



CANADIAN ASSOCIATION OF PRAWN PRODUCERS

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**Submission to the National Advisory Panel on
Marine Protected Area Standards**

July 6, 2018

Summary:

“Permanent” spatial protection through the establishment of Oceans’ Act MPAs is an appropriate tool to preserve representative and unique areas to support natural biodiversity and future study. Oceans Act MPAs are generally not an appropriate tool to recover depleted species or species at risk, or to protect “sensitive features” from anthropogenic activities. Oceans’ Act MPAs should be considered one of the tools in the conservation toolbox that includes other legislation that are more suitable to the task at hand (e.g. Fisheries Act).

The use of the IUCN categories as an international standard may be a reasonable tool to provide a basis for comparison of achievements across the globe, but it should not drive the design or implementation of spatial protection in Canada. Through the sheer size of our coastline, Canada’s marine habitats and ecosystems are more diverse than most other jurisdictions, and applying such a generic standard during a design phase may impair our ability to adapt and respond to local conditions.

Recommendations:

1. Standards of protection across Oceans Act MPAs can best be achieved to the extent they share a common objective. Oceans Act MPAs should be focused on protecting unique areas and conserving areas of representative biodiversity, in a similar vein to terrestrial parks. To this end, it is expected that they would be free from significant anthropogenic influences.
2. Site-specific objectives with respect to the protection of “sensitive features” are most effectively addressed with targeted area closures under the Fisheries Act (supplemented where necessary by management measures applicable to other marine sectors), under which anthropogenic activities may be permitted as long as they do not pose a significant risk to the specific feature being targeted for protection. The allowance of industrial activity in a sensitive area closure, which is deemed not to place the targeted value at risk, should not render that area “ineligible” or otherwise “substandard” relative to its purpose.
3. With the backdrop of Canada’s modern fisheries management regime, conservation objectives for fish stocks, e.g. recovery of depleted species, species-at-risk, , disturbance avoidance of spawning activity, etc. are effectively addressed not through “permanent” spatial closures under the Oceans Act, but through other management tools available under the Fisheries Act.
4. If formally adopted for use by the Government of Canada, the IUCN guidelines should be assessed *post-hoc*, after the design and development cycle has been completed. We want to protect Canadian values in the most effective manner possible, and this should not be undermined by trying to fit our approach into a generic structure intended in part to apply to all marine situations and in part to enable international comparisons.

Submission:

Thank you for the opportunity to present our joint perspective on minimum protection standards related to Marine Protected Areas (MPAs).

I would like to begin by briefly describing the organizations that I represent.

- The Canadian Association of Prawn Producers (CAPP) represents the majority of vessel owners in the year-round northern shrimp fishery that ranges from the Grand Banks of Newfoundland to the Eastern Arctic.
- The Groundfish Enterprise Allocation Council (GEAC) represents virtually all >100' groundfish license holders in Atlantic Canada, who harvest fish stocks from the Hague line (boundary with the US) to the Eastern Arctic.

Members of both associations are primarily family-owned and operated companies who employ thousands of people in rural Atlantic Canada.

These two associations are active members of the Fisheries Council of Canada (FCC). I understand that the FCC will also be providing you a presentation today that references the socio-economic importance of fisheries to Canadian communities, as well as Canada's world-class fisheries management system and how it has contributed to third-party sustainability certifications achieved for most of Canada's commercial fisheries. In the interest of time, I will not re-iterate these points of the FCC presentation but I want to express that we support that submission.

GEAC and CAPP support selective use of area closures to protect/conservate important features of Canada's marine environment and ecosystem. We have ourselves initiated voluntary area closures for many years, on occasions where the Department has lacked data to move forward. We have also worked with the Department in various regions to define boundaries for both "sensitive area" closures under the Fisheries Act, and Marine Protected Areas under the Oceans Act. In the process, we have been asked to support and assist other fleet sectors, many of which have been baffled by the changing thresholds and approaches being applied to this topic.

Our organizations have been actively engaged in understanding, designing and implementing Ocean's Act MPAs. We have served on advisory committees, working groups, and made submissions to the House of Commons Standing Committee on Fisheries. We have included in this package our recent submission to the Standing Committee, to help further inform panel members on our views on this important topic (Appendix A). I encourage you to review it.

You have been given a difficult task, and I hope that we can help provide guidance for moving forward. I will begin with the simple question of "What are we trying to achieve?".

1. Protection of representative, unique and sensitive features

As an enabling provision, the Oceans Act identifies various reasons or purposes for which MPAs "may" be considered, including conservation and protection of marine resources and their habitats; conservation and protection of endangered or threatened marine species; conservation and protection of unique habitats; conservation and protection of marine areas of high productivity or biological diversity; conservation and protection of any other resource or habitat as is necessary to fulfill the mandate of the Minister. While achieving such objectives can require types of spatial protection on occasion, we believe that the most effective approach for Oceans Act MPAs is to focus on unique areas and a network of representative areas, which may include some places containing sensitive features.

Although area closures may be an appropriate tool to achieve protection of sensitive features as well as representative and unique areas, the choice of the vehicle to implement area closures should match the objectives that are desired, recognizing the available suite of legislation (and measures available therein) that is available in Canada to achieve these outcomes.

Representative and Unique Features:

In our view, the Oceans Act is the appropriate instrument to establish area closures for the purpose of protecting representative features and unique features. Such areas are to be preserved in a relatively intact state, free from significant anthropogenic disturbance, to protect and conserve physical features and systems of natural biodiversity, and provide areas for reference and research for future generations to study. In essence, these areas should be marine parks where natural features and processes are allowed to evolve, unhindered and unimpaired by extractive activities or those that may cause significant disturbance on any aspect of the ecosystem therein. Thus, the purpose of spatial closure under the Oceans Act should be to provide broad protection not just to a specific portion (e.g. biogenic habitats) or a specific activity (e.g. bottom fishing) but to the entire ecosystem, from the sediment to the surface.

Sensitive Features:

On the other hand, area closures to conserve “sensitive features” are better made using the Fisheries Act (supplemented where necessary by management measures applicable to other marine sectors), which has greater flexibility to target the defined conservation objective, and adjust to changing circumstances, including the availability of better data, changing ocean climate and ecosystems, changing abundance and concentrations of fish stocks, improvements in fishing technology, etc. This provides a more targeted approach where a specific feature is described, risks identified and management measures applied to mitigate those risks. Under this model, a benthic feature may be protected by prohibiting bottom-contact gears but allowing extractive processes that do not incur physical damage or impair the ongoing survival of the feature that is targeted for protection. The allowance of industrial activity in an area closure, which is deemed not to place the targeted value at risk, should not render that area “ineligible” or otherwise “substandard” relative to its purpose.

Rebuilding Depleted Fish Stocks and Addressing Species At Risk Concerns:

We ask you to recognize that existing regulatory and management tools under the Fisheries Act are highly effective at achieving conservation and/or rebuilding objectives for fish stocks, subject to environmental and ecosystem influences that are, at best, poorly understood. Any expectation that area closures would rebuild fish stocks in open-shelf ecosystems is completely without merit. Publications have pointed to higher productivity and spill-over effects observed in reef systems, however these environments and ecosystems are quite different than those typical of Canadian waters. Such positive effects have not been seen in open-shelf environments and are easily refuted by larger-scale ecological forcing. Despite decades of implementation, we have yet to see published evidence that an MPA is more effective than fisheries management tools to rebuild and conserve fish stocks, outside of reef environments. In fact, this is the subject of recent peer-reviewed literature (Mazor *et al.* 2017) that concludes, as have other publications, that the effective role of fisheries management is often overlooked in place of more ‘glamorous’ spatial protection. We contend that where the objective is to rebuild fish stocks or address depleted/SARA species, we use an appropriate tool to do so – one that constrains harvest or alters behavior to allow stock rebuilding and protects sensitive parts of the life cycle from disturbance. It is widely accepted in the scientific community that “permanent” spatial protection, such as under the auspices of an Oceans Act MPA, is clearly not

the appropriate tool for this job, other than in third-world countries where modern fisheries management tools do not exist.

This same approach also applies to non-fish SARA species. For example, temporary Fisheries Act closures or other measures in “critical habitat” can be effective in mitigating risks for highly migratory transitory species (e.g. right whale, leatherback turtles) by disallowing gear types linked to damage/mortality. The tools under the Act allow these precautions to be applied selectively to applicable gear when the value is there, and be lifted when the value is absent. Obviously, this cannot be achieved in an MPA context.

2. Dispelling Myths

I feel compelled to clarify some of the misconceptions regarding the impact of bottom-contact fishing activities. Misinformation is often provided that some types of bottom contact gear are ‘bad’ while others are ‘good’. Prior to making such an assessment, the conservation objective and habitat being fished must be kept in mind. Mobile-gear bottom contact gears increasingly use configurations that minimize bottom impacts – biogenic habitat interaction is heavily discouraged because of the risk of gear damage. In most cases within Atlantic Canada and the Eastern Arctic, the impacts of bottom-contact mobile gear is limited, occurring in “non-sensitive” areas, and short in duration, disappearing in short order.

Many areas in Canada that have been harvested for decades show no significant difference relative to comparative reference areas, largely attributed to the type of substrate and high-energy natural environment (Asci *et al.* 2018). Although this information is freely available in the peer-reviewed scientific literature, this is far different than the picture espoused by special interest groups that is sometimes based on out-dated technology without the ability to target and/or avoid areas.

Recent development of technology and new gear configurations is quite amazing. Modern otter-trawl gear has low penetrative depths (2.4 cm), removes only a fraction of the benthic biota during harvest (6%) and harvested areas return to un-impacted states within an order of months (Hiddink *et al.* 2017). Moreover, development of “virtual trawls” and highly selective “smart trawls” that can “fly” above the substrate is just around the corner.

As general practice in Atlantic Canada, mobile gear is excluded at the outset of an MPA process because the general risk of habitat damage is assumed to be less for fixed-gear fisheries. The reality can be much different. For instance, when a single licence holder is permitted to fish 300 traps in 25 traps lines, in areas of high tide movement proximate to biogenic habitats, it is common for gear to ‘shift’ along the bottom, leading to destructive interactions between this so-called ‘low impact’ gear and the values that are to be protected, e.g. corals and sponges. Multiply this by hundreds of fishermen and thousands of traps and the threat becomes very tangible. A broad-brush standard precluding spatially focused mobile gear activity and allowing potentially damaging fixed-gear may not necessarily align with the desired conservation outcomes.

In all situations, we must respect the important sacrifices being asked of fishing industry stakeholders in being excluded from areas that they historically fished.

Partly in this context, there has been much controversy about exploration, development and production by the oil and gas industry within sensitive benthic area closures. Similar to fishing, if they are well regulated and conducted in appropriate environments, the risk may be low. Broad-scale, non-specific impacts (e.g. seismic activity, blowouts) must be assessed relative to the conservation objectives. If a site has been selected because of high primary productivity and a seismic exploration blast stands to impair that productivity by high mortality at the base of the

foodweb (McCauley *et al.* 2017), then it should not be permitted. But, if the value is a biogenic habitat in a small area, then such activity might be permitted. Again – we must align the risk of the activity with the conservation objective of the site. This must also be applied in a harvesting lens.

3. Oceans Act Marine Protected Areas

Having identified that Oceans Act MPAs should be focused on representative and unique areas, we now turn the discussion towards proposed application of the IUCN guidelines and standards of protection.

IUCN Classification System:

The IUCN classification system provides a system for categorization of MPAs based upon the activities allowed therein. It does not provide a target for each category, nor does it require/advocate for all permanent spatial protection approaches to be forced into the framework.

The level of utilization of the respective IUCN classifications is varied across jurisdictions. New Zealand, an acknowledged global leader in MPAs, chose not to adopt to the IUCN guidelines because the categories didn't 'fit' their reality – instead they employed a two-tiered system centered around their Marine Reserves Act (1971) that essentially provides a threshold of take vs no-take zones. Their approach does not preclude classifying those MPAs under the IUCN categorization, but they were not implicit in design.

In Australia, IUCN categories were adopted and incorporated into legislative tools. Under their process, each MPA or spatial conservation and protection measure must be consistent with one of the categories described by IUCN. Here, the IUCN guidelines drive the design of the network, albeit it does not seem to impair local adaptation to unique environments that may not necessarily 'fit' the classifications. This inconsistency has been highlighted in peer-review literature as descriptions in Australia are 'flexed' to meet categorization, thus making outcome tracking challenging relative to the IUCN guidelines (Fitzsimons 2011).

The UK has chosen a similar approach to New Zealand, first focusing on the spatial protection measures to match stated conservation outcomes, and then determining how these areas 'fit' the IUCN criteria after establishment (Stevens *et al.* 2006). Again, this approach identifies the local values and applies appropriate conservation approaches in a method free of hard categorization that may not suit the local situation.

To our knowledge, in the UK and NZ examples the local objectives were established to address the reality on the ground, and the IUCN criteria were used simply as a comparison yardstick.

Commitments made by Canada and others to Aichi Target 11 did not require that only MPAs or IUCN-compliant measures were to be utilized for protected areas, but acknowledged the need for flexibility, including other '...effective area-based conservation measures'.

In a Canadian context, we do not object to the IUCN classification system being applied to determine how Canadian Ocean's Act MPAs and Fisheries Act area closures can be described and/or compared to other national jurisdictions. However, we believe that such an assessment should be applied *post hoc* and not in the design phase, in part because of its rigidity and in part because the IUCN classification system is generic, to be applied to all manner of marine systems from isolated coral reefs to large open-shelf and deepwater ocean areas. Although we can use this tool to determine 'how Canada did or is doing', we remain convinced that a made-in-Canada approach is more appropriate when designing spatial protection. If technical experts engaged by the Panel determine that use of the IUCN classification system and/or guidelines are in any

way incompatible with this approach, then it is the IUCN system/guidelines (that is not a mandatory international standard set by a United Nations body) that must be changed to accommodate our national interest.

Standards of Protection for Canada's Oceans Act Marine Protected Areas:

The establishment of standards for protection must be linked to the key objective of (Oceans Act) Marine Protected Areas, which is generally to maintain ecological integrity while providing a reference area for observation and research for future generations.

For a comparable, we put this in the context of a terrestrial park. Society does not support broad-scale industrial use (e.g. agriculture, logging, mining, etc.) within park boundaries because they are inconsistent with the objectives thereof. There generally exists environmental assessment processes for such protected areas to make sure that a project, no matter how insignificant it may be, does not impact the ecological integrity of the area. Even the installation of an access road may have unintended consequences associated with habitat fragmentation, edge effects and a change in the species assemblages.

In a marine context, we should apply similar objectives and standards for an Oceans Act MPA to the extent it is designed to protect unique or representative areas. Permitting the removal of or damage to the environment or biota from such an MPA (whether it be from the benthos, the water column, or the surface) impacts the ecological integrity of the area. Although some commercial fishing gears may be argued to be 'traditional', they are engaged in an extractive process that works to the detriment of natural biodiversity. This is clearly inconsistent with the intent of such area closures.

In a similar vein, just as you would not apply large-scale defoliants to a National Park, the use of seismic exploration that has been documented to extensively damage zooplankton communities (McCauley *et al.* 2017)) is problematic for representative areas given that the activity could alter/impair the base of the food web.

Whether it be fishing or oil and gas exploration, Industrial activities should not occur within an Oceans Act MPA, again to the extent it is intended to protect unique or representative attributes. If an area is truly unique, or is truly representative, it should be preserved in a natural state and every activity within the boundaries matters and has implications.

Were we in a position to 'describe' what IUCN classification should apply to an MPA as we propose it to be, we tend to consider a meshing of Ia and Ib as being appropriate and consistent with the intent of the Ocean's Act.

But let us be clear – this perspective is predicated on the use of Oceans Act MPAs being focused on unique and representative areas, and with the understanding that existing MPAs with grandfathered activities will require some re-definition of boundaries to become compliant.

Selecting Sites for MPAs:

I would like to take a moment to speak from a high-level on the selection of sites for MPAs, especially given our focus on the various tools available for conservation outcomes.

As is most often the case when establishing terrestrial parks, representative sites for "permanent" protection of representative areas should as much as possible be located outside the current and historical fishing footprint, in part because they are closest to the 'natural state' which we are trying to preserve for future generations, and in part to minimize negative impact on ocean users. Such an orientation also helps strengthen the links between conservation-

minded organizations and harvesters to promote the long-term sustainability of our marine environment.

A portion of a candidate site selected because of representativeness (e.g slope habitat) may also be deemed to be a sensitive area because of a given coral/sponge concentration contained therein. This should be considered to be a positive “bycatch”, within the overriding objective of representativeness.

4. Conclusion and Lessons Learned

We continue to be strong supporters of marine conservation, which can require area closures. Canada’s marine area closures can be measured against the IUCN standards for international comparison, but only after we design our made-in-Canada approach, focused on conserving the ecological integrity of “representative and/or unique areas” under the Oceans Act, and “sensitive features” under the Fisheries Act.

As a general comment, we are very concerned about the dynamic that results from Government dictates to achieve a targeted percentage of the marine area for protection within constrained timelines, which sometimes ignores or re-defines conservation objectives as a matter of convenience. In the last 12 months we have encountered clear examples (e.g. Haddock Box, Narwhal box) designed to achieve a spatial target without there being a valid, scientifically-based conservation objective. Concurrently, I point your attention to Georges Bank haddock and Unit 1-2 redfish as excellent examples where fisheries management measures under the Fisheries Act have resulted in rebuilt stocks, without use of year-round area closures.

Sustainably harvested, wild-caught fisheries are helping to feed the world at a fraction of the greenhouse gas emissions of agriculture-based protein (Scarborough *et al.* 2014). Our goal is long-term sustainability of marine resources and the fisheries that depend upon them, which are governed by significant environmental and ecosystem influences. The marine environment appears to be changing quickly. Placing rigid “permanent” area closures on maps will not change this course and may be to the long-term detriment of shared conservation objectives, especially if we fail to match appropriate conservation measures to these objectives.

Thank you again for your time. And I would encourage you to find the opportunity outside of this formal venue to join in a constructive and frank dialogue on these important issues which is vital to help separate fact from fiction.

Appendix A: MPA Submission to the Standing Committee on Fisheries



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February 2, 2018

Standing Committee on Fisheries and Oceans
Sixth Floor, 131 Queen Street
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Ottawa ON K1A 0A6
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Dear Mr. Simms,

The Groundfish Enterprise Allocation Council (GEAC) and the Canadian Association of Prawn Producers (CAPP) are making this joint submission to the Standing Committee on Fisheries to provide our perspective on the application of Marine Protected Areas (MPAs) and some other forms of area closures in Canada.

The Past Role of GEAC and CAPP In Protected Area Planning:

We would first like to provide the committee with an understanding of our commitment to and leadership in achieving effective marine conservation in Atlantic Canada and the Eastern Arctic. We ask the Committee to refer to Annex 1 which holds select media releases that were issued by CAPP and GEAC in 2007 and 2010, announcing voluntary closures in Atlantic Canada that we initiated to protect sensitive benthic features in the Scotia-Fundy and Newfoundland & Labrador regions. In addition to these initiatives, we have presented the Department of Fisheries and Oceans (DFO) with areas that our member companies have identified as being important candidates for protection and have encouraged DFO to implement spatial closures to protect these important values. In some cases, our member vessels have provided the primary information to delineate special areas indicated by sensitive benthic features. This relationship requires trust from both the Department and industry that confidential fishing information will not be mischaracterized or used in an inappropriate fashion.

We remain actively engaged in all aspects of MPA network planning across the Atlantic and Eastern Arctic regions, including involvement in CSAS processes aimed at ensuring that appropriate values are chosen to help delineate sensitive marine areas as candidates for protection, acting as peer-reviewers to help guide the development of avoidance protocols for scientific surveys, identifying candidate areas for closure, liaising with other fleet sectors to gain support for closure proposals and working with our membership to support DFO in achieving their targets. We have contributed our own expertise and knowledge to the underlying design methodology and have arranged for external expert opinion to help define areas needing conservation. We have supported area closures where they made sense, and pushed for changes where we felt there was room for improvement or where certain factors related to the fishing industry had not been properly characterized.

It is with this experience in mind that we provide the following considerations to the FOPO.

Aligning Conservation Objectives with MPA Outcomes:

We are fortunate that Canada has a dynamic, modern fisheries management system that includes safeguards to prevent the over-exploitation of our marine resources. This includes applying the precautionary approach in developing annual catch thresholds, establishing reference points designed to prevent impairment of productivity, creating high-levels of compliance monitoring by vessel-monitoring systems, at-sea observers and dockside monitors, implementing temporal fishery closures to protect spawning activity, and employing adaptive management approaches that respond to environmental and ecosystem change. With this comprehensive management system, there is very little linkage between effective fish stock rebuilding strategies and the application of Marine Protected Areas, especially for “open-shelf” marine resources that do not reside in localized ecosystems like tropical reef structures and are subject to dynamic oceanographic influences at a large scale.

Where objectives are aligned with ecosystem approaches and values are identified that can be conserved through a spatial protection measure, an MPA-approach may be warranted. However, as has been communicated repeatedly to the FOPO, year-round spatial closures are not an effective replacement for good fisheries management that includes scientific establishment of catch limits, temporal spatial closures to address sensitive periods in the life-cycle of directed and bycatch species, and rigorous conservation and protection regimes. It is notable that with limited application of MPAs, Canada’s management system continues to be validated by the Marine Stewardship Council, the gold standard for third party certification of sustainability.

With the exception of temporal closures during spawning periods, semi-permanent spatial protection of aggregations of temporarily depleted species is not considered an effective method of rebuilding stocks. Such an approach may actually do a disservice to the values that would benefit from more focused spatial protection (sensitive benthos, unique areas and representative marine features/ecosystems).

Setting Targets:

It continues to be our opinion that the establishment of MPAs should be undertaken in absence of a specific prescribed targets. There are inherent risks associated with spatial targets that are magnified when a time constraint is put on their establishment. In this case, the 2017 and 2020 targets have led to areas being considered for protection that may not necessarily provide for the conservation values that are stated. An example of this is provided below.

With the establishment of the 5% target, there was a ramping-up of activity, and regional staff within the Department began an accelerated process of identifying areas that could ‘count’ towards this target in an ambitious timeline. Existing closures were identified, and a push was initiated to make them contribute under various vehicles. In Scotia-Fundy region, the Haddock Box was identified as a candidate given its large size (over 10,000 km²) and existing fisheries exclusion.

On the advice of the Advisory Committee at the time, this area was first closed to mobile gear in 1987 with the aim of recovering the haddock stock by limiting the exploitation of juvenile haddock. However by 1988, the Groundfish Advisory committee advised DFO

that the boundaries of the box were incorrect (which was later validated by DFO). However, the closure remained as it was first established. The remainder of the Groundfish industry (fixed gear fleets) were also excluded from this area in 1992. Beyond some limited scallop, sea cucumber and shrimp fishing activity, the box has remained generally closed to bottom contact fishing.

The values of the closure have always been in question. Haddock stocks in 4VW remain in moratorium, having demonstrated no real benefit from the closure and likely being driven by oceanographic environmental changes. Other Groundfish stocks have waned in the interim period. This has been communicated in scientific publications that have demonstrated that there are no clear linkages between the establishment of the closed area and improved ecological functions.

Although industry had generally accepted this closure for the last three decades, everyone knew it was not achieving the outcomes for which it was established – namely the protection of juvenile haddock to promote the recovery the 4VW haddock stock.

In 2017, DFO approached industry participants with the intention of announcing that this region would qualify as an ‘Other Effective Area Based Conservation Measure’ to contribute to the 5% target. Industry was provided draft conservation objectives for the site that were expanded beyond simply haddock, giving the box credit for re-establishing local Groundfish stocks by ‘managing bottom disturbance’. This was clearly an unsubstantiated and false claim, and actually prompted industry to re-consider whether to accept this area closure. The final objectives now referencing “..managing benthic disturbance that supports juvenile and adult haddock and other Groundfish species”, continue to be inconsistent with the science on the matter.

To be clear, industry was not averse to a continued closure in the area, but the rationale/objectives are inappropriate. It is ironic that this region was identified by DFO as an ecologically and biologically significant area and could easily have been transferred into an MPA supported by the diverse array of untouched habitats therein. Although the outcome of a refugia and an official MPA are largely similar, the lack of clear links to the legitimate values being protected and conservation objectives of the closure has created concerns about future iterations of spatial management.

In this situation, the desire by the Department to meet a spatial and temporal target within a compressed timeline eclipsed the embracement of both the correct tool and identification of the real conservation values desired for protection. We view this circumventing of process as a disappointing decision by the Department, perhaps ultimately to the detriment of all stakeholders.

We have heard groups espouse the importance of achieving high targets, with some groups suggesting that 30% of marine and coastal areas should be protected as no-take zones, citing other jurisdictions where 80% of domestic waters were closed for protection. We suggest that each of those situations must be carefully examined to understand how they differ from Canada. For instance, in Palau, 80% of waters are set aside for conservation. This island nation is surrounded by coral reefs with deepwater edges on either side. The paucity of nearby shallow-water habitat means that these reefs act as aggregation areas and are easily targeted by harvesters – these are situations where spatial protection has been demonstrated to provide real conservation benefits. The coast of Canada is a much different and extensive shelf environment and should be treated as such – many areas are simply not accessible and fishery removals are addressed by a

science-based fisheries management framework that establishes allowable catches based on the productivity and ecosystem function of the species in question. To the extent that decision-making is to be scientifically rather than politically driven, the conservation value of marine protected areas as a fish protection measure in an open-shelf system (such as those found in Canada) is largely absent.

The Importance of Consultation and Engagement:

The FOPO has heard from presenters about the clear need for effective consultation and engagement, and we support these positions based on real experiences of our membership.

We have been proactively engaged with DFO and have even then experienced significant challenges. For instance, in 2010 we actively engaged DFO to identify a high-concentration area of the rare *vezella* glass sponges. We encouraged our membership through internal compliance processes to close the area to mobile gear fishing. We provided DFO with notice of our actions, helped to define boundaries alongside DFO with the understanding that we were achieving our conservation outcomes together. Abruptly, DFO ceased discussions with us. Much to our surprise, an area was then officially closed by a 2013 announcement with boundaries that extended beyond anything contemplated by industry, resulting in the loss of productive fishing grounds and the termination of a directed fishery. This could easily have been avoided with effective discourse during the process.

With experience on the water, we are able to bring together the voices of the harvesters. We are able to identify candidate areas using our own extensive data holdings and develop on-board research programs to help provide additional data needed to ‘get it right’. We observe with regret that at this juncture, protectionism is a one-way street whereby areas are closed, and not opened/reviewed for effectiveness. This severely taints the perspective of industry in these conversations.

The Need for Proper DFO Peer-Reviewed Science:

We would like to highlight the importance of proper DFO peer-reviewed science in evaluating candidates for area closures. We must ensure that decisions are being made with the support of the science community not just within the Department but are endorsed by external experts as well. At this very committee, perspectives have been brought forward by internationally respected academics and it is important that we listen to their advice on both sides of the issue.

While the need for science-based decision making has been strongly endorsed by this Government, its rush to achieve its 5% target by the 2017 deadline did create some very alarming slippage in their principles.

We previously referenced the example of the Haddock Box, where the rationale and boundaries for closure were set based on flawed information/analysis, an area that remains closed under a new set of flawed rationale.

We are compelled to bring to your attention a 2017 initiative by DFO that would have closed virtually the entire shrimp fishery in Shrimp Fishing Area 1. Even though this longstanding fishery occurs at a different time of the year than when Narwhal use the area as one of their overwintering sites, DFO proposed its closure based on the simplistic

rationale that any shrimp harvested from this area may be to the detriment of the Narwhal population, a rationale that at face-value would close many fisheries/areas in Atlantic Canada. After industry pressed for the scientific information that had led to the proposal, the Department directed local scientists to conduct a risk assessment and produce a report within a matter of days. While these scientists managed to assemble data confirming that shrimp do reside in the area, and that shrimp had been determined to be part of the diet during part of the year in some Narwhal samples from another area, there was virtually no additional information tabled or assessed, including the trajectory of Narwhal populations, the relative importance of shrimp in the diet of Narwhals, the importance of this particular area to overwintering Narwhals, nor the likely impact of the harvest of any levels of shrimp in this area relative to their total consumption, etc. Consequently, the so-called risk assessment was easily refuted by a subsequent review conducted by ecologists at the University of Washington. Sadly, DFO's intent to expedite closure of this shrimp fishery in order to achieve the 5% target, resulted in undue pressures being placed on its own scientists, a very poor risk assessment, and a serious breach in trust with the industry.

This process was clearly wrong, and thankfully it is not indicative of the norm. However, it did happen in 2017 and it must not be allowed to happen again. Closures must not be imposed upon industry without sufficient rationale and study that will withstand critical scrutiny of experts, both within and outside the Department.

Incorporating Connectivity:

Much has been said about the need for considering and maintaining connectivity between sites in the design of an MPA network. Let us reflect for a minute to consider what is known about connectivity and how it may be applied in this context.

Connectivity is generally referred to as the extent by which species may be linked across their range by the exchange of recruits, larvae, eggs or adults. The scale of connectivity differs whether we are speaking of snow crab larvae dispersing from the Gulf of St. Lawrence to the Scotian shelf or local haddock larvae caught in a gyre in Southwest Nova Scotia. In some cases, the scale of connectivity is unknown (i.e. corals and sponges), meaning that integration of this knowledge in the planning of an MPA is difficult if not impossible.

In some other jurisdictions, MPAs have been suggested to be at a scale of 25-100 km², with a spacing of 50 – 100 km. These are considered trade-offs, with larger areas (>1000 km²) being able to protect even the broadest moving species (tunas and sharks) which means they can be much further apart. The current closures in Canada have an average size of over 6,500 km², which increases to over 7,300 km² once small inshore areas are removed. Most of these are clearly operating on a scale beyond which local processes occur and is within a realm not studied or understood by Science.

In the context of the existing MPA 'Network' Plan, we should well understand that we do not have sufficient information at these scales to integrate connectivity in the design of the network, and should instead, at least in the near-term, understand that we are building an array of individual sites. When sufficient science understanding emerges for this issue to be quantitatively assessed, the layout of sites on the landscape may need to be re-

visited, but we are doing this process a disservice in the interim by referring to the current design process as a ‘Connected Network’, as connectivity has not been considered in its establishment.

Understanding the Impacts:

When assessing both the benefits and cost of a proposed closure to harvesting activity, care must be taken to ensure a long-term perspective is taken. We routinely include survey data on larval fish distribution, plankton productivity and other metrics that extend back to the 1970s but DFO has restricted its window of assessment of fisheries impacts to the 2008 to 2014 period. The ongoing regime change in our marine environment has been well discussed and reviewed by both DFO and peer-reviewed literature, suggesting that the recent bloom in shellfish may be drawing to a close as some Groundfish populations begin to recover off our shores.

The Groundfish fishery in Atlantic Canada has undergone a varied history since our jurisdiction was extended beyond 12 miles in 1977. After extension, a period of strong growth was experienced until 1992 when many Groundfish stocks collapsed coincident with a massive shift in oceanographic conditions. Many stocks were placed under moratoria at that time and are just now beginning to show signs of significant improvement with expectations that commercial operations will expand in the coming years. Without consideration of the areas that supported economically important harvesting activities in the past, we are in danger of losing access to these areas because of a failure to consider them in our initial design of closed areas. Thus, we are likely hampering our next generation of harvester from being able to garner a living from our fishery resources and sustaining the many rural communities they call home. This is clearly problematic.

From a conservation perspective – we must also acknowledge the reality of effort displacement due to fishery closures. An unintended consequence of closures can be the redeployment or significant increase of effort to other areas imposing impacts on other species or benthic features. In the context of a sessile shellfish species, this may be local-overharvest as productive areas are made unavailable.

The Need for Subsequent Monitoring and Evaluation:

The underlying rationale by which an MPA is established should determine the need for subsequent monitoring and evaluation. For instance, if the Government of Canada is seeking to protect unique features, or high concentrations of coral/sponges, then the need for monitoring/evaluation of the measure is of limited value, unless these attributes disappear from the area of protection for some reason. If an area closure is to protect functions affecting high biodiversity, then monitoring and evaluation of its effectiveness would be difficult to achieve. If, however, objectives are established that relate to the recovery of depleted species, anticipated spill-over effects, or other tangible biological processes, active monitoring and an adaptive approach should be applied that allow the effectiveness of the closure to be assessed, and boundaries to be changed in a timely fashion.

With this tool of evaluation, the benefits of spatial protection measures can be communicated and shared with stakeholders, thus increasing the level of support for these initiatives. This ingredient is missing from the DFO Plan. Unfortunately, areas are being set aside with little monitoring to understand their contribution to achieving the stated

objective. Reflecting on the Haddock Box example noted above, if a closure does not actually contribute to the objective established for it, then changes must be made to it, and/or a science-based dialogue should be conducted about creating change in the objectives.

Concluding Statements:

While MPAs may have a role for protecting unique features, high concentrations of sedentary corals/sponges, and representative marine habitat and biodiversity areas, there is emerging scientific evidence that MPAs are a relatively blunt instrument that should not be considered for the direct conservation/management of species in jurisdictions where more effective modern fisheries management techniques are employed. Canada is a leader in fisheries management and a model on the world stage – these achievements should not be taken lightly, nor should we substantially alter our path towards one whose effectiveness is under significant debate in the scientific literature.

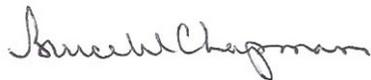
In summary, we ask that the Committee consider several important points:

1. **Develop Real Conservation Objectives** – Objectives for each site should be linked to tangible outcomes. Protection of unique features or high concentrations of corals/sponges is easily demonstrated but using closures in whole or in part to help recover depleted species susceptible to larger environmental forces is untestable and unrealistic.
2. **Reconsider the Targets** – The aim of this process is to ensure that those unique and significant values requiring protection are, in fact, protected. Although targets have forced both DFO and industry to accelerate work on spatial management, this has come at the expense of rigorous review of the conservation objectives and the process underlying the establishment of spatial protection. Canada should ensure that international commitments about targets do not force a broader application of spatial protection measures that ignore the value of our modern fisheries management system.
3. **Improve consultation** – Although we have been actively involved in the process, we have noted the absence of many key fishing industry representatives in conversations about marine protected area planning. DFO needs to find and listen to people engaged in the industry. Consultation to date has been ad hoc and limited in scope. Industry participants should not just be informed of a proposed closure but should be canvassed to help identify important areas and to address gaps in information held by DFO.
4. **Follow proper DFO peer-reviewed science** – We must follow robust science when proposing and furthering closed areas. We must be wary of proposals that may have roots in gear-conflict, provincial, or quota sharing disputes. Due to the evolving state of knowledge on Marine Protected Areas in the open-shelf marine context, we must also be vigilant when assessing the veracity of scientific publications on the matter.
5. **Accept that our Understanding of Connectivity is Limited** – We should accept that this abbreviated process precludes the establishment of a true connected

- network of MPAs. This should be accepted and evaluated at a future point in time. Currently, we are developing a series of individual sites at scales larger than science is able to offer insight on.
6. **True Assessment of Impacts** – Any establishment of closed areas must include a fulsome assessment of lost economic and harvesting relative to real conservation benefits that will have been derived from these closures. We must not limit our analyses to artificial/convenient time series of data.
 7. **Support Evaluation Through Monitoring and Adaptive Management** – The establishment of spatial protection should be considered a first step. The requirement to monitor the effectiveness of the measure and willingness to adapt and adjust to the information collected is a key part of any modern management system. Where objectives are not being achieved, we must adapt by re-evaluating, relocating or otherwise altering our management approach. This could best be achieved through a sunset provision, with a renewal period(s) only when there is sufficient scientific evidence that the specific closure is actually providing for pre-stated conservation objectives/benefits that can be measured and identified.

We thank you for the opportunity to make this submission.

Sincerely,



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