Advocates for Wild, Healthy Oceans

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The Ocean Conservancy

MPA Task Force, Attn. Dr. Doug Woodby
Alaska Department of Fish and Game
Commercial Fisheries Division
P.O. Box 25526
Juneau, AK 99801

October 2, 2002

Dear Dr. Doug Woodby

The Ocean Conservancy is pleased to provide the following comments concerning the report: "Marine Protected Areas in Alaska: Recommendations for a Public Process. Report to the Alaska Board of Fisheries. Woodby *et al. Alaska Department of Fish and Game (ADF&G). Regional Information Report 5J02-08*. July 2002." First of all, The Ocean Conservancy commends the ADF&G on this report that makes a significant contribution to the advancement of this worthwhile cause in Alaska. The key literature citations have been assimilated as have used some of the latest results on marine reserves. The background analysis of the empirical and modeling evidence is very good.

We believe that more work needs to be focused on the recommendations, primarily by being more assertive. In an environment of changing political desires, we specifically recommend that the MPA Task Force strongly encourage the Board of Fish to formalize both this process and the task force itself to provide both permanence to this effort and the necessary time to develop an effective protected area network in Alaska. Based on the clear potential benefits of marine protected areas stated in the document, the lack of a focused direction that includes definitive timelines for further actions is remiss and can only lead to delays in action. Furthermore, the very deliberative and reasonable planning process that is proposed should not be used to delay the stakeholder process toward establishment of the most critical reserves as the need arises.

A major comment that we offer is with regard to definitions. In the rapidly developing field of MPAs, terms have become confusing due to a blurring of definitions. For this process to be successful we believe that this manuscript needs to set very clear and consistent definitions that will allow stakeholders to have a clear understanding of their meaning. Most importantly "Marine Reserves" are a subset, and are not synonymous with "Marine Protected Areas." As an example, Cape Edgecumbe Pinnacles Reserve is not a reserve; it is a Marine Protected Area where bottom contact fishing is prohibited.

The document has a clear bias toward fisheries management, which is appropriate as a Board of Fish product. However, we believe that more discussion should be made of the value of MPAs for zoning (e.g., subsistence/community priority areas) or prohibit oil and gas leasing, protect tourism, prohibit dredging etc. These issues that are outside the mandate of the Board of Fish still need integrating into the MPA process so that the key issue of comprehensive stakeholder involvement is achieved. If the full scope of marine protected areas are not addressed in this report, the title of the document should be changed to reflect that the content is for marine protected areas *with fishery objectives* only. In this manner, further MPA work in other jurisdictional arenas in Alaska can dovetail coherently with this report.

Finally, we strongly recommend a formal nexus with the North Pacific Fishery Management Council EFH process to provide a less confusing array of "habitat protection" processes to stakeholders and Alaska residents.

Specific Comments:

Pg4, "Definitions": In order to understand the existing marine and coastal protected areas in Alaska, it is necessary to first define what is meant by "protected area". IUCN - The World Conservation Union, the world's oldest and largest conservation organization, defines a protected area as:

> *an area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means.*[1]

This definition recognizes and encompasses many different types of protected areas while retaining a focus conserving biodiversity.

The term "marine protected area" also encompasses a spectrum of sites varying in size, shape, objectives, and types and levels of protections, while focusing on conservation. IUCN defines a marine protected area (MPA) as:

> *any area of intertidal or subtidal terrain, together with its overlying water and associated flora, fauna, historical, and cultural features, which has been reserved by law or other effective means to protect part or all of the enclosed environment.*[2]

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[1] IUCN (1994). Guidelines for Protected Area Management Categories. CNPPA with assistance of WCMC. IUCN, Gland, Switzerland and Cambridge, UK. x+ 261pp..

[2] Kelleher, G. (1999). Guidelines for Marine Protected Areas. IUCN, Gland, Switzerland and Cambridge, UK. xxiv+107pp.

Both these definitions include sites ranging from highly protected areas, which restrict or prohibit many different human activities, to areas allowing a wide range of different uses compatible with the primary goal of protecting the environment. It is important to note that whereas IUCN's range of definitions covers untrammeled to pristine, most current MPAs in the United States tend toward the trammeled, rather than pristine[3].

The United States government interpreted and applied the IUCN definition of MPAs in the Executive Order on Marine Protected Areas (Executive Order 13158, issued May 26, 2000), which defines an MPA as:

> *Any area of the marine environment that has been reserved by Federal, State, territorial, tribal, or local laws or regulations to provide lasting protection for part or all of the natural and cultural resources therein.*[4]

Consistent with these definitions, The Ocean Conservancy considers a marine or coastal protected area to be an area designated by law to provide year-round (consistent with NOAA MPA committee – see Appendix 1), lasting protection to the marine environment above and beyond that provided by the laws and regulations in effect outside the site's boundaries. This definition includes marine reserves, which are highly protected MPAs that prohibit fishing and other activities involving extraction of living and non-living resources, as well as MPAs that allow a wide range of activities. Although seasonal fishing closures can, and should exist, The Ocean Conservancy regards these as a different form of marine management to an MPA (for NOAA definitions see Appendix 1). This should be clarified more clearly in the inventory section of this document to prevent stakeholder confusion between traditional management closures and marine protected areas. In not doing so, the intent and value of marine protected areas is diluted.

Pg4, "Definitions", Pt2: We recommend that the definition of "Marine Reserve" is clarified more rigorously so as to differentiate between benthic and pelagic marine protected areas versus no-take marine reserves. For example, Cape Edgecumbe Pinnacles Reserve is actually a "Benthic Marine Protected Area" because pelagic fishing (e.g., recreational) is still allowed.

Pg4, "Definitions", Pt3: It is important to recognize that a "Marine Fishery Reserve" is often time-period specific or seasonal, and that it may exclude only fishing of the specified resource with certain gear types, in contrast to a "Marine Reserve" as defined in point 2, which implicitly, and by practice elsewhere, is permanent and excludes <u>all</u> forms of fishing.

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[3] Recchia, C., Farady, S., Sobel, J., and Cinner, J. 2001. Marine and Coastal Protected Areas in the United States Gulf of Maine Region. The Ocean Conservancy.

[4] Marine Protected Area webpage http://www.mpa.gov.

Pg4, "Goals of Marine…", DP3: Control areas are also recognized to be important for the measurement of natural biological and ecological processes (i.e. in the absence of exploitation and its effects) (e.g. estimation of natural mortality or ecological recruitment rates), which are important to the effective management of ecosystems and exploited species.

Pg4, "Goals of Marine…", DP4: Reserves conserve biodiversity through the elimination of direct mortality or fishing impacts on all species, as well as through "indirect community level effects."

Pg5, "Goals for Protection…", DP1: The protection of habitats also has the important functions of restoring/maintaining/protecting biodiversity and ecosystem function, which is believed to positively affect ecosystem resilience.

Pg5, "Specific Recommendations…",Para1,S1,"…to justify some use…": To be more consistent with what is known about reserve performance in the context of current fisheries management we recommend the following wording: "…to justify the informed use…"

Pg5, "Policy", "…the Board consider adopting…": We support a stronger recommendation, such as "…the Board recommends adopting…".

Pg5, "Policy", "…with due consideration to realistic timeframes and staff commitments.": Again, greater consideration should be given to the urgency of providing improved management of valuable, impacted resources and natural ecosystems. With the known benefits of MPAs and the current recognition of applicable issues (e.g., rockfish depletions) this report should provide the basis for ensuring time and staff are available to further develop this process for the foreseeable future.

Pg5, "Public…", Pt1: There are already proposals "tabled" with the Board of Fish (e.g., Pioneer Seafoods proposal 402 that requests the establishment of a series of marine protected areas to address localized depletions of pelagic shelf and slope assemblages of rockfish). We believe that this report should provide the immediate opportunity and direction for these proposals to move forward into the formal process recommended. At what point will the public process "be established" for these items.

Pg5, "Public Involvement…", Pt1b: In addition to the input from stakeholders, the process should explicitly seek consultation with and advice from experts, both state, national and, potentially, international.

Pg5, "Public Involvement…", Pt1c: We agree with this point; however, the timeline should be expedient in light of the need for improved management and the depleted state of many resources and the degradation of many habitats.

Pg5, "Public Involvement…", Pt2: Again, timely and expedient action is needed.

Pg5, "Public Involvement…", Pt3: We recommend that the MPA task force is formalized as the review committee for MPA proposals. Individual proposals should still be allowed each year, allowing the committee to recommend further action (analysis) on approved proposals. The review committee should work closely with EFH interests at the North Pacific Fishery Management Council to provide a synthetic habitat management approach to Alaska's marine waters.

Pg6, "Evaluate Needs…", Pt1: This point is to be commended as it explicitly recognizes a variety of circumstances under which marine reserves are most clearly seen to have the greatest potential to deliver benefits.

Pg6, "Evaluate Needs…", Pt1b: We believe that all stocks with spawning and/or nursery areas that could be identified should be included in this analysis.

Pg6, "Evaluate Needs…", Pt1c: Again, we believe that all stocks with uncertain assessments should be included, given the role that reserve plans have in reducing risks of failure associated with management shortcomings.

Pg6, "Evaluate Needs…", Pt1d: Likewise, we believe that all stocks with uncertainties or difficulties in controlling exploitation rates should be included in the analysis.

Pg6, "Evaluate Needs…", Pt1b-d: Marine reserves certainly can function to improve the management of heavily impacted stocks and systems, and to facilitate their recovery, but marine reserves should also be considered for their potential value to precautionary management where stocks are conserved and protected from future over-exploitation or depredation.

Pg6, "Evaluate Needs…", Pt1g: We recommend the following addition: "…, or any of the conditions described in points b-e are probable."

Pg6, "Evaluate Needs…", Pt1i: Biogeographical regions always exist. This point should be clarified as to the exact meaning.

Pg6, "Evaluate Needs…", Pt1: We recommend that a further point is added: that would allow analysis of the existing or potential future effects of fishing on 'keystone' species (forage species for example) that might lead to multiple, large-scale changes to habitats and ecosystems, trophic cascades or regime shifts.

Pg6, "Evaluate Needs…", last sentence: We recommend a phased, consultative analysis, while an excellent idea, would be enhanced by using a prioritization of the

resources, habitats and ecosystems with respect to their need for remediation and/or protection.

Pg6, "Evaluate Needs…", Pt2c: While this option sounds reasonable it would be difficult to implement because of the time lags between the advent of protection and the realization of benefits first within reserves, later outside reserves, and potentially much later for the benefits associated stabilizing exploitative yields and reducing the risk of resource collapses or management errors; and it would be very risky because the benefits accrued through protection by a marine reserve can be lost very quickly with the resumption of exploitation. This has been demonstrated for example in the New England scallop fishery.

Pg6-7, "Evaluate Needs…", Para2: This is a good point, but we would add that a careful review of modeling studies would provide reasonable lower and upper bounds to this number, which could help during the early stages of planning.

Pg7, "Reserve Site…", Pt1: It should be explicitly recognized that different stakeholders will contribute to different parts of the process with varying expertise, which should affect the uptake and integration of their contribution. The objectives of a reserve should drive the relative contributions of different stakeholders. If biological benefits are the objective, then the expertise of biologists/oceanographers is paramount to reserve placement. Note, without this oversight there is potential for more damage than good to come from a reserve (for example, placing a reserve in an ecological sink area).

Pg7, "Reserve Site…", Pt4: Please clarify: "threshold ecological criteria". Is it that these are thought to be necessary conditions? If so, the points presented should be clarified as to are they the correct ones or universal. The necessary conditions for success will depend on which objectives are desired and the life-history characteristics of the focal species. For example, if within reserve improvements are the primary objective, then the most necessary conditions may be that the reserve is sited in a location that experiences good settlement of larvae or emigration of individuals from a nursery habitat, that it is prime habitat for the species, and/or that it is largely free from other human impacts (e.g. pollution). Alternatively, if the objective is to restore and stabilize fishery yields outside the reserve, then perhaps the necessary conditions would be the existence of adequate spawning habitat within the reserve, and the right hydrodynamics to carry larvae to surrounded regions. So depending on circumstances there could be other necessary conditions (e.g. connectivity, presence of certain habitats, minimum reserve size, etc.). In addition, there is the issue of enforcement, which, although not an ecological criterion, is necessary to reserve success. Regardless of all other reserve design elements, reserve success depends on the elimination or nearly complete reduction of fishing mortality within the reserve, which in turn is dependent on effective enforcement of a no-take designation.

Pg7, "Reserve Site…", Pt5e: This is complicated. First we assume that the disturbance is from fishing. While it would seem to be a good idea to establish a reserve in a relatively untouched area, one must be clear about the objectives of the reserve. The fact that the site is untouched suggests that there may be little fishing pressure there, which could be due to it being a poor site for the focal species or because there is little fishing in general. In the first case, the reserve site could be a poor choice if the objective is to restore an over-fished stock. In the second case, the reserve would not be expected to be an especially effective fisheries management tool, because fishing pressure is low, which means that one would not expect much improvement within the reserve (it is already in good shape), and the export of any life stages would not be expected to enhance the ecological or fisheries recruitment rate within fished areas. On the other hand, such a reserve could be highly effective if the objective was to preserve a healthy stock and help reduce the risk of future declines or collapses due to management errors.

Pg7, "Reserve Site…", Pt6a: It is important to recognize that reserves may improve social and economic stability, but that this benefit may not be realized for some time and may significantly lag observable biological benefits.

Pg7, "Reserve Site…", Pt6b: Please clarify if reserves would be more likely to be chosen as a fisheries management control for large, valuable fisheries, or less likely? If the former, then a tradeoff would have to be made, because, all other things being equal, large, valuable fisheries are more likely to be over-fished and therefore in need of improved management.

Pg7, "Reserve Site…", Pt6c: It is reasonable to assume that the establishment of sizable reserves will result in the redistribution of existing fishing effort, which could increase the impacts of fishing on areas outside the reserves. Therefore, this factor has to be considered, but it would be a mistake to use this fact as a reason to not establish a reserve or to reduce its size. Instead, as should always be the case for any reserve, that the reserve should be seen as only one in a suite of management controls, and other tools should be used to control fishing effort outside the reserve. This goes as well for managing the so-called "halo effect". We recommend the attached manuscript for a current peer-reviewed discussion of this: "Methods for increasing the likelihood of restoring and maintaining productive fisheries" by Sladek Nowlis and Bollermann (Bulletin of Marine Science 2002, 70:715-731).

Pg7, "Reserve Site…", Pt6g: We do not agree with this point. If a reserve (or reserves in general) were unpopular, this implies that it would be less likely that the reserve would be established – irrespective of the biological/management justification. Hopefully, ADF&G and the Board of Fish would be making its recommendation and decisions on a more objective basis than "social and political acceptability".

Pg7, "Reserve Site…", Pt6h: As argued above, enforcement is critical to reserve success. Therefore, this factor must be considered – not in terms of whether there should or should not be enforcement, but rather the level of enforcement and how reserve size and location relates to enforcement.

Pg8, "Experimental Controls…": This is a good idea, but we think it needs to be thought through more fully. This approach would be expected to work best for sedentary species (i.e. little exchange between reserves and fished areas). It is also, dependent on the reserve(s) being replicates of the areas monitored in fished areas, otherwise it would not be possible to assume that environmental factors would affect populations in both localities equally. In other words, a well-planned, potentially sophisticated, sampling design would be needed to be able to clearly separate the influences of the environment from those of fishing.

Pg8, "Sensitive Marine…": A similar priority should be given to sites occupied by especially vulnerable populations or individuals (e.g. nursery habitats or spawning sites).

Pg9, "Management Plans…", Pt3: Please add "…and living resources"; i.e. evaluate costs and benefits.

Pg9, "Management Plans…", Para2: We would suggest that an adaptive approach be explicitly built into the plan, and that reserve funding should be an integral part of the plan.

Pg9, "Monitoring and Evaluation", "Monitoring should": These points are all reasonable, but other factors that need to be considered are the frequency of sampling, the number and locations of replicates, the use of a BACI-type design, and the power of statistical comparisons to be made from the data. More importantly, the program should be designed with the explicit consideration of the processes of reserve improvement (the "reserve effect"), spillover, larval export, recruitment, fishing catches and catch rates, and the variance in these processes (e.g. the proper detection of spillover requires before-after and inside-outside comparisons, sampling with distance from the reserve, movement studies, and monitoring of fishing effort, fish catches and catch rates, and the geographical distribution of these measures).

Pg12, "Benefits Within Reserves", Para1, S2: This statement suggests that the 'reserve effect' (i.e. more, larger fish) is limited to sedentary species in reef systems. It certainly is strongest for sedentary species, but it can be significant for more mobile species. And, most importantly, we don't know that it is habitat dependent, it just appears that way because almost all studies, whether tropical or temperate, have been done in reef habitats.

Pg12, "Benefits Within Reserves", Para1, S3: This is correct for the larger population (i.e. not just within the reserve), but it should be made explicit that this occurs through larval export; the mention later in the paragraph of the "tenuous proviso" is an important caveat. If, however, this is in relation to replenishment within a reserve (i.e. the reserve effect), then that may be contributed to by increased egg production leading to increased settlement within the reserve (dependent on significant larval retention), but the primary cause is the reduction in fishing mortality.

Pg12, "Benefits Within Reserves", Para2, S1: These 'experiments' could be argued provide evidence of the reserve effect, which was exploited following the wars when fishing resumed inside what had been the 'reserves'. Normally we think of reserves affecting fisheries through the export of production to surrounding fished areas, which is not the process that occurred following the two wars.

Pg13, Para2, S2: Although we agree, we emphasize that the most basic common factor is the reduction in fishing mortality, which should benefit any exploited species to one degree or another, regardless of habitat or life history. For classes of fish or invertebrates with similar life histories, then it is more than just "plausible", it is highly likely. We note that "plausible" is warranted for particular species, as it is much more problematic to predict the effect on an individual species.

Pg14, "Benefits Outside…", Para1, S1: Two clarifications are needed. First, spillover is the emigration of juveniles or adults from a reserve to surrounding areas where they become available to fisheries, but the movement of larvae (or eggs) is called larval export, not spillover. Second, spillover is usually seen as density (not biomass) dependent process, whereas the magnitude of larval export would be biomass dependent.

Pg20, "Costs", Para2, S1: This should be described as a potential loss of income. It would only be a loss of income if they could not achieve the same income by fishing in the still open areas. There are several reasons why they might not achieve their previous income, but is not a certainty that this would happen.

Please contact me if you have further questions or desire clarification on any of our comments.

Sincerely

Martin Robards
Attachment: Sladek Nowlis and Bollermann 2002.

Appendix 1. The NOAA MPA Center established a Definition and Working Criteria for their MPA Inventory. Their inventory of Nationwide MPAs relies on five key terms in the definition of an MPA given in the Executive Order: "area," "reserved," "marine," "lasting," and "protection."

Area

To be included in the MPA Inventory, the site:

- Must have defined geographical boundaries and (a) may or may not be associated with the underlying submerged lands and (b) may be of any size, except that the site must be a subset of the U.S. Federal, state, territorial, local or tribal marine environment.

This working criterion excludes:

- Generic broad-based resource management authorities without specific locations.
- Species-specific conservation authorities that are not focused on a defined geographic area.

Marine

To be included in the MPA Inventory, the site:

- Must encompass: (a) an area of ocean or coastal waters (note: coastal waters may include intertidal areas, bays and/or estuaries); or (b) an area of the Great Lakes or their connecting waters.
- The term "intertidal" is understood to mean the shore zone between the mean low water and the mean high water mark. An MPA may have an associated land (terrestrial) component.
- The term "estuaries" or "estuarine" or "estuary": "Part of a river or stream or other body of water having unimpaired connection with the open sea, where the sea water is measurably diluted with fresh water derived from land drainage, and extending upstream to where ocean-derived salts measure less than 0.5 parts per thousand during the period of average annual low flow."
- An MPA may have an associated land (terrestrial) component.

This working criterion excludes:

- Strictly freshwater areas outside the Great Lakes that contain marine species at certain seasons or life history stages.

Reserved

To be included in the MPA Inventory, the site:

- Must be established by and currently subject to some form of Federal, state, territorial, local or tribal law or regulation.

This working criterion excludes:

- Privately created and maintained marine sites.

Lasting

To be included in the MPA Inventory, the site:

- Must provide year round (12 months) protection.
- Must be established with an expectation of, or at least the potential for, permanence. Areas with a sunset clause must provide a minimum of four years of continuous protection and must have a specific mechanism to renew protection at the expiration of the sunset period.

This working criterion excludes:

- Areas subject only to temporary protections, such as areas protected only by emergency fishery regulations under the Magnuson-Stevens Act, which expire after 180 days.

Protection

To be included in the MPA Inventory, the site:

- Must have existing laws or regulations that are designed and applied to afford the site with increased protection for part or all of the natural and cultural resources therein, beyond any general protections which apply outside the site.

This working criterion excludes:

- Areas closed to avoid fishing gear conflicts.
- Area subject to single species management measures that do not have demonstrable benefits to a broader array of species or habitats.
- Areas established solely to limit fisheries by quota management.