

Designation of Critical Habitat for the Arctic Ringed Seal and Designation of Critical Habitat for the Beringia Distinct Population Segment of the Bearded Seal: Draft Impact Analysis Reports

Peer Reviewer Comments

On January 8, 2021, the National Marine Fisheries Service (NMFS) published a revised proposed rule to designate critical habitat for the Arctic ringed seal (86 FR 1452) and a proposed rule to designate critical habitat for Beringia distinct population segment (DPS) of the Pacific bearded seal subspecies (*Erignathus barbatus nauticus*) under the Endangered Species Act (ESA) (86 FR 1433; corrected at 86 FR 7242). During the comment period on the proposed designations, the supporting draft impact analysis reports (i.e., reports titled “Draft RIR/ESA Section 4(b)(2) Preparatory Assessment/ IRFA of Critical Habitat Designation for the Arctic Ringed Seal” and “Draft RIR/ESA Section 4(b)(2) Preparatory Assessment/ IRFA of Critical Habitat Designation for the Beringia Distinct Population Segment of the Bearded Seal”) were reviewed by three peer reviewers: Rebecca Lent¹, Giselle Magnusson, and Tobias Schwoerer.

The peer reviewers were asked to review the information considered in the draft impact analysis reports and provide comments on the following topics:

1. The accuracy, quality, and completeness of the information considered, particularly if any additional information exists that was not considered.
2. Whether the analysis applies well-accepted and appropriate methods to identify potentially affected parties and estimate impacts.
3. Whether the assumptions used in the analysis are reasonable and supported by available information.
4. Whether uncertainties in the information are reasonably identified and characterized.

Comments received from the peer reviewers are compiled below. These comments are not presented in the order of reviewers listed above.

Reviewer 1:

Thank you for the opportunity to assist the National Marine Fisheries Service (NMFS) as an independent reviewer of the draft impact analysis reports (draft RIR/ESA Section 4(b)(2) Preparatory Assessment/IRFA report) for the proposed rule to designate critical habitat for the Beringia distinct population segment of the bearded seal and the revised proposed rule to designate critical habitat for the Arctic ringed seal under the ESA. My review considers both seal habitat designations.

Overview

The authors prepared a comprehensive analysis of the complex suite of economic effects associated with the Critical Habitat Designation (CHD), including economic trade-offs between alternative regulatory actions, net benefits arising from CHD, and distributional changes in

¹ Reviewer underscored that views are those of the reviewer alone and do not reflect in any way the views of the International Whaling Commission as a whole, including the Commissioners and the Secretariat.

regional economic activity in affected industry sectors. The authors described well the underlying assumptions of the analysis and explained the various economic metrics used to describe the full range of potential economic effects. Also, the authors correctly point towards limitations related to regional input/output models, generally overstating the long-term effects of a regulatory change to regional economic activity (e.g. jobs lost). Finally, a detailed look at environmental justice effects is particularly important as the designation will have effects for indigenous populations relying on the CHD for food security. Therefore, the authors could strengthen the DHC's positive impacts on community resilience of underserved Arctic coastal communities.

Specific comments

1. Accuracy, quality, and completeness of the considered information

The authors present information that is accurate, of high quality and complete within the specified boundaries of analysis (see specifically Section 2.4.2 on p. 2-8 and 2-9). To my knowledge, there is no additional information that exists that was not considered.

2. Methods to identify potentially affected parties and estimate impacts

The analysis uses benefit-cost analysis which is a well-accepted and appropriate method to identify potentially affected parties and to estimate impacts. As is the case for seals in Alaska, there is no location-specific data on economic valuation studies that would provide quantitative evidence of economic value associated with the seal species. In such cases, a nonquantitative benefit-cost analysis is an appropriate approach consistent with economic theory. It discusses quantitative studies conducted elsewhere and draws conclusions about the potential impact in Alaska. Such benefit transfer techniques are commonly used and are adequate for the application in the mentioned CHD cases.

3. Analysis assumptions

The assumptions of the analysis are reasonable and supported by available information. It should be noted though, that the effectiveness of the CHD for the two seal species' conservation and recovery is most dependent on the elimination of GHG emissions by mid-century, keeping global temperatures from rising beyond 1.5°C above pre-industrial levels and consequently minimizing sea ice loss (IPCC, 2018; Niederdrenk and Notz, 2018).

Given the Bering Sea's unprecedented sea ice loss in 2018 and 2019, it was surprising to read that the authors "expected sea ice loss to occur within the foreseeable future" (p. 2-9) when in fact, rapid sea ice loss is already occurring at unprecedented rates. A stronger statement that is more grounded in current science on Arctic sea ice loss would strengthen the CHD by acknowledging that anthropogenic GHG emissions are to 100% responsible for Arctic sea ice loss. (IPCC, 2013). In addition, "Activities that release carbon dioxide and other GHGs into the atmosphere are [not "a" but "the"] major contributing factor to climate change and loss of sea ice" (IPCC, 2013). Thus, the costs to global society of any future oil and gas development in the CH, per future consultation, would need to be weighed against the likely overestimated economic impact (e.g. jobs lost) that the CHD would have on the oil and gas sector due to regulatory change.

IPCC. (2013). The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change.

<http://www.ipcc.ch/report/ar5/wg1/>

IPCC. (2018). Global Warming of 1.5°C. <https://www.ipcc.ch/sr15/>

Niederdrenk, A. L., & Notz, D. (2018). Arctic Sea Ice in a 1.5°C Warmer World. *Geophysical Research Letters*, 45(4), 1963–1971. <https://doi.org/10.1002/2017gl076159>

4. *Uncertainty identification and characterization*

Uncertainties in the considered information were reasonably identified and characterized given analysis assumptions.

Minor comments

Intro 1-2: spelling error in second to last paragraph: “to depended.”

Reviewer 2:

Thank you for the opportunity to provide a review of the economic information in the two documents describing the proposal to designate critical habitat in the northern Bering, Chukchi, and Beaufort seas off the coast of Alaska for Arctic ringed seals and the Beringia distinct population segment of bearded seals. I have reviewed these reports as instructed to provide an independent peer review of the economic information considered in these draft reports, and whether these reports apply the best available economic data in the proposed critical habitat designations. I did the initial reading of the Arctic ring seals so the sections and page numbers refer to that study rather than the one for bearded seals.

Response to comments as requested:

1. *The accuracy, quality, and completeness of the information considered, particularly if any additional information exists that was not considered.*

The draft documents are certainly complete with regards to the comprehensive description of the regulatory process, the many federal and other institutions that can be part of this process, and the full range of economic and social activities that could be potentially impacted directly and indirectly.

The documents provide an exhaustive list of the potentially impacted entities, including a wide range of industrial, smaller-scale and indigenous activities. There is a concerted effort to address costs and benefits even when there are limits to the data or even qualitative information given the uncertainties.

In section 4.2.1.4 there is some jumbling of non-market values when looking at commercial vs recreational fisheries valuation. Perhaps this could be made clearer to the reader as there could be confusion through over-estimates of the value of commercial fisheries (total gross ex-vessel value) in contrast to recreational fishing.

2. *Whether the analysis applies well-accepted and appropriate methods to identify potentially affected parties and estimate impacts.*

The documents provide excellent overviews of non-market valuation techniques (Section 2.3.1) with specific references to relevant and useful studies that use these non-market valuation techniques on marine species (Section 4.3) in particular.

The reader will appreciate that the marginal costs from Critical Habitat designation are relatively low given that these species are already ESA-listed.

4.2 - Economic monetization – is that the same concept as non-market valuation?

For the numbers that are generated for administrative costs, readers might find it informative to compare these to financial data from certain industries, particularly fossil fuels. For example, how do these administrative costs compare to the overall production costs of, and where possible, profits to these industries (Table 3.1). Costs of leases, exploration, drilling, etc. surely must greatly exceed the potential additional administrative costs of additional consultations necessary in the future.

There is reference to the volatility in the fossil fuel market, the near exhaustion of certain oil fields, and the outlook for the future. Are there references available to better document these arguments?

It is understandably beyond the scope of this report to consider climate change, however a brief reference to rate of climate change in the Arctic would place this whole analysis in perspective. [NOAA reports \(https://www.climate.gov/news-features/understanding-climate/new-report-highlights-alaska%E2%80%99s-last-five-years-dramatic-climate\)](https://www.climate.gov/news-features/understanding-climate/new-report-highlights-alaska%E2%80%99s-last-five-years-dramatic-climate) show that ‘Alaska has been warming twice as quickly as the global average since the middle of the 20th century’ and ‘faster than any other US state.’ This is like the elephant in the room; the oil and gas industry is the one most impacted by ESA and Critical Habitat measures and yet they are the activity most likely to negatively impact the seals as well as other marine resources under consideration.

Section 5.4.5 – This is an extremely informative review of Alaska community consumption of subsistence hunting/fishing production and how marine mammal products are at the top in volume. Are there data available on what share of the overall diet is subsistence hunting? Typo here - Marine mammals were the largest contribute to the total subsistence harvest (75 percent).

Chapter six is very well laid out, with a review of potential costs and potential benefits by sector.

On educational, scientific and non-consumptive uses, it is important to underscore the increased public awareness made possible through the designation process itself, given public involvement. The study could also note the potential role of marine mammals in general as the ‘canary in the coal mine’ on climate change – something useful for scientists as well as the general public as we address what has been noted as a challenge even greater than the pandemic, and with impacts already on our doorstep.

Chapter 7 is a very thorough summary of the expected net benefits and makes a well-grounded assessment of the longer-term costs/benefits vs shorter term costs/benefits. This chapter correctly notes the longer term and ongoing benefits to the seals as well as other marine resources in the critical habitat – and therefore benefits for subsistence, commercial and recreational fishing, as well as wildlife tourism. The distributional impacts are importantly in favour of AK Native communities who depend on these resources for subsistence, employment and income.

There is reference to the increased volatility and uncertainty facing the global and Alaska-based oil industry. The shift away from fossil fuels may be closer than even the 10-year horizon that is the 'limit' to these analyses.

3. *Whether the assumptions used in the analysis are reasonable and supported by available information.*

Reasonable assumptions are made on the short term vs. longer term costs vs benefits which would lead one to conclude that benefits accrue sooner and costs farther into the future, with a positive net present value of economic benefits.

Throughout the report, where data are insufficient, there are very well grounded assumptions for considering the impacts of critical habitat designation.

4. *Whether uncertainties in the information are reasonably identified and characterized.*

The one thing for certain it is that the future is uncertain for Arctic seals and their marine ecosystem. As the reports note, this uncertainty is compounded by the fact that changes in Arctic will lead to possible changes in human activity, which even if subject to Critical Habitat, Section 7 and MMP consultations, could have a profound impact on the very resources and marine ecosystems that this rulemaking attempts to protect. This uncertainty and the reasons for it are well documented in the report.

Reviewer 3:

Thank you for inviting me to be a peer reviewer of the draft impact analysis reports (i.e., draft RIR/ESA Section 4(b)(2) Preparatory Assessment/IRFA report) for the proposed rule to designate critical habitat for the Beringia distinct population segment (DPS) of the bearded seal, and the revised proposed rule to designate critical habitat for the Arctic ringed seal under the ESA. As was suggested in the invitation, any specific references in this review are based on the draft report for the bearded seal impact analysis but apply to both. This letter includes a brief summary of my review, followed by specific comments related to the four review questions identified in the invitation letter.

Summary:

Overall I commend the authors of both reports. The reports meet the objectives laid out in the reports (1.3 Objectives) to describe the baseline, characterize the activities that could be potentially affected by the CHD, identify the potential incremental impacts of the CHD, and use this information to prepare the RIR/4(b)(2) assessment and the IRFA. I found the reports comprehensive, well-referenced, and well laid out. The analyses used appropriate and well-accepted methods and sources, and the key uncertainties were identified and characterized. My review suggests that the overall conclusions used to support the RIR/4(b)(2) assessment and IRFA are appropriately characterized.

Despite the quality of these reports there are few things that could be improved, in particular:

- (i) The link between the CHD and benefits needs to be clarified, given the need for a statement on net benefits (section 7), and,

(ii) The level of information seems excessive given the negligible impacts that are identified.

I address the first issue in more detail below, before addressing the four questions provide. I do not address the second point as I assume this reports follows NMFS standards and practices.

The link between CH designation and incremental benefits:

The study considers incremental costs and benefits of CHD, which is the difference between the baseline (without CHD) and the situation with CHD. The estimation of costs is fairly straightforward according to the study, which notes:

“NMFS does not expect that the CHD for Beringia DPS bearded seals will result in additional project modification costs beyond those required due to the “jeopardy standard” of the threatened status of the species.” (page 27)

As a result, the only incremental costs quantified are for more complex Section 7 consultations. These costs a small (\$57,000-\$105,000 annual cost). Indirect costs are mentioned but not quantified.

Therefore, in order to provide a conclusion on net national benefits in chapter 7, the CHD must provide benefits at least as large (i.e. small). The types and potential scale of benefits provided by habitat are discussed extensively in Chapter 4, but report concludes they cannot be quantified for the CH in question. What this chapter does not do is lay out how CHD can yield incremental benefits, rather than just benefits. And while I do not disagree with the conclusion that there are likely some incremental benefits just from designating CH, it is not clear if the report supports the conclusion that there is a net benefits (Chapter 7), despite the small scale of the costs. To address this concern I would suggest that the report clearly set out (qualitatively) how the “with CHD” scenarios results in a shift in benefits from the baseline of “without CHD”, rather than provide such an extensive review of the valuation literature. If this information is located within the report it was not readily apparent suggested some editing is required.

In general for there to be incremental benefits from an action (e.g. CHD), there must be a change in human behavior or a direct or indirect change in the quantity or quality of some good or service available (including non-market and non-use). As discussed elsewhere in the report, simply designating CH may result in a change in some behavior with an increase in the use of the area (e.g. education, scientific knowledge), while simply “protecting” an area may increase non-use values from some people (e.g. bequest values, cultural values). And it seems possible that these benefits alone could be greater than the small costs identified.

However, for some of the benefits ascribed to the CHD in chapter 6 (i.e. support of subsistence activities, aspects of cultural maintenance/support, some non-use values, commercial fishing), it would seem there needs to be a change in the quality of the habitat from the baseline, for example by reducing deterioration of a declining baseline or improvements to a stable or improving baseline. Either change suggests that designation would result in changes to activities that impact CH. And yet, as is stated several times within the report, incremental project modifications are not expected as a result of consultations due to CHD. This suggests two possible situations. One, projects are not expected to result in destruction or adverse modification of the habitat (and so there would be no incremental benefits). Or, it could be that change is

expected due the “influence” of CHD on projects prior to consultation as discussed in the net national benefits statement:

“There are no incremental project modifications expected to result from any of the anticipated consultation processes due to the CHD; however, enhanced public awareness of the habitat features essential to conservation of the Beringia DPS and where they are found, which is expected to result from the CHD, could still influence the design, location, or other aspects of proposed projects or activities, such that incremental conservation benefits are realized through changes in human behavior.” (page 106)

Given the role of “public awareness” to influence projects, it would be helpful if this aspect was explored in more detail in the report. Are there examples where projects were changed as a result of public awareness beyond what would be required due to consultations? How likely is this outcome, given the type of activities in the area and what is the uncertainty around this? Is the determination that incremental project modifications are not expected dependent on this influence? How might the costs of these changes be captured, or is this part of indirect costs which are not estimated?

The fact that CHD is required under the ESA, with allowance for exclusion of specific areas due to 4(b)(2), suggests that the need to demonstrate benefits is low. However, it seems that the RIR requires a statement on net benefits. Given the negligible/low incremental costs identified, the level of incremental benefits required to allow for positive net benefits is also low. I would suggest that the net benefit statement be modified to focus on those benefits that can be most strongly supported. Unless additional information is added on the ability of public awareness to influence project design etc. or other ways to link CHD to changes in habitat quality, I would suggest that the weight of evidence for the statement focus on incremental benefits with stronger support (education, scientific knowledge, cultural support, non-use values associated with habitat protection).

Specific comments:

1. *The accuracy, quality, and completeness of the information considered, particularly if any additional information exists that was not considered.*
 - The accuracy, quality and completeness of the information considered with regard to economic activity, subsistence use, demographics and cost estimates appears to be the best available. I am not aware of any additional addition or better information.
 - With regard to the general information presented within section on benefits (section 4), the most recent study cited appears to be 2011. In general the literature cited was appropriate for the points that were being made (e.g. Loomis 2005), although there some other relevant studies are missing (e.g. Wallmo and Lew, 2012 which included additional marine mammals).
 - o However, since the link between CHD and some of the benefit types is not clear (as described overall statement above) the lack of more recent literature does not affect the results. As the reports indicated “..these values cannot be directly used to estimate the economic benefits of Beringia DPS CHD. Rather, the literature and values cited in this section provide a general sense of the possible magnitude of the use and non-use benefits

- individuals and society derive from the attributes provided by resources such as Beringia DPS CH.” (p. 30), thus adding additional information may not be warranted.
- p. 106, section 6.10.1 – The opening sentence states that there is no cost to this use category, but then goes on to indicate consultation costs. This is not clear. If the intention is to indicate that that a reduction in non-consumptive use values is not expected, but administrative costs are expected, the sentence should be re-written.
2. *Whether the analysis applies well-accepted and appropriate methods to identify potentially affected parties and estimate impacts.*
 - The analysis applies appropriate methods to identify potentially affected parties and estimate incremental impacts. The use of historical data with adjustments is standard practice in many socio-economic analyses.
 3. *Whether the assumptions used in the analysis are reasonable and supported by available information.*
 - Overall the assumptions used in the analysis of costs are reasonable and supported by available information.
 - On the topic of benefits the assumptions that lead to determination of incremental benefits are not well presented. Section 4 which discusses examples of the types of benefits that could be provided is quite thorough, although at times the difference between the benefits provided by the species is not well distinguished from the benefits provided by the habitat. Given the dependence of the species on the habitat, this is to be anticipated.
 4. *Whether uncertainties in the information are reasonably identified and characterized.*
 - Overall, the uncertainties were reasonably identified and characterized. Most major uncertainties were identified including the magnitude, timing of accrual and duration of both costs and benefits.
 - In the case of costs, the report identifies key uncertainties including: the number of future consultations in part related to future economic growth due to climate changes, project modification requirements, and potential indirect costs.
 - In the case of benefits, while several uncertainties are identified and discussed, a significant uncertainty (i.e. link between CHD and changes in benefits) needs additional characterization. This could be addressed by providing a succinct summary of how the “with CHD” would differ from the baseline at some point in the report.