suggest that many countries have applied similar criteria that have been adjusted for their respective circumstances. Some of the common elements among these approaches include the recognition of areas for reproduction of species, threatened and endangered species, and areas of high biodiversity or productivity. The synergy between the CBD EBSA criteria and other criteria, both global and national, suggests a convergence of certain approaches and key

¹ The Aichi Biodiversity Targets were adopted as part of the *Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity Targets*, contained in the Annex to CBD (2010). *Decision Adopted by the Conference of the Parties to the Convention on Biological Diversity at its Tenth Meeting*. Nagoya, Japan, 18-29 October 2010. UNEP/CBD/COP/DEC/X/2. Adopted on 29 October 2010. Available at <https://www.cbd.int/decision/cop/?id=12268>. Accessed on 8 January 2018.

² See <http://cbd.int/ebsa>

³ Dunn, D.C., Ardron, J., Bax, N., Bernale, P., Cleary, J., Cresswell, I., Donnelly, B., Dunstan, P., Gjerde, K., Johnson, D., Kaschner, K., Lascelles, B., Rice, J., von Nordheim, H., Wood, L., and Halpin, P.N. (2014). The Convention on Biological Diversity's Ecologically or Biologically Significant Areas: Origins, development, and current status. *Marine Policy* 49: 137-45

concepts among many countries. However, most of these do not explicitly capture ecosystem services. Operationalisation of ecosystem services into management is limited at this point and is primarily a scientific endeavour. As well, the submissions have generally not provided information on the assessment of ecosystem services.

Many countries are beginning to assess management effectiveness and equity in both their networks of MPAs and areas that are considered to be achieving conservation benefits. Management effectiveness is often assessed through the establishment of management plans, programs of reviews of those plans and monitoring of conservation outcomes derived from the plans. Relatively few countries have fully established management plans and monitoring, but many have indicated that they are working to achieve this. Programs to evaluate equity are less well-developed and are currently focused around stakeholder engagement, ensuring that all stakeholders including indigenous peoples and local communities are engaged in the planning and management process.

Ecological representativeness has been defined through a number of different approaches, depending on the scale. Many countries indicated that they have used measures of representativeness in their reserve planning process, including assessment of depth, bioregions, habitats, and ecological and physical features. These have been identified in different ways by various countries and in some cases are still being assessed. However, generally as MPA networks are established significant effort is made to ensure the representativeness of each different “type” of habitat/bioregion/feature is included in the network. In contrast, where only one or two MPAs within a jurisdiction have been established, representativeness is generally not considered as the MPAs are based in areas of high ecological or biological importance. Few submissions deal explicitly with connectivity with a protected area network and the science to support these type of integration is still in development.

MPAs are at the forefront of efforts to achieve Target 11. The primary objective of protected areas is conservation and they have often focused on restricting or regulating a broad set of extractive industries, but have struggled to respond to environmental damage can occur from other sectors which are not focused on activity within the MPA, such as pollutants and physical impacts as a consequence of marine activity.⁴ Due to the breadth of potential activities in the marine environment, many different activities may be managed through sectoral agencies with specific responsibilities, even within MPAs. Integration of MPAs into the wider landscape and seascapes by including the efforts of sectoral agencies provides an opportunity to build on the benefits of protected areas by providing a broader framework for management of marine resources. However, articulating when and how this integration should occur remains a significant problem for most states and can provide a basis for considering the roles of OEABCMs. One of the outcomes of management of sectoral activity may be the unintended, or secondary, positive environmental consequences of measures aimed primarily at achieving non-environmental objectives, such as security, recognition of traditional rights, or the protection of installations. It makes intuitive sense that, when defined spatially, some of these measures could be categorised as “other effective area-based conservation measures”.

The purpose of this paper is to identify possible examples of measures that may qualify as OEABCMs and therefore could be considered as contributing toward meeting Aichi Target 11. It is intended to provoke creative thinking about how Target 11 can be achieved in a way that delivers Strategic Goal C. Consistent with the IUCN World Commission on Protected Areas’ (WCPA) draft guidelines on OEABCMs,⁵ the paper suggests that the primary objective of qualifying OEABCMs might not be conservation. This may mean moving toward a definition that focuses on the outcomes of an OEABCM, rather than the governance and management arrangements that apply to it.

⁴ Spadi, F. (2000). Navigation in Marine Protected Areas: National and International Law. *Ocean Development and International Law* 31(3): 285-302, p285.

⁵ IUCN WCPA (2017). *Guidelines for Recognising and Reporting Other Effective Area-based Conservation Measures*. IUCN, Switzerland. Version 1. Available at <https://www.iucn.org/theme/protected-areas/wcpa/what-we-do/oecms>. Accessed on 30 November 2017.

The rest of this paper outlines current approaches to the definition of an OEABCM. It then examines three examples of area-based measures that could qualify as contributing to Aichi Target 11. The paper concludes by posing some questions for consideration with regards to OEABCMs and their role in achieving Aichi Target 11.

2. Defining OEABCMs

Before defining OEABCMs, it makes sense to define protected areas. Definition of an MPA have focused on defining a set of criteria that define what an MPA is. The CBD's *Ad Hoc Technical Expert Group on Marine and Coastal Protected Areas* has defined marine and coastal protected areas as "any defined area within or adjacent to the marine environment, together with its overlaying waters and associated flora, fauna and historical and cultural features, which has been reserved by legislation or other effective means, including custom, with the effect that its marine and/or coastal biodiversity enjoys a higher level of protection than its surroundings."⁶

IUCN defines a protected area as "a clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values." Most of this definition describes what an MPA is – the list of criteria that define an MPA, but includes a broad description of the desired outcome, the long term conservation of nature. The criteria that define an OEABCM might be varied, depending on the sector and jurisdiction, but outcomes should remain identical to fit under the definition of an area meeting Target 11.

At the time that the OEABCM provision was included in Target 11, there was not an agreed-upon definition in the context of the CBD. The IUCN-WCPA draft guidance on the definition of OEABCMs proposes that an OEABCM is a "geographically defined space, not recognised as a protected area, which is governed and managed over the long term in ways that deliver effective and enduring *in-situ* conservation of biodiversity, with associated ecosystem services and cultural and spiritual values."⁷ IUCN notes that while this definition is similar to its definition of protected areas, the key difference is that it is not necessary that the primary objective of an OEABCM is conservation.⁸ This definition of OEABCM reflects an apparent intention in the language of Target 11 that they are *additional* to marine protected areas (MPAs), not a subset of them.⁹ It is also places less emphasis on inputs than the definition of an MPA and as a result, greater emphasis on outcomes. Defining an OEABCM as an outcome-based tool allows for two distinct strengths: first, it focuses on the outcomes that an OEABCM should produce and avoids the difficulties of pre-emptively defining what types of measures can be considered an OEABCM; and second, it implicitly prioritises monitoring, which is necessary to demonstrate a net positive conservation outcome.

⁶ CBD (2003). *Marine and Coastal Biodiversity: Review, Further Elaboration and Refinement of the Programme of Work*. Report of the Ad Hoc Technical Expert Group on Marine and Coastal Protected Areas (13 February 2003), UNEP Doc. UNEP/CBD/SBSTTA/8/INF/7, para. 30. Available at <https://www.cbd.int/kb/record/meetingDocument/4748?RecordType=meetingDocument&Event=SBSTTA-08>. Accessed on 15 December 2017.

⁷ IUCN WCPA (2017). *Guidelines for Recognising and Reporting Other Effective Area-based Conservation Measures*. IUCN, Switzerland. Version 1. p11. Available at <https://www.iucn.org/theme/protected-areas/wcpa/what-we-do/oecms>. Accessed on 30 November 2017.

⁸ Ibid. For some insights into the development of this position, see Laffoley, D., Dudley, N., Jonas, H., MacKinnon, D., MacKinnon, K., Hockings, M., Woodley, S. (2017). An introduction to 'other effective area-based conservation measures' under Aichi Target 11 of the Convention on Biodiversity: Origin, interpretation and emerging ocean issues. *Aquatic Conservation* 27(S1): 130-137. p135. Note also that this position contrasts with earlier work to build consensus statements on OEABCMs in Canada, including that "Conservation of biodiversity is explicitly stated as the primary objective. A range of objectives may exist for the site, but in cases of conflict, conservation should prevail". See MacKinnon, D., Lemieux, C.J., Beazley, K., Woodley, S., Helie, R., Perron, J., Elliott, J., Haas, C., Langlois, J., Lazaruk, H., Beechey, T., Gray, P. (2015). Canada and Aichi Biodiversity Target 11: understanding 'other effective area-based conservation measures' in the context of the broader target. *Biodiversity Conservation* 24: 3559-81. p3571

⁹ Laffoley et al. op cit. p133

With regards to the submissions provided in response to the CBD notification, the US and Canada have provided information on their work in identifying OEABCMs in marine areas. The US submission refers to, among other things, a database of “de-facto MPAs” developed by the National Marine Protected Areas Center (NMPAC). NMPAC has identified 12 types of “de facto MPAs” established for military, public health or safety, or public and private infrastructure-related objectives. These include areas in which special navigational measures, anchorage restrictions, exclusion zones and restrictions on particular activities apply.¹⁰¹¹ Canada’s submission contains descriptions of three examples of new, adjusted or proposed OEABCMs. Two of these relate, at least in part, to fisheries conservation objectives while one was directed at the protection of Narwhal overwintering and coldwater coral habitats.¹²

3. Selected potential OEABCMs

This section briefly outlines some selected examples of potential OEABCMs. Each example aims to achieve a non-conservation primary objective, but could be considered to achieve biodiversity conservation outcomes under certain circumstances. The detail provided is not intended to be a comprehensive analysis for each case, but rather a brief outline of some of the key issues intended to stimulate discussion about how these and other similar measures might be harnessed to achieve Aichi Target 11.

3.1 Submarine cable and pipeline protection zones

The primary objective of a submarine cable or pipeline protection zone is self-explanatory. They are not designed with the primary objective of conserving marine biodiversity. There are generally two types of area-based measures – wider protection zones and narrower protection corridors¹³ – but the term protection zones will be used here to refer to both area-based measures.

Submarine cables carry over 95 percent of all international communication¹⁴ and are therefore a vitally important economic asset. The most common causes of damage to submarine cables is fishing (most commonly, bottom trawling) and anchors. Submarine cables are widely regarded as causing minimal damage to marine ecosystems, particularly when they are not buried. Some minor damage to small areas may occur when cables are being maintained or repaired,¹⁵ but over time, protection zones around them could have positive effects on marine ecosystems.¹⁶

¹⁰ The 12 “de facto MPAs” are: anchorage ground; danger zone; lightering zone; prohibited area; regulated navigation area; restricted area; safety zone; security zone; shipping safety fairway; shipping safety anchorage; special anchorage area; and traffic separation scheme. Each is described in National Marine Protected Areas Center (NMPAC) (2008). *State of the Nation’s De Facto Marine Protected Areas*. (R. Grober-Dunsmore and L. Wooninck, editors). Silver Spring, Maryland. p10, Box 4, Box 5. Available at https://nmsmarineprotectedareas.blob.core.windows.net/marineprotectedareas-prod/media/archive/helpful_resources/inventoryfiles/defacto_mpa_report_0608.pdf. Accessed on 21 Nov 2017

¹¹ The NMPAC report identifies 1200 de facto MPAs covering 3 percent of waters under US jurisdiction. See *ibid* p6

¹² ECCC (2017). Canadian submission in response to the CBD Secretariat’s request for the “Submission of Information on National Experiences and Lessons Learned in the Development, and Effective and Equitable Management, of Marine Protected Areas and other Effective Area-based Conservation Measures” (CBD Notification 2017-084), Environment and Climate Change Canada, 2 October 2017.

¹³ Protection zones are generally wider than protection corridors. China, Singapore, Indonesia, and Japan have legislated for the power to establish protection corridors, while Australia and New Zealand legislation provides for protection zones. Widths can vary from 50m in China to 3500m in Indonesia. Davenport, T. (2012). Submarine Communications Cables and Law of the Sea: Problems in Law and Practice. *Ocean Development and International Law* 43: 201-42. p217, footnotes 209, 210, 212

¹⁴ Carter L., Burnett D., Drew S., Marle G., Hagadorn L., Bartlett-McNeil D., and Irvine N. (2009). Submarine Cables and the Oceans – Connecting the World. UNEP-WCMC Biodiversity Series No. 31. ICPC/UNEP/UNEP-WCMC, p8

¹⁵ A useful summary of the potential environmental impacts of submarine cables can be found in Friedman, A. (2017). Submarine Telecommunication Cables and a Biodiversity Agreement in ABNJ: Finding New Routes for Cooperation. *The International Journal of Marine and Coastal Law* 32: 1-37, pp8-12

¹⁶ Carter et al (2009) op cit. p37

Submarine pipelines pose a higher risk to the environment than cables due the potential for any damage to them to cause pollution in the marine environment. They are unlikely to be able to be constructed within an MPA. However, if a protection zone were to be established around a pipeline, that protection zone could provide protection against damage to marine ecosystems, particularly benthic habitats, from fishing and anchors. However, very little if any research has been conducted into the impact on biodiversity and marine ecosystems of cable and pipeline protection zones.¹⁷

The current legal framework for protection of submarine cables is fragmented across different maritime zones. Under the Convention on the Law of the Sea¹⁸ (LOSC), a coastal State's sovereignty extends to its internal waters, territorial sea and archipelagic waters and to the sea bed in those waters.¹⁹ Coastal States have a right under LOSC Article 21(c) to establish rules for the protection of submarine cables and pipelines in relation to the innocent passage of foreign vessels through their territorial sea, and have a general competence to legislate for the protection of submarine cables and pipelines in those waters.²⁰ This means that they can impose penalties for intentional or unintentional damage to cables and pipelines and restrict activities that might damage pipelines and cables in specified areas near them.

All States have the right to lay submarine cables and pipelines on the bed of the high seas beyond the continental shelf,²¹ on the continental shelf²² and in the EEZs of another State.²³ However, protection of submarine cables and pipelines on the high seas and in EEZs is effectively limited to flag State jurisdiction.²⁴ All States are obliged to adopt laws and regulations to create an offence for a vessel flying its flag or nationals under their jurisdiction to wilfully or through negligence break or damage a submarine cable or pipeline.²⁵

No provisions currently exist that would explicitly support the establishment of a protection zone in the EEZ or the high seas around a cable by a single State,²⁶ although it has been suggested that this may be possible if it is tied to the restriction of activities over which coastal States can exercise jurisdiction under LOSC in their EEZ or on their continental shelf.²⁷ For example, coastal States have the right to take reasonable measures for the prevention, reduction and control of pollution from pipelines on their continental shelf but with respect to cables, only in relation to the exploration of the continental shelf and the exploitation of its natural resources.^{28 29} It has been suggested that there may be an opportunity for reform to permit coastal States the right to protect submarine cables on environmental grounds.³⁰

¹⁷ A search using the Scopus and Science Direct databases using the search terms “submarine cable” or “submarine pipeline” and biodiversity yielded no relevant results.

¹⁸ United Nations Convention on the Law of the Sea (LOSC). Agreed 10 December 1982, entered into force 16 November 1994

¹⁹ In relation to the territorial sea LOSC Article 2; in relation to archipelagic waters Article 49;

²⁰ Davenport (2012) op cit. p217

²¹ LOSC Articles 87(1)(c) and 112

²² LOSC Article 79

²³ LOSC Article 58(1). These rights are subject to the same rules applying to cables and pipelines in the high seas, notably Article 113.

²⁴ Kaye, S. (2007). International Measures to Protect Oil Platforms, Pipelines and Submarine Cables from Attack. *Tulane Journal of Maritime Law* 31(2): 377-423. p419

²⁵ The key provision on LOSC is Article 113, although Articles 114 and 115 have some relevance.

²⁶ As Davenport (2012) op cit, p219, notes “cable protection zones in areas of high seas, where no state can subject any part of the high seas to its sovereignty, would not be consistent with UNCLOS”

²⁷ See the discussion in Davenport (2012) ibid, who cites Kaye, S. (2010), “The Protection of Platforms, Pipelines and Submarine Cables Under Australian and New Zealand Law” in Maritime Security: International Law and Policy Perspectives from Australia and New Zealand, eds. Natalie Klein, Joanna Mossop and Donald Rothwell. New York, Routledge, p192

²⁸ LOSC Article 79(2)

Multilateral cooperation is likely to be the only way that restrictions on the high seas, such as the imposition of a protection zone, may be possible.

In 2012 APEC reported that five member economies of the eight that responded to its survey had legislated for criminal penalties for damage to submarine cables. Australia and New Zealand have legislated for the establishment of submarine cable and pipeline protection zones and have established several such zones. The Australian and New Zealand frameworks have been recommended as models for adoption elsewhere.³¹ Australia's legislation asserts a right to establish a cable protection zone within its EEZ and on the extended continental shelf.³²

Similarly, New Zealand's Submarine Cable and Pipeline Protection Act 1996 includes powers to establish protection zones in its internal waters, territorial sea and EEZ.³³ It has established 10 submarine cable and pipeline protection zones.³⁴ Most cable protection zones in New Zealand prohibit fishing and anchoring³⁵ with exceptions for research and maintenance activities.

Restrictions are more flexible in the Hauraki Gulf and the Cook Strait.³⁶ For example, the Cook Strait cable protection zone permits fishing by vessels "being used to set or lift nets or rock lobster pots, or paua or kina fishing as long as all these activities are carried out in daylight hours and do not involve attachments to the sea bed" subject to specified spatial and temporal limitations.³⁷

Some area-based restrictions may share similar outcomes to areas that meet MPA criteria. Eight of New Zealand's cable protection zones have similar outcomes to type 2 MPAs in accordance with the *Marine Protected Areas: Classification, protection standard and implementation guidelines*.³⁸ The standard focuses on the outcome – that is, "enabling the maintenance or recovery of the site's biological diversity at the habitat and ecosystem level to a healthy functioning state" – regardless of the tool or policy employed to achieve that outcome.³⁹ Similar restrictions apply to protection zones operating around pipelines.⁴⁰

²⁹ See also: on the shortcomings of Article 79(2), Friedman, A. (2017). Submarine Telecommunication Cables and a Biodiversity Agreement in ABNJ: Finding New Routes for Cooperation. International Journal of Marine and Costal Law 32(1) 1-35, p17; and in relation to pipelines on the continental shelf, and the possible application of LOSC Article 79(4) in addressing pollution from damaged pipelines, Kaye (2007) op cit. p420

³⁰ Takei, Y. (2012). Law and Policy for International Submarine Cables: An Asia-Pacific Perspective. *Asian Journal of International Law* 2: 205-33, footnote 64, citing Kaye (2010) op cit. pp398, 422-3

³¹ Beckman, R. and Davenport, T. (2010). *Workshop Report*. Workshop on Submarine Cables and Law of the Sea, 14 – 15 December 2009, Singapore, p44. Available at <https://cil.nus.edu.sg/wp-content/uploads/2009/10/Workshop-Report-29-Jan-2010.pdf>. Accessed on 30 Nov 2017

³² *Telecommunications Act 1997* Schedule 3A Division 2 Subdivision A s4(1)

³³ *Submarine Cables and Pipelines Protection Act 1996-22*, s12(1). Available at <http://legislation.govt.nz/act/public/1996/0022/latest/DLM375803.html?src=qs>. Accessed on 22 Nov 2017

³⁴ Froude, V.A. and Smith, R., 2004. *Area-based Restrictions in the New Zealand Marine Environment*. Department of Conservation MCU Report. Available at <http://www.doc.govt.nz/about-us/science-publications/conservation-publications/marine-and-coastal/area-based-restrictions/>. Accessed on 28 Nov 2017

³⁵ *Submarine Cables and Pipelines Protection Act 1996-22*, s13(1)

³⁶ Froude and Smith (2004) op cit. p15

³⁷ Hauraki Gulf submarine cable Protection Zone (SCPP1001), *Submarine Cables and Pipeline Protection Order 1992 R2A(1),(4)*; Cook Strait Submarine Cable Protection Zone (SCPP1006), *Submarine Cables and Pipeline Protection Order 1992 R2A(3)*; both cited in Froude and Smith (2004) op cit. pp54, 95

³⁸ New Zealand Department of Conservation <http://www.doc.govt.nz/nature/habitats/marine/type-2-marine-protected-areas/> accessed on 28 Nov 2017

³⁹ New Zealand Department of Conservation (2008). *Marine Protected Areas: Classification, protection standard and implementation guidelines*. pp10-1. Available at <http://www.doc.govt.nz/about-us/science-publications/conservation-publications/marine-and-coastal/marine-protected-areas/marine-protected-areas-classification-protection-standard-and-implementation-guidelines/>. Accessed on 28 November 2017.

Issues for consideration:

- Can submarine cable protection zones compensate for any ecological damage from installation and maintenance?
- Are the measures in place in a cable or pipeline protection zone likely to provide sufficient protection for marine biodiversity?
- In what circumstances would a cable or pipeline protection zone be sufficient to achieve biodiversity outcomes sought under Aichi Target 11?
- What additional monitoring and evaluation would be required in a cable or pipeline protection zone to assess their positive or negative outcomes for biodiversity and who should be responsible for those assessments?

3.2. Particularly Sensitive Sea Areas

Shipping activity can affect marine areas through the effects of operational discharges, accidental or intentional pollution,⁴¹ and physical damage⁴² to habitats and marine organisms (IMO 2006: para 2.1).⁴³ While a range of navigational measures are available under international law to address maritime safety including measures applying to specific areas, the emergence of the Particularly Sensitive Sea Area (PSSA) concept in the early 1990s⁴⁴ highlighted the opportunity to apply navigational measures specifically to achieve ecological objectives.⁴⁵

A PSSA is defined by the IMO as “an area that needs special protection through action by IMO because of its significance for recognized ecological, socio-economic, or scientific attributes where such attributes may be vulnerable to damage by international shipping activities”.⁴⁶ PSSAs therefore do not necessarily need to have an explicit ecological objective but could contribute to the protection and maintenance of marine biodiversity, species and habitats.⁴⁷

⁴⁰ See for example the Oaonui pipeline protection zone (SCPP1007), which has similar protections to the Cook Strait Cable protection zone, compared to the more restrictive conditions for the Maui A and Maui B Pipelines. (The Oaonui pipeline protection zone (SCPP1007): “No fishing or anchoring except for (a) ships being used for research by or for the Ministry of Fisheries as long as the research is done without attaching any ship to the sea bed; (b) ships used for constructing, servicing, maintaining or repairing Maui gasfield offshore platforms, submarine pipelines and associated offshore facilities; (c) fishing vessels being used to set or lift nets or rock lobster pots, or paua or kina fishing as long as all these activities are carried out in daylight hours and do not involve attachments to the sea bed and are within 2 miles of low watermark of the North Island”; Maui A and Maui B Pipelines (SCPP1010): “This is a restricted area for all New Zealand ships except for those ships engaged in the construction, repair, maintenance, and servicing the Maui Gas field offshore platforms, submarine cables and associated offshore facilities.”). Cited in Froude and Smith (2004) op cit. p99

⁴¹ According to the IMO, substances released from vessels that may cause harm to the environment and marine living resources include “oil and oily mixtures, noxious liquid substances, sewage, garbage, noxious solid substances, anti-fouling systems, harmful aquatic organisms and pathogens, and even noise”. See IMO (2005). Revised Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas. Resolution A.982(24). Adopted on 1 December 2005. para 2.2. Available at <https://docs.imo.org/Category.aspx?cid=3>. Accessed on 11 December 2017.

⁴² Physical impacts can include “the smothering of habitats, contamination by anti-fouling systems or other substances through groundings, and ship strikes of marine mammals”. Ibid.

⁴³ PSSAs therefore do not relate to damage caused by dumping, which are covered by the 1972 *London Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter*, and the 1996 *Protocol to the London Convention*. See IMO (2005) op cit. para 4.2

⁴⁴ Peet notes that precursors to PSSA concept had been the subject of discussions since at least 1971, several PSSAs had already been designated before the formal adoption of the term in 1991 (IMO Assembly Resolution A720(17)). See Peet, G. (1994). Particularly Sensitive Sea Areas: A Documentary History. *International Journal of Marine and Coastal Law*. 9(4): 469-506.

⁴⁵ Edward Kleverlaan, personal communication, 4 January 2018

⁴⁶ IMO (2005) op cit

⁴⁷ Gjerde, K. and Freestone, D. (1994). Particularly Sensitive Sea Areas – An Important Environmental Concept at a Turning Point. *International Journal of Marine and Coastal Law* 9(4): 431-68. p436, referring specifically to UNCED Agenda 21 Chapter 17.7.

PSSAs can apply to areas both within and beyond the territorial sea⁴⁸ and must strike a balance between a coastal State's rights in each zone, and those of vessels flying the flag of another State.⁴⁹ Since their inception they have been viewed as a means of protecting a sensitive area where an individual State lacks competence to unilaterally impose restrictions.⁵⁰

Spatial measures, however, are contemplated in Article 211(6) of LOSC which effectively requires a coastal State to seek the IMO's approval for additional mandatory vessel pollution measures with effect in a defined area within its EEZ. Such measures should be "required for recognized technical reasons in relation to its oceanographical and ecological conditions, as well as its utilization or the protection of its resources and the particular character of its traffic" and thus provides the basis for PSSAs. Such additional regulations may relate to discharges or navigational practices but not design, construction, manning or equipment standards other than generally accepted international rules and standards.⁵¹

An IMO member State or more than one member State with a common interest in the area in question can propose a PSSA.⁵² Final authority for the approval of a PSSA rests with the IMO's Marine Environment Protection Committee (MEPC), although this is subject to a number of preceding steps and approvals by various organs of the IMO, including in some circumstances, the IMO Assembly.⁵³

However, as the term is defined under an IMO Assembly Resolution, a PSSA is a non-binding designation and relies on states to implement measures.⁵⁴ This is not to say that they are without value – it has been argued that they signal to vessel operators the importance of applying caution or avoiding PSSAs, and provide a framework for an holistic, coordinated and integrated approach to marine environmental protection, and as an "...internationally acceptable mechanism for balancing concerns of environmental protection and freedom of navigation...".⁵⁵

To operationalise a PSSA requires one or more associated protective measures (APM) "which meets the requirements of the appropriate legal instrument establishing such measure, must have been approved or adopted by IMO to prevent, reduce, or eliminate the threat or identified vulnerability."⁵⁶

A proposed PSSA must meet at least one criterion contained in the IMO Guidelines. Criteria are grouped into three categories – (i) ecological;⁵⁷ (ii) social, cultural, and economic;⁵⁸ and (iii) scientific and educational.⁵⁹ This means that a PSSA may be established to achieve an objective other than an ecological one.

A PSSA proposal must also demonstrate that the attributes of the proposed area are vulnerable to international shipping activities, the vessel traffic and natural factors to be considered, and other

⁴⁸ IMO (2005) op cit. para 4.3

⁴⁹ Gjerde and Freestone (1994) op cit. p432

⁵⁰ Ibid. p433

⁵¹ Article 211(6)(c)

⁵² IMO (2005) op cit. para 3.1

⁵³ Ibid para 8.3

⁵⁴ Peet, G. (1994) op cit. p475

⁵⁵ Gjerde and Freestone (1994) op cit. pp450-1

⁵⁶ IMO (2005) op cit. para 1.2

⁵⁷ The ecological criteria include uniqueness or rarity, critical habitat, dependency, representativeness, diversity, productivity, spawning or breeding grounds, naturalness, integrity fragility and bio-geographic importance; these are explained in ibid paras 4.4.1 to 4.4.11

⁵⁸ The social, cultural, and economic criteria include social or economic dependency, human dependency, and cultural heritage; these are explained in ibid paras 4.4.12 to 4.4.14

⁵⁹ The scientific and educational criteria include research, baseline for monitoring studies, and education; these are explained in ibid paras 4.4.15 to 4.4.17

information such as evidence of actual current damage or potential damage, historical incidents and their consequences, potential flow-on impacts from establishing the proposed PSSA, other environmental stresses, and any existing measures. The MEPC may establish a technical group, comprising experts in relevant environmental, scientific, maritime, and legal matters to assess proposals against the Guidelines and provide advice to the Committee.⁶⁰

Finally, a proposal must identify the applicable APM(s) that will prevent, reduce, or eliminate the identified vulnerability.⁶¹ APMs must be consistent with international law, in particular that they should not undermine the freedom of navigation.⁶² However, APMs relating to maritime safety and navigation that have been properly endorsed by the IMO are likely to be considered to be consistent with LOSC.⁶³ Indeed, the need for consistency with international law means that, in practice, APMs that can be applied in relation to PSSAs are limited to those that have been or are to be adopted by the IMO (IMO 2006: para 6.1). The IMO Guidelines identify a range of APMs, including, inter alia:

- designation of the area as a Special Area under MARPOL;⁶⁴⁶⁵⁶⁶
- application of special discharge restrictions within the PSSA
- ships' routeing and reporting systems in or the near the PSSA, under the International Convention for the Safety of Life at Sea (SOLAS) and in accordance with the General Provisions on Ships' Routeing (GPSR)⁶⁷ and the Guidelines and Criteria for Ship Reporting Systems; or
- "measures aimed at protecting specific sea areas against environmental damage from ships, provided that they have an identified legal basis".⁶⁸

Routeing measures that were not originally intended to address environmental problems have evolved to address environmental objectives more explicitly. While originally established to address maritime safety, the IMO has, since 1992, explicitly incorporated environmental objectives into the rationale for routeing provisions under the GPSR, and since 1995 under SOLAS.⁶⁹ These include Areas To Be Avoided

⁶⁰ Ibid para 8.3

⁶¹ Ibid para 8.1

⁶² ibid para 9.2

⁶³ Roberts, J., Chircop, A. and Prior, S. (2010). Area-based Management on the High Seas: Possible Application of the IMO's Particularly Sensitive Sea Area Concept. *International Journal of Marine and Coastal Law* 25(4): 483-522, p507

⁶⁴ Protocol of 1978 relating to the International Convention for the Prevention of Pollution from Ships, 1973 (MARPOL), as amended by amendments of 1984 and 1985. *Australian Treaty Series* 1988 No 29. Available at [http://www.austlii.edu.au/other/dfat/treaties/1988/29.html](http://www.austlii.edu.au/au/other/dfat/treaties/1988/29.html). Accessed on 15 December 2017.

⁶⁵ A special area is defined in MARPOL Annexes I, II, and V, as "[a] sea area where for recognised technical reasons in relation to its oceanographic and ecological condition ad to the particular character of its traffic the adoption of special mandatory methods for the prevention of sea pollution by oil, noxious liquid substances or garbage is required". See IMO (2002). *Guidelines for the Designation of Special Areas under MARPOL 73/78 and Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas*. A 22/Res.927, Annex I Guidelines for the Designation of Special Areas under MARPOL 73/78, para 2.1. Adopted on 29 November 2001. Available at <https://docs.imo.org/Category.aspx?cid=3>. Accessed on 18 December 2017.

⁶⁶ Protective measures for Special Areas under MARPOL must already exist where as APMs for PSSAs could be proposed for adoption by IMO. See further the comparison between Special Areas and PSSAs in UNEP-MAP-RAC/SPA (2010). *International legal instruments applied to the conservation of marine biodiversity in the Mediterranean region and actors responsible for their implementation and enforcement*. By Ben Salem, M. Ed. RAC/SPA, Tunis, pp13-4. Available at <https://www.cbd.int/doc/meetings/mar/ebsaws-2014-03/other/ebsaws-2014-03-submission-rac-spa-9-en.pdf>. Accessed on 11 Dec 2017.

⁶⁷ IMO (1995). Resolution A.572(14), *General Provisions on Ships' Routeing* (adopted 20th November 1985), as amended by Resolution A.827(19), adopted 23rd November 1995. Measures include "traffic separation schemes (TSS); two-way routes; recommended tracks; areas to be avoided; no-anchoring areas; inshore traffic zones; roundabouts; precautionary areas; and deep-water routes", noted by Roberts (2005) op cit. 137.

⁶⁸ IMO (2005) op cit. para 6.1.3

⁶⁹ See Roberts (2005) op cit. pp143-4

(ATBA), which are discussed further below, and traffic separation schemes, among others.⁷⁰ The IMO is the only international organisation authorised to adopt international measures on ships' routeing and areas to be avoided.⁷¹

While a coastal State has greater freedom to regulate routeing measures in its territorial sea, some aspects of navigation, such as compulsory pilotage, are more restrictive. A coastal State must work within the IMO to enforce compulsory pilotage within its territorial sea but, as Australia and Papua New Guinea have found, the IMO considers that there is no international legal basis to support compulsory pilotage in straits used for international navigation.⁷²

ATBAs can exist independently or in association with PSSAs.⁷³ The first ATBA established for environmental purposes was around New Zealand's Poor Knights Islands group and is not associated with a PSSA. A marine reserve already surrounded the islands, covering a total marine area of 19.22km² in three separate portions,⁷⁴ extending 800m from the islands.⁷⁵ However the ATBA covers a much larger area,⁷⁶ in a triangular shape from the coastline of the North Island between Cape Brett in the north to Bream Head in the South.⁷⁷ The ATBA is entirely within New Zealand's territorial sea.

An example of an ATBA that is associated with a PSSA⁷⁸ can be found within Ecuador's EEZ around the Galapagos Archipelago.⁷⁹ Ecuador's proposal for a PSSA around the Galapagos Marine Reserve was approved by the MEPC in 2005⁸⁰ in accordance with the IMO's previous Guidelines.⁸¹ The APMs include mandatory ship reporting systems, recommended tracks to allow vessels access to ports in the archipelago, and an ATBA.⁸² The ATBA extends well beyond the PSSA area (see Annex 3 of Annex 23 of Resolution MEPC.13 5(53), and therefore, it appears, beyond the area of the Galapagos Marine Reserve. The ATBA

⁷⁰ For a brief description of these and other routeing measures, see <http://www.imo.org/en/OurWork/Safety/Navigation/Pages/ShipsRouteing.aspx>. Accessed 4 January 2018

⁷¹ International Convention for the Safety of Life at Sea (SOLAS), Signed in London on 1 November 1974, entered into force 25 May 1980. Australian Treaty Series 1983. No.22. Regulation 8(b). Available at <http://www.austlii.edu.au/au/other/dfat/treaties/1983/22.html>. Accessed on 4 January 1974

⁷² Roberts et al (2010). Op cit., p512; and Rothwell, D. and Stephens, T. (2016). *The International Law of the Sea*. Second edition. Oxford and Portland, Oregon, Hart Publishing, pp263-6

⁷³ A list of PSSAs adopted by the IMO can be found at <http://www.imo.org/en/OurWork/Environment/PSSAs/Pages/Default.aspx>

⁷⁴ For details see Protected Planet (webpage) (2017). Poor Knights Marine Reserve: WDPA ID 315471. Available at <https://protectedplanet.net/poor-knights-islands-marine-reserve>. Accessed on 19 December 2017

⁷⁵ IMO-NAV (2003). *Routeing of Ships, Ship Reporting and Related Matters: Proposed area to be avoided*. Submitted by New Zealand to the Sub-committee on Safety of Navigation. NAV 49/3, 16 January 2003, para 6.3.1.1. Available at <https://docs.imo.org/Category.aspx?cid=3>. Accessed 4 January 2018.

⁷⁶ The area of the ATBA is roughly estimated by this author to be approximately 1100km², well over 50 times the size of the marine reserve

⁷⁷ Compare the sizes of the marine reserve and the ATBA in Annex 2 of NAV49/3, IMO-NAV (2003) op cit.

⁷⁸ A map depicting the APMs applied in the Galapagos Archipelago can be found at <http://pssa.imo.org/galapagos/maps.htm>. Accessed 18 December 2017

⁷⁹ The *Marine Regions* website, managed by the Flanders Marine Institute, was used to judge whether the coordinates for the boundaries of the PSSA and ATBA fell within the EEZ. URL: <http://www.marineregions.org/eezmapper.php>. Accessed on 4 January 2018.

⁸⁰ IMO MEPC (2005). *Report of the Marine Environment Protection Committee on its Fifty-Third Session*. MEPC 53/24/Add.2 1 August 2005, Annex 23 Designation of the Galapagos Archipelago as a Particularly Sensitive Sea Area. Resolution MEPC.13 5(53), adopted on 22 July 2005. Available at <https://docs.imo.org/Category.aspx?cid=3>. Accessed 18 December 2017.

⁸¹ IMO (2002) op cit. *Annex 2 Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas*. Available at <https://docs.imo.org/Category.aspx?cid=3>. Accessed on 18 December 2017. Annex 2 was superseded by new Guidelines approved under IMO Assembly Resolution A.982(24).

⁸² The IMO website has a useful map illustrating the APMs applying in and around the Galapagos PSSA. Available at IMO <http://pssa.imo.org/galapagos/maps.htm>. Accessed 18 December 2017.

thus acts as a buffer zone to protect sensitive ecosystems from damage caused by substances released from vessels.

Intuitively, PSSAs (and ATBAs) should provide some protection for ecosystems if they represent areas of ecological value, and the relevant APMs target real risks – as required by the IMO Guidelines. Again, however, research demonstrating the impact of PSSAs on biodiversity is scarce. While the IMO Guidelines provide for reviews and evaluations of existing PSSAs,⁸³ no formal evaluations have been conducted.⁸⁴

Issues for consideration:

- Could PSSAs established on the basis of social, cultural, and economic criteria, or scientific and education criteria, also achieve biodiversity outcomes, even if biodiversity conservation is not an explicit or primary objective?
 - If not, could additional ecological criteria provide a valid basis for inclusion under Aichi Target 11?
- If an outcomes-based measure of the impact of a PSSA on biodiversity were employed, what criteria or indicators would provide a valid indication of its contribution of the PSSA to Aichi Target 11?

3.3. Traditional Use Areas

Traditional use areas can cover a wide range of area types where traditional users have some degree of priority and protection vis a vis other activities that may have a negative impact on traditional users, such as industrial scale fishing and other non-traditional uses. They could include areas governed under customary tenure,⁸⁵ areas managed by indigenous and non-indigenous local communities, or simply areas that have been traditionally relied upon for food security and livelihoods by particular groups.

Some traditional use areas have demonstrated that, as co-managed common property areas, communities are capable in some circumstances of developing effective management regimes without involvement by an external authority.⁸⁶ However, they can be vulnerable to external influences, such as technological change and the intrusions by external parties.⁸⁷ They also tend to perform less effectively as the size of the territory and/or membership of group increases,⁸⁸ and could also be eroded by the adoption of formal management arrangements that do not adequately take account of traditional forms of management, such as those under customary marine tenure.⁸⁹

However, awareness has grown over recent decades of the role of traditional forms of management and traditional knowledge, not just in managing a fishery resource, but as an effective means of conserving biodiversity and protecting marine ecosystems. This has been accompanied by increased interest in approaches such as co-management,⁹⁰ and has facilitated greater integration of traditional practices into the

⁸³ IMO (2005). Op cit, para 8.4

⁸⁴ However, a few IMO members have carried out their own reviews of PSSAs within their jurisdictions. For example, Australia reviewed the Great Barrier Reef PSSA with para 8.4 in mind, prior to submitting a proposal to extend it to the south western Coral Sea, but did not submit the review to the IMO. Edward Kleverlaan, personal communication, 16 January 2018.

⁸⁵ Aswani, S. (2005). Customary sea tenure in Oceania as a case of rights-based fishery management: Does it work? *Reviews in Fish Biology and Fisheries* 15: pp285-307

⁸⁶ Schlager, E. and Ostrom, E. (1992). *Property Rights and Natural Resources: A Conceptual Analysis*. Land Economics 68(3): 249-62

⁸⁷ Steelman, T.A. and Wallace, R.L. (2001): *Property Rights and Wrongs: Why Context Matters in Fisheries Management*. Policy Sciences 34: 357-79. p367

⁸⁸ Ostrom, E. (1990). *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge, UK, Cambridge University Press, p188

⁸⁹ Aswani, S. (2005). Op cit. pp285-307

⁹⁰ Steelman and Wallace (2001) op cit. p368-9, Table 1

broader formal legal and marine fisheries and ecosystem management frameworks.⁹¹ It has been suggested that traditional management approaches could bridge the divide between “the all-or-nothing regime of commercial fisheries vs marine reserves”⁹².

Such ideas have gained traction in UN-led conferences on sustainable development. Direct references to traditional uses can be found in binding and non-binding instruments agreed at, and subsequent to, the 1992 UN Conference on Environment and Development in Rio de Janeiro. For example, the Rio Declaration emphasised that “Indigenous people and their communities and other local communities have a vital role in environmental management and development because of their knowledge and traditional practices...”⁹³ These themes were repeated and elaborated upon throughout Agenda 21,⁹⁴ including in Chapter 17 on protection of the oceans,⁹⁵ as well as in the CBD,⁹⁶ the 1995 UN Fish Stocks Agreement (UNFSA),⁹⁷ and the FAO Code of Conduct for Responsible Fisheries.⁹⁸

The CBD recognises in its preamble that traditional knowledge contributes to biodiversity conservation and the sustainable use of its components.⁹⁹ Its substantive provisions contain a clear intention that States should protect, encourage and support the sustainable traditional use of biological resources¹⁰⁰ and the application of traditional knowledge to that end and for the conservation of biodiversity.¹⁰¹

⁹¹ Aswani, S. (2005). Op cit. p301

⁹² Stephenson, J., Berkes, F., Turner, N.J., & Dick, J. (2014). Biocultural conservation of marine ecosystems: Examples from New Zealand and Canada. *Indian Journal of Traditional Knowledge* 13(2): 257-65, p263

⁹³ Article 22, *Rio Declaration on the Environment and Development*, United Nations Conference on Environment and Development (UNCED), 14 June 1992, Rio de Janeiro, Brazil. Available at <http://www.unep.org/Documents.Multilingual/Default.asp?documentid=78&articleid=1163>. Accessed on 22 September 2015. The *Rio Declaration* also recognised in Article 6 the “the special situation and needs of developing countries”, which are of particular, but not exclusive, interest to many developing countries.

⁹⁴ UNCED (1992). *Agenda 21*. United Nations Conference on Environment and Development (UNCED), Rio de Janeiro, Brazil, 3 to 14 June. A/CONF.151/26. Available at <https://sustainabledevelopment.un.org/content/documents/Agenda21.pdf>. Accessed on 2 August 2016.

⁹⁵ On the importance of sustainably managed marine ecosystems to indigenous and other local communities, see *Agenda 21* paragraphs 17.3, 17.15, 17.70, 17.79, 17.81, 17.82. On the value of harnessing and developing traditional knowledge in the pursuit of sustainable development see paragraphs 17.15, 17.74(b), 17.81(c), 17.92, 17.94, 17.99, 17.136

⁹⁶ Convention on Biological Diversity (CBD), Adopted on 22 May 1992 at the Nairobi Conference for the Adoption of the Agreed Text of the Convention on Biological Diversity. Opened for signature on 5 June 1992, entered into force on 29 December 1993. Text available at <https://www.cbd.int/convention/text/>. Accessed on 21 December 2017.

⁹⁷ Agreement for the Implementation of the Provisions of the United Nations Convention of the Law of the Sea 10 December 1982, Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (UNFSA). *International Legal Materials* 1995; 34: 1542. Opened for signature 4 August 1995. Entered into force on 11 December 2001. New York.

⁹⁸ FAO (1995). *Code of Conduct for Responsible Fisheries*. Adopted on 31 October 1995 at the twenty-eighth session of the FAO Conference by Resolution 4/95. Food and Agriculture Organisation of the United Nations. Rome. See for example paragraphs 6.4, 6.18, 7.66 and 12.12

⁹⁹ This is implicit in the CBD Parties’ recognition in the Preamble of “the close and traditional dependence of many indigenous and local communities embodying traditional lifestyles on biological resources, and the desirability of sharing equitably benefits arising from the use of traditional knowledge, innovations and practices relevant to the conservation of biological diversity and the sustainable use of its components”.

¹⁰⁰ CBD Article 10(c): “Each Contracting Party shall, as far as possible and as appropriate:... (c) Protect and encourage customary use of biological resources in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements”.

¹⁰¹ CBD Article 8: “Each Contracting Party shall, as far as possible and as appropriate:... (j) Subject to its national legislation, respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices”.

Similarly, UNFSA lays a legal foundation, at least within the context of the management of straddling stocks and highly migratory fish stocks, for the protection of the interests of the communities that typically possess and use traditional knowledge, with a particular emphasis on those in small island developing States.¹⁰²

Clearly there is an intention in international law to support the traditional use of marine resources in ways that protect those resources and the wider marine ecosystems in which they exist. However, they are more exhortations than firm enforceable rules. While LOSC does not refer at all to traditional uses of marine resources, it does provide a strong basis for coastal States to exercise almost exclusive jurisdiction over areas that are likely to be of interest to communities for whom traditional use is relevant – that is, within their internal waters, archipelagic waters and territorial sea.¹⁰³

Despite a century or more of colonisation, traditional use areas, often underwritten by various forms of customary tenure, have been preserved in some form in various parts of the world. There is a rich history of traditional use areas and customary marine tenure in several Pacific island countries, many of which have survived colonisation, or gained stronger recognition since decolonisation,¹⁰⁴ in both developing countries, such as Solomon Islands and Kiribati,¹⁰⁵ and developed countries, such as Australia,¹⁰⁶ Canada¹⁰⁷ and New Zealand.^{108 109}

Research into biodiversity outcomes in areas subject to community management and customary practices has been limited and inconclusive. Traditional use areas tend to be data-poor, and practices are typically context-specific.¹¹⁰ Studies have more often focused on impacts of traditional practices on harvested species and governance processes, while those that have considered broader ecosystem impacts have drawn mixed conclusions.¹¹¹ Whether communities have been motivated to establish particular practices by

¹⁰² UNFSA Article 24(2) requires States to “...take into account the special requirements of developing States”, including “(b) the need to avoid adverse impacts on, and ensure access to fisheries by, subsistence, small-scale and artisanal fishers and women fishworkers, as well as indigenous people in developing States, particularly small island developing States”.

¹⁰³ LOSC Article 2. The exercise of a coastal State’s sovereignty is, however, subject to other provisions of the Convention, notably that it not hamper the innocent passage of foreign ships (Article 24(1)).

¹⁰⁴ Positive examples are well and truly matched by examples where colonisation has extinguished customary tenure. See Aswani, S. (2005) op cit. in particular pp287-9.

¹⁰⁵ See for example *Fisheries Act 2010* (Kiribati) s18, which prohibits persons who are not members of a local community (that is, persons who are not members of a kainga, utu or other division) from taking fish “in a sea or lagoon area or on a reef forming part of an ancient customary fishing ground” without a licence. Available at <http://www.paclii.org>. Accessed on 4 April 2017

¹⁰⁶ For example, Traditional Owners retain traditional harvesting rights in Australia, targeting, among other things, dugongs. Dugong populations and their habitats in the Torres Strait, where harvesting of “significant” numbers of dugongs has occurred for the past 400-500 years, are far healthier than those in the adjacent northern Great Barrier Reef area. Marsh, H., Grayson, J., Grech, A., Hagihara, R. and Sobtzick, S. (2015). Re-evaluation of a marine mammal harvest by Indigenous people using several lines of evidence. *Biological Conservation* 192: 324-30

¹⁰⁷ See for example the integrated approach to traditional use and biodiversity protection in British Columbia in: Marine Planning Partnership Initiative (2015). *Haida Gwaii Marine Plan*. Available at <http://mappocean.org/wp-content/uploads/2015/09/HGMP-WEB-2015-07-08.pdf>. Accessed on 3 January 2017.

¹⁰⁸ In New Zealand, Mātaatia reserves allow customary fishing and management but, according to the Department of Conservation, can be implemented so as to meet MPA criteria. See: <http://www.doc.govt.nz/nature/habitats/marine/type-2-marine-protected-areas/>. Accessed on 28 Nov 2017. See also Froude and Smith (2004). Op cit.

¹⁰⁹ On both New Zealand and Canada, see Stephenson, J., Berkes, F., Turner, N.J., & Dick, J. (2014). Op cit. pp257-65.

¹¹⁰ Aswani, A., Albert, S., and Love, M. (2017). One size does not fit all: Critical insights for effective community-based resource management in Melanesia. *Marine Policy* 81: 381-91

¹¹¹ Cinner, J.E. and Aswani, S. (2007). Integrating customary management into marine conservation, *Biological Conservation* 140(3-4): 201-216, pp205-7

conservation objectives or other aspects, such as food security, has also been the subject of much academic debate.¹¹²

The above observations suggest not that traditional use areas are flawed as an approach to conservation, but that more research is required to systematically analyse the circumstances in which community management and traditional practices can deliver effective biodiversity conservation, while also achieving other community objectives.

It is much clearer that conservation measures introduced from outside a community are less likely to succeed without that local community's involvement.¹¹³ Indeed, ensuring that "modern" conservation methods are deliberately integrated with traditional practices, rather than seek to replace them, has strong support in the community fisheries literature.¹¹⁴

According to a distillation of data from the World Database of Protected Areas (WDPA) by the South Pacific Regional Environment Program (SPREP), Solomon Islands has 90 protected areas that include a marine component.¹¹⁵ These carry the national designation of either a marine protected area (52), marine protected area/tabu (26), marine managed area (6), or a conservation area (1), while one is a World Heritage Site.¹¹⁶ These cover just over 1900km² of marine area, or 0.12% of marine areas under Solomon Islands' jurisdiction.¹¹⁷ Notably, 58 marine protected areas and (including those designated MPA/tabu) are under indigenous or local community management.¹¹⁸

For example, access and harvesting rights are restricted to people with kinship ties and enforced locally in customary marine tenure areas in Roviana Lagoon in Western Province of Solomon Islands. Two of these areas – the overlapping districts of Kalikoqu and Saikile – in the eastern part of the Lagoon have been used as a basis upon which to establish marine protected areas.¹¹⁹ In all, seven small MPAs have been established since 1999, ranging in size from 0.45 km² to 1.57km².¹²⁰ The success of MPAs in such areas has been shown to be dependent, in part, on the integration of customary tenure into the management regime. This was the case with the MPAs discussed here, which were established at a time when Solomon

¹¹² See *ibid*, pp205-6; and Bartlett, C.Y., Pakoa, K., and Manua, C. (2009). Marine reserve phenomenon in the Pacific islands. *Marine Policy* 33(4): 673-8, p673

¹¹³ Katikiro, R.E., Macusi, E.D., and Ashoka Deepananda, K.H.M. (2015). Challenges facing local communities in Tanzania in realising locally-managed marine areas. *Marine Policy* 51: 220-9; and Hill, L.S., Johnson, J.A., and Adamowski, J. (2016). Meeting Aichi Target 11: Equity considerations in marine protected areas design, *Ocean & Coastal Management* 134: 112-9

¹¹⁴ See for example: Aswani, S., Christie, P., Muthiga, N.A., Mahon, R., Primavera, J.H., Cramer, L.A., Barbier, E.B., Granek, E.F., Kennedy, C.J., Wolanski, E., and Hacker, S. (2012). The way forward with ecosystem-based management in tropical contexts: Reconciling with existing management systems, *Marine Policy* 36(1): 1-10; and Aswani et al (2017). Op cit.

¹¹⁵ UNEP-WCMC (2013). *WDPA Country Data Status Report: Solomon Islands*. Available at <http://pipap.sprep.org/country/SB>. Accessed on 22 December 2017. Queen Elizabeth National Park in Uganda has been erroneously included in Solomon Islands list of protected areas in the 2014 data (and continues to be included as such in 2017 WDPA data). It has been omitted from the number reported here. SPREP has been advised of this discrepancy

¹¹⁶ Four protected areas have been omitted due to insufficient information or data errors (double counting). See <https://protectedplanet.net/country/SB>.

¹¹⁷ UNEP-WCMC (2017). *Protected Area Country Profile for Solomon Islands from the World Database of Protected Areas, December 2017*. Available at <https://protectedplanet.net/country/SB>. Accessed on 22 December 2017. Eighty-nine of Solomon Islands' terrestrial and marine protected areas had not been assigned an IUCN management category. For further information on IUCN management categories, see <https://www.iucn.org/theme/protected-areas/about/protected-area-categories>.

¹¹⁸ *Ibid*

¹¹⁹ Aswani, S. (2005).op cit. pp285-307

¹²⁰ These are Olive (WDPA ID: 555544155); Ha'apai (WDPA ID: 555544152); Kozou (WDPA ID: 555544150); Nusa Hope/Heloro (WDPA ID: 555544151); Nusa Hope Mangrove (WDPA ID: 555547873); Duduli Rerenghana (WDPA ID: 555547869); and Baraulo/Bule Lavata (WDPA ID: 555544148). Available at <https://protectedplanet.net/country/SB>. Accessed on 3 January 2018.

Islands' legislation was considered inadequate and customary tenure provided the only effective way to enforce rules.¹²¹

Solomon Islands' more recent Fisheries Management Act 2015¹²² formally recognises and protects customary rights and customary rights areas,¹²³ and gives Community Fisheries Management Plans legal force.¹²⁴ The strengthened legal status of customary areas could conceivably support a widening of the protected area network through their recognition as OEABCMs beyond the formally designated MPAs.

Traditional use areas thus recognise communities' interests in marine resources and that their use of traditional knowledge can achieve biodiversity conservation and sustainable use, and as such are well-placed to ensure they are "equitably managed" as required by Target 11. They will be more effective when policy frameworks support and encourage the use and development of traditional knowledge for that purpose, and when legal frameworks protect communities' interests and their ability to apply traditional knowledge to achieve *in situ* conservation. However, further research would support a greater understanding of the circumstances in which traditional use areas can make a substantial contribution to biodiversity conservation, including through "hybrid" approaches with "modern" conservation methods to ensure that such areas are also "effectively managed".

Issues for consideration

- Is recognition of local management rights (including customary tenure) in domestic legislation a necessary condition for traditional use areas to be regarded as an OEABCM?
- What are some practical limitations on monitoring and evaluation in locally managed, traditional use areas and how might they be overcome?

4. Concluding notes

This paper has outlined three examples of types of marine management measures that may be considered as OEABCMs under the right circumstances. There are others that are equally worthy of consideration, including wreck sites and marine war graves, areas that are restricted for military or security purposes,¹²⁵ protection zones around offshore energy generation installations such as wind farms,¹²⁶ and spatially defined restrictions on land-based pollution and run-off.¹²⁷ In many cases a proposal to establish an MPA attracts concern from stakeholders that it will restrict human activities that may, in fact, be compatible with conservation and sustainable use. A more flexible approach that establishes arrangements that ensure human uses are compatible with biodiversity outcomes could help to give greater meaning to the requirement in Aichi Target 11 that protected areas and OEABCMs are "integrated into the wider landscape and seascape".

The examples used here apply to specific geographically defined spaces, are not generally recognised as marine protected areas and usually require active governance and a dedicated, ongoing management

¹²¹ Aswani, S. (2005). Op cit. pp303-4

¹²² Available at <http://www.paclii.org>. Accessed on 24 July 2017.

¹²³ *Fisheries Management Act 2015* (Solomon Islands) ss2(1), 5(1), 21(1)

¹²⁴ *Fisheries Management Act 2015* (Solomon Islands) s18

¹²⁵ See the discussion of the ecological impacts of the security zone around Cape Canaveral in Florida, United States, in Bohnsack, J.A. (2011). Impacts of Florida coastal protected areas on recreational World records for spotted seatrout, red drum, black drum, and common snook. *Bulletin of Marine Science* 87(4): 939-70. Available at <http://docserver.ingentaconnect.com/deliver/connect/umrsmas/00074977/v87n4/s12.pdf?Expires=1511328824&id=0000&titleid=10983&checksum=488317B2D17EA2B5E7DD4C0476FBF1EC>. Accessed 22 November 17.

¹²⁶ See Ashley, M.C., Mangib, S.C., Rodwell, L.D. (2014). The potential of offshore windfarms to act as marine protected areas – A systematic review of current evidence. *Marine Policy* 45: 301-9.

¹²⁷ Land-based run-off is identified as one of the greatest threats to Australia's Great Barrier Reef Marine Park but is outside the scope of the *Great Barrier Reef Marine Park Zoning Plan*. See GBRMPA (2014). *Great Barrier Reef Outlook Report 2014*. Great Barrier Reef Marine Park Authority. Available at. Accessed on 27 November 2017. pp342-3

regime to achieve their primary (non-conservation) objective. It is less clear whether PSSAs and submarine cable and pipeline protection zones might offer protection for cultural and spiritual values, although as noted above PSSAs can be established for cultural heritage purposes. What is clear from these three examples is that the legal, regulatory, ecological and social characteristics of each potential area are diverse and trying to define specific characteristics common across all potential OEABCMs may result in potentially useful approaches being excluded from consideration.

While each example is *capable* of conserving biodiversity, they must, of course, *demonstrate* the achievement of *in situ* biodiversity conservation outcomes. On this, they are distinct from MPAs in that the measures in place within an OEABCM are not necessarily directed toward conservation objectives. It may not be appropriate, therefore, to rely on the implementation of the measures in place in the expectation that they will deliver a conservation outcome in an OEABCM. This suggests that, in an OEABCM, more emphasis should be placed on the outcome achieved by the measures employed.

Focusing on outcomes also means that: (1) the white list of relevant criteria for OEABCM can be shorter; (2) it implicitly prioritises monitoring to demonstrate the conservation outcomes; and (3) when linked to objectives it provides a timeframe over which the outcome can be achieved.

It also points to the need for adequate monitoring and evaluation frameworks to be built into the design of OEABCMs to build reliable evidence that they are achieving conservation outcomes. They will also require effective enforcement mechanisms, including by communities, where appropriate, to ensure that activities that are inconsistent with conservation are deterred, or dealt with appropriately when they occur. These requirements apply to all three examples presented in this paper, and any other type of measure that relies on demonstrable outcomes to qualify as an OEABCM that contributes to Target 11. Indeed, there is no reason why MPAs should not do the same.

In conclusion, it appears that there are many potential opportunities to operationalise the OEABCM concept by harnessing many area based measures that primarily serve non-conservation objectives but achieve demonstrated conservation outcomes. Individual States can achieve much within their territorial waters, and to some degree in their EEZs, all the better through international cooperation. Critical to their success will be to ensure that conservation outcomes are supported by strong evidence, and to allow greater flexibility to design context-specific measures that address more than one objective rather than rely on prescriptive input requirements.

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