SPEAKING NOTES: **National Advisory Panel on Marine Protected Area Standards (6 July 2018)**

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INTRODUCTION

Members of the Committee, I am honoured by and wish to thank you for this invitation to speak before you on "Marine Protected Area Standards".

I have been conducting fundamental research that relates directly to key principles used in the design of networks of Marine Protected Areas (MPAs), in particular connectivity, as well as more applied research that relates to current or planned protected areas, for 20 years. Recently, my research group provided the data that led to the closures of Eastern Jordan Basin and Corsair and Georges Canyons as Sensitive Benthic Areas in the Maritimes. We have also provided data and contributed to the ecological overviews for the Eastern Shore Islands AOI and Fundian Channel AOI in Maritimes, and contributed to the ecological overview of the Offshore Pacific AOI. In addition to my research, I regularly provide science advice in national and international fora such as the Canadian Scientific Advisory Secretariat process on the Design of Marine Protected Areas; the "Endeavour Hot Vents Marine Protected Area Technical Advisory Committee" and the "Eastern Shore Islands AOI Advisory Committee" as a member; the development of a "Strategic Environmental Management Plan for the Atlantic Ocean" for the European Commission; and the design of protected areas from deep-sea mining for the International Seabed Authority.

I will attempt to address all five of your questions, although not all of them in the same detail, depending on the level of my expertise.

1. Experience around the world indicates that well-managed marine protected areas can help safeguard ecosystems and wildlife, rebuild fish stocks, and generate increased economic opportunities. What practical recommendations do you have for creating standards for marine protected areas?
    a. On what do you base these suggestions? Best available science, indigenous knowledge, ecosystem approach or something else?

IUCN MPA global standards are based on scientific (western and indigenous) evidence and were agreed upon by the global community through consensus. We do not need to reinvent the wheel, but we do need to find effective and efficient ways to apply the standards. Most recently, IUCN released a summary of their proposed global conservation standards for MPAs (draft: https://www.iucn.org/sites/dev/files/content/documents/applying_mpa_global_standards_v120218_nk_v2.pdf). These are not new but have been aggregated at a single

location. I will go through some elements of the document and reflect on how they apply to the Canadian process.

- An MPA is defined by IUCN 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*". This definition is similar to the one used by DFO except for the inclusion of activities (underlined): *"An MPA is part of the ocean that is legally protected and managed to achieve the long-term conservation of nature. MPAs may allow some current and future activities depending on their impacts to the ecological features being protected. They provide many benefits for Canadians, from environmental to social and cultural contributions."*. This inclusion may be indicative of some of the issues that are at the heart of following the IUCN standards.

- Given the looming deadline to meet Aichi Target 11, the number and area of MPAs that countries are designating or proposing has been rapidly increasing. A consequence of this rapid increase has been a focus on what should really count as an MPA to avoid what are known as paper parks. IUCN has proposed six categories for protected areas with definitions and objectives, as well as permitted human activities, for each one.

- IUCN divides the MPA standards into 3 broad categories: good governance, sound planning and design and effective management. I will focus on a subset of those (underlined) which I believe identify our greatest challenges in Canada.

  1. **Sound Planning and Design:** An *MPA individually, or as part of a network of MPAs, incorporates underline significant no-take areas, and where in a network this no-take is distributed across MPAs in the network; MPA is large enough, or is part of a network of MPAs, thereby including biodiversity fully representative of the region*

  2. **Effective Management:** *The MPA overall, has activities and uses that are compatible with and support conservation goals and objectives; has extractive activities (where these occur) that have low ecological impact, are compatible with the MPA objective(s), with the IUCN definition and categories, and that are well managed as part of an integrated approach; does not have any environmentally damaging industrial activities or infrastructural developments located in or otherwise negatively affecting it, with the associated adverse ecological impacts and effects; regulates fisheries activities (where these occur) that are low impact, assessed and managed to the highest standards, and that do not impact the ecological integrity of the area, species levels and trophic structure; has monitoring to track performance, and inform adaptive management.*

  The standards I selected above encapsulate three themes that I believe Canada needs to address if we are to establish effective MPAs.

  1. Representativity is a key element in the design of MPAs and networks of MPAs. To protect biodiversity, which is ultimately the goal of MPAs, all ecosystems must be represented in the network. This requires information on

the distribution of species and habitats in coastal environments and offshore. For many regions, this information is lacking, for example in coastal areas, throughout the Arctic, and at depths beyond the reach of the scientific trawl surveys (i.e. > ~ 1000 m). There are different scientific approaches to attain this knowledge (e.g. modelling, sampling). This is an area where partnerships among federal and provincial governments, First Nations, academia, and NGOs can prove extremely useful as resources can be pooled. Baseline information is needed both for the design of MPAs and for the assessment of their effectiveness.

2. No-take areas must be incorporated in the design of MPAs. There is strong scientific evidence that full protection is much more effective in achieving conservation objectives than partial protection. Canada must ensure that no-take areas of significant expanse are included in all MPAs to ensure effectiveness. This has been the case for some MPAs (e.g. St Ann's Bank) but may become a particularly significant challenge to overcome in coastal waters (e.g. lobster fishing in the Maritimes).

3. The third theme that relates to my previous point is the one of activities that should be permitted within an MPA. IUCN standards state (and I agree) that "MPAs are part of the _continuum of management_ needed to help sustain ocean health. MPAs provide high quality, in situ and targeted nature conservation, and can range from fully protected areas, to areas that zone and allow for some multiple use". In fact, of the IUCN categories, only category VI permits some "sustainable natural resource management" and "low level non-industrial use of natural resources compatible with nature conservation" is one of the main aims. This is the greatest challenge that Canada currently faces as pressure from the fishing and oil & gas industries, as well as some provincial governments (e.g. Nova Scotia) to allow these activities in MPAs is mounting. The standard cannot be more clearly articulated: any environmentally damaging industrial activities and infrastructural developments, with the associated ecological impacts and effects, are not compatible with MPAs.

4. Following on from (3), the issue of which protected area-based measures should count towards fulfilling Target 11 has been receiving increased attention in the scientific literature and by ocean managers who need to reach the 10% target. According to the IUCN standards: "The key difference between MPAs and other area-based measures is that, whatever form the MPAs take, the primary focus must be conservation of biodiversity. Area-based measures where the primary goals are something else, such as sustainable fishing, do not qualify as an MPA." In fact, governments would need to report separately on Aichi Target 11 which addresses Strategic Goal C (_Improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity)_ and Aichi Target 6 which addresses Strategic Goal B (_Reduce the direct pressures on biodiversity and promote sustainable use)._ Presently in Canada, existing and proposed Oceans Act MPAs are

implemented to protect biodiversity (i.e. as in IUCN standards), following science-based approaches and lengthy (perhaps inefficiently so) consultation processes during spatial conservation planning. The lengthy process to establish an MPA (up to a decade until recent changes in the Oceans Act) and the limited resources to do so means that it is not possible to reach the Aichi target without including other area-based measures. However, the criteria used to assess the suitability of these other measures "to count" must be as rigorous as those used for MPAs and must follow the IUCN standards.

2. What role do indigenous approaches play in shaping your suggestions? What kinds of guidelines will help Canada to honour its commitments to reconciliation and new relationships with Indigenous peoples?

Firstly, I should state that I have no personal experience with indigenous approaches to conservation and Dr. Natalie Ban, who spoke to you earlier is the subject expert in Canada. However, I still would like to note that the rights of indigenous peoples are an integral part of the IUCN MPA global standards. The long-term conservation of nature and associated ecosystems services and cultural values in the definition of an MPA is most highly relevant to indigenous peoples, given their long-standing close relationship with the land and the oceans and the significance of healthy ecosystems in their culture. Here in Canada, the indigenous protected and conserved areas (IPCAs) will be a significant step in reconciliation, developing new relationships with Indigenous people and achieving conservation outcomes. From the perspective of conservation, indigenous knowledge and understanding of natural processes, the healthy ecosystems and sustainable resource use, in particular over very long timescales not currently captured by western science, can only enrich the selection of appropriate marine reserves. However, in my opinion, one issue that needs to be resolved as soon as possible involves the recognition of IPCAs not only under Indigenous legal tradition but also under Canadian Law.

3. The IUCN has developed an existing structure to categorize marine protected areas. What do you see as the strengths and weaknesses of the IUCN Guidelines?

As mentioned earlier, the strength of the IUCN Global Standards lies in the fact that they are global standards developed based on scientific evidence and consensus by state and government agency and non-government organizations who are members (1330 members from 170 countries, 24 from Canada including DFO). The standards get updated as more evidence accumulates. For example, an IUCN Resolution (WCC-2016-Res-050-EN) recently encouraged the designation and implementation of at least 30% of each marine habitat in a network of highly protected MPAs and other effective area-based conservation measures. The strength of the categories developed by IUCN is that they provide guidance through definitions and objectives and permitted human activities. However, in a recent review of the literature, we found that only 28% (210 out of 746) of MPAs in Australia, Canada, France, United Kingdom, California and Hawai'i explicitly use these categories. From the IUCN data base, 55% of MPAs globally were assigned to specific categories. In Canada, MPAs under Oceans Act are not assigned

IUCN categories although DFO is a member of IUCN. The reason for this low rate of assignment globally, and perhaps a weakness, may be either that differences among some of the categories appear somewhat unclear or an MPA may fit in more than one category (e.g. if zoning is implemented). However, effort should still be made to assign MPAs to categories (or a set of categories) even if only to clarify the conservation objectives and permissible activities. Importantly, the categories are area-based but do not present clearly articulated biodiversity goals and objectives. The latter need to be developed by nations individually, based on regional scientific knowledge and global scientific evidence. Further, some CBD objectives of MPAs and networks of MPAs are not explicitly addressed by the IUCN categories, such as connectivity (discussed at length by Dr. Snelgrove in his presentation)

4. Overall, do the Guidelines developed by the IUCN work well in the Canadian context?

There is absolutely no reason why the IUCN guidelines would not work well within the Canadian context. In fact, the guidelines were developed in the spirit of global standardization to assist governments in the design of an effective network of MPAs and in meeting their international commitment to the CBD.

5. Are there specific circumstances unique to Canada that pose challenges for the use of the IUCN guidelines? What might these be? How should these circumstances be addressed?

Although the circumstances are not unique to Canada, there are three challenges that Canada will need to address in order to follow the IUCN guidelines (two already mentioned earlier).

1. For many regions, baseline data are lacking, for example in coastal areas, the Arctic, and offshore at depths greater than 1000 m. Baseline data are required not only for the establishment, but also for monitoring the performance of the MPA (also an IUCN standard). The assessment of performance requires clear and measurable targets, such as a percentage increase in population within an MPA, or a difference in average size of a species or population inside versus outside an MPA. These targets cannot be evaluated in the absence of baseline data. It should be recognized that significant investment in human and other resources must be directed towards enhancing the baseline information on marine ecosystems and the monitoring efforts of MPAs.

2. Another challenge that Canada needs to overcome relates to the incompatibility of any environmentally damaging industrial activities and infrastructural developments with MPAs. Mounting pressure from industry and Provincial governments requires a resolution of this incompatibility. However, the dispersion of responsibility for different extractive industries across federal departments or even federal and provincial jurisdictions, presents a particular challenge that needs to be addressed.

3. Currently, there are various federal agencies, legislations and policies that can be used to establish MPAs and government departments with various roles and responsibilities relating to the process. In addition, First Nations, provincial and municipal governments have established or are proposing their own protected areas under local jurisdictions. Some of these protected areas are being considered for inclusion in the 10% target as other area-based measures. Coordination of efforts across federal departments and levels of governments needs to be achieved if Canada is to produce a national network of MPAs.

A few conclusions and recommendations:

- MPA standards and guidelines have been developed globally based on scientific evidence, indigenous knowledge and the ecosystem-based approach. DFO is a member of IUCN and should ensure that those guidelines and standards are applied to Canadian MPAs.

- Canada has already adopted many of the proposed standards particularly those related to sound planning and design (e.g. MPAs have: clear long-term conservation goals and objectives, management plans, defined boundaries).

- Canada is also facing many challenges in meeting IUCN standards and following IUCN guidelines, particularly those associated with effective management. I recommend that Canada:
  - Ensures that significant no-take areas are included in all MPAs
  - Prohibits any environmentally damaging industrial activities and resource use and extraction in MPAs
  - Ensures that the same standards are used for MPAs and other area-based conservation measures included in the 10% Aichi Target 11.
  - Significantly invests in human and infrastructure resources to collect baseline information on poorly-known ecosystems and in establishing monitoring procedures.
  - Coordinates management of MPAs across federal departments and jurisdictions to increase efficiency and effectiveness.

Some relevant scientific literature:

Day J et al. 2012. Guidelines for applying the IUCN Protected Area Management Categories to Marine Protected Areas. Gland, Switzerland: IUCN. 36 pp

Edgar GJ et al. 2014. Global conservation outcomes depend on marine protected areas with five key features. Nature 506: 216-220

Edgar GJ, TJ Ward, RD Stuart-Smith. 2018. Rapid declines across Australian fishery stocks indicate global sustainability targets will not be achieved without an expanded network of 'no-fishing' reserves. Aquatic Conservation: Marine and Freshwater Ecosystems 2018: 1-14

Giakoumi S, et al. 2017. Ecological effects of full and partial protection in the crowded Mediterranean Sea: a regional meta-analysis. Scientific Reports 7: 8940

IUCN WCPA, 2018. Applying IUCN's Global Conservation Standards to Marine Protected Areas (MPA). Delivering effective conservation action through MPAs, to secure ocean health & sustainable development. Version 1.0. Gland, Switzerland.

Lester SM, BS Halpern. 2008. Biological responses in marine no-take reserves versus partially protected areas. Marine Ecology Progress Series 367: 49-56

Lester SM et al. 2009. Biological effects within no-take marine reserves: a global synthesis. Marine Ecology Progress Series 384: 33-46.

Sala E, S Giakoumi. 2017. No-take marine reserves are the most effective protected areas in the ocean. ICES Journal of Marine Science: doi:10.1093/icesjms/fsx059

Sala E et al. 2018. Assessing real progress towards effective ocean protection. Marine Policy 91: 11-13.