A Regulatory Impact Review, Section 4(b)(2) Analysis, and Regulatory Flexibility Act Analysis of North Pacific Right Whale Critical Habitat Designation in the Eastern North Pacific Ocean

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Introduction

The final action being addressed in this Regulatory Impact Review (RIR) and Regulatory Flexibility Act Analysis (RFAA) is the designation of critical habitat, in waters of the eastern North Pacific Ocean, for the North Pacific right whale (*Eubalaena japonica*)[1], under authority of the Endangered Species Act (ESA). The purpose of this RIR/RFAA is to evaluate the economic, socioeconomic, and other costs and benefits attributable to the alternatives identifying and describing critical habitat for the North Pacific right whale in the North Pacific Ocean. These analyses comply with the regulatory requirements of, and are the basis for, the 4(b)(2) Exclusion Analysis and Evaluation. Comments received on the Initial RFA were summarized and responded to in the preamble to the final rule designating critical habitat for the North Pacific right whale.

Statutory Authority

Under the ESA, NMFS, on behalf of the Secretary of Commerce, is responsible for designating critical habitat for the endangered North Pacific right whale. Section 3 of the ESA defines critical habitat as *"(i) the specific areas within the geographical area occupied by the species, at the time it is listed..., on which are found those physical and biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection; and (ii) specific areas outside the geographical area occupied by the species at the time it is listed... upon a determination by the Secretary that such areas are essential for the conservation of the species."*

Section 3 of the ESA also defines the terms "conserve," "conserving," and "conservation" to mean "*to use and the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this chapter are no longer necessary.*"

Section 4 of the ESA requires that in designating critical habitat, NMFS consider the economic impacts, impacts on national security, and other relevant impacts of designating any particular area as critical habitat. Section 4 also provides that NMFS may exclude any area from critical habitat if the benefits of exclusion outweigh the benefits of inclusion, unless the failure to designate such area as critical habitat will result in the extinction of the species concerned.

Regulatory Impact Review Requirements

This RIR provides the analysis required under Executive Order 12866 – Regulatory Planning and Review (EO or EO12866), consistent with Office of Management and Budget Circular A-4[2] guidance to

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[1] The National Marine Fisheries Service is proposing to list the North Pacific right whale as an endangered species pursuant to the Endangered Species Act, 16 U.S.C. 1531-1544. Currently, right whales in the North Pacific Ocean and in the North Atlantic Ocean are collectively listed as endangered "northern right whales *(Eubalaena glacialis)*."

[2] U.S. Office of Management and Budget Circular A-4. September 17, 2003 . TO THE HEADS OF EXECUTIVE AGENCIES AND ESTABLISHMENTS. Subject: Regulatory Analysis. (See, in particular, Section D. Analytical Approaches) whitehouse.gov/**omb/circulars**/a004/a-4.pdf

Federal agencies on the development of regulatory analysis, the Regulatory Right-to-Know Act, and a variety of related authorities. The following statement from the EO summarizes the requirements of an RIR:

> *In deciding whether and how to regulate, agencies should assess all costs and benefits of available regulatory alternatives, including the alternative of not regulating. Costs and benefits shall be understood to include both quantifiable measures (to the fullest extent that these can be usefully estimated) and qualitative measures of costs and benefits that are difficult to quantify, but nevertheless essential to consider. Further, in choosing among alternative regulatory approaches, agencies should select those approaches that maximize net benefits (including potential economic, environment, public health and safety, and other advantages; distributive impacts; and equity), unless a statute requires another regulatory approach.*

Conducting a Regulatory Impact Review for Critical Habitat Designation

EO12866, as well as OMB Circular A-4, specify that a benefit/cost framework is an appropriate analytical methodology to evaluate the relative economic and socioeconomic merits of the alternatives under consideration in this action, and to judge whether the costs of designating particular areas as critical habitat are justified, based upon the expected net benefit to the Nation. When performing an analysis using a benefit/cost framework, the principal objective is to derive informed conclusions about probable net effects of each alternative under consideration. In the present case, however, necessary empirical data (e.g., operating, capital, and opportunity costs of potentially impacted commercial operations) are not available. Furthermore, empirical studies bearing on other important aspects of these alternative actions (e.g., passive-use and habitat values for the North Pacific right whale population) are also unavailable, and time and resource constraints prevent their preparation for use in this analysis. For these reasons, the agency relies on a more qualitative analysis.

Nonetheless, the following Regulatory Impact Review (RIR), Regulatory Flexibility Act Analysis (RFAA or RFA), and supporting text utilize the best available information and quantitative data, combined with economic theory and practice, to provide the fullest possible assessment (both quantitative and qualitative) of the potential benefits and costs attributable to each alternative. The analysis draws on relevant published research pertaining to valuation of habitat for other protected or endangered species (as well as other forms of public goods), both in the United States and elsewhere. Based upon this analysis, conclusions are offered concerning the likely economic and socioeconomic effects that may derive from each of the critical habitat designation alternatives. This analytical approach is consistent with applicable NOAA policy and established practice for implementing EO12866.

EO12866 provides in relevant part that *"costs and benefits are, herein, understood to include, and have been assessed on the basis of, both quantifiable measures (to the fullest extent that these can be usefully estimated) and qualitative measures of costs and benefits that are difficult to quantify, but nonetheless essential to consider."* The EO also provides that *"in choosing among alternative regulatory approaches, agencies should select those approaches that maximize net benefits (including potential economic, environmental, public health and safety, and other advantages; distributive impacts; and equity)."* NMFS guidelines for preparing economic analyses state that *"at a minimum, the RIR and RFAA should include a good qualitative discussion of the economic effects of the selected alternatives. Quantification of these effects is desirable, but the analyst needs to weigh such quantification against the significance of the issue and available studies and resources. Generally, a good qualitative discussion of the expected effects would be better than poor quantitative analyses."*

This RIR/RFAA has been prepared consistent with these prescriptions. (NMFS 2000).

The term *value* is used in the present context as it would be in a conventional cost-benefit analysis (i.e., "what would one be willing to give up, to acquire the asset being assessed?"). In this case, that asset is the specific habitat off Alaska, determined to be critical for conservation of the North Pacific right whale in the eastern North Pacific Ocean. In the economic literature, such 'value' is referred to as "willingness to pay" (WTP).

Alternatives Considered

The designation of critical habitat for the North Pacific right whale in the eastern Bering Sea and Gulf of Alaska was explained in detail in the proposed Regulation and Preamble. Three alternatives were considered:

Alternative 1. No action (status quo): NMFS would not designate critical habitat in the eastern North Pacific Ocean for the North Pacific right whale. Conservation and recovery of the listed species would depend exclusively upon the protection provided under the "jeopardy" provisions of section 7 of the ESA. Under the status quo, the number of ESA consultations that would be expected over the ten year analytical horizon adopted here could be expected to differ from Alternative 2 by perhaps no more than three. That is, the only anticipated consultation costs wholly unique to designation (and therefore not required under the status quo) would be the three mandatory "re-initiation" consultations. The benefits attributable *uniquely* to critical habitat designation for this species would, by definition, be zero if the status quo alternative is selected.

Alternative 2. Preferred alternative (embodied in the regulation): Under this alternative, the areas designated as critical habitat lie offshore (outside) of State of Alaska waters. They encompass a substantial area in the central Bering Sea EEZ, and a smaller area immediately south of Kodiak Island. [See GIS mappings of proposed areas for critical habitat designation, accompanying the Preamble, for greater detail.] An analysis of the costs and benefits of the preferred alternative designation is presented below. Currently, the listed northern right whale species consists of both the North Pacific and North Atlantic populations of northern right whale. Critical habitat for this species had already been designated in the North Atlantic, and NMFS revised the critical habitat designation to include areas in the eastern North Pacific, specifically in the central Bering Sea and the Gulf of Alaska (71 FR 38277, July 6, 2006). Since that time, NMFS has proposed to list the North Pacific population of right whales as a unique species (i.e., *Eubalaena japonica*). The critical habitat areas proposed in this action for the North Pacific right whale are the same areas of the eastern North Pacific that were finalized in the recent northern right whale critical habitat revision.

Alternative 3. Center for Biological Diversity's (CBD) alternative: In its October 4, 2000 "**Petition to Revise the Critical Habitat Designation for the Northern Right Whale (*Eubalaena Glacialis*) under the Endangered Species Act**," CBD proposed designation of a large area in the "middle shelf and inner front regions of the southeast Bering Sea." This alternative was also analyzed in the development of the 2006 final rule designating critical habitat for the listed northern right whale species in the North Pacific. The boundaries of critical habitat under proposed Alternative 3 coincide with the proposal outlined in the earlier CBD petition and encircle an area in the EBS very much larger than that specified under Alternative 2, while including no areas in the GOA. It is probable that the total number and complexity of consultations that would be required, should Alternative 3 be adopted, would exceed the number under either of the other alternatives. That suggests the cost of this alternative, in terms of additional consultations between action and consulting agencies, is likely to be higher. Because much of the area in the Alternative 3 EBS is not believed to contain the requisite PCEs, and because Alternative 3 does not include the critical habitat area identified in the GOA, the benefit of adopting Alternative 3 would be expected to be lower than Alternative 2, but likely higher than Alternative 1.

Costs of Designating Critical Habitat for the Right Whale in the Eastern North Pacific, as Described by the Preferred Alternative

Section 7 of the ESA requires that Federal agencies insure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of a listed species, nor destroy or adversely modify its critical habitat. Thus, a Federal nexus must be associated with an activity for the activity to require consultation under section 7 of the ESA. Absent a Federal nexus, the designation of critical habitat will have no effect on the actions and activities of those individuals and/or entities lawfully undertaking activities in the designated area. Only those activities that Federal agencies authorize, fund, or carry out in or around the areas proposed for critical habitat designation fall under this rule.

NMFS is the agency responsible for designating critical habitat for the North Pacific right whale. As such, NMFS must be consulted before any proposed action that 'may affect' a listed species or its designated critical habitat is authorized, funded, or carried out by a Federal agency. Depending upon the outcome of the consultation, the action agency may [1] make no modifications to the proposed action; [2] alter or modify the proposed action so as to reduce potential impacts; or, [3] if jeopardy or adverse modification is likely, alter or modify the proposed action to avoid the likelihood of jeopardy or adverse modification.

Based, in part, on the existence of designated critical habitat, NMFS may formulate comments and recommendations at several stages of consultation on a Federal agency action, including pre-consultation (conference), informal consultation, and formal consultation. NMFS' recommendations often serve several purposes. For example, recommendations made to avoid the destruction or adverse modification of critical habitat may also contribute to the conservation of other receptors (e.g., other whale species, seabirds, and/or fish that utilize the areas designated as right whale critical habitat). See, e.g., Principles of Conservation Biology, Third Edition by Martha J. Groom, Gary K. Meffe, C. Ronald Carroll 2006, Sinaeur Associates. 802 pp.; Marine conservation biology: the science of maintaining the sea's biodiversity, Norse, EA; Crowde, LB (editors) Island Press, Washington, DC (USA). 575 pp. 2005.

The existence of designated critical habitat would be the basis upon which NMFS could choose to make recommendations in the form of alternative locations, alternative plans or technologies, alternative timing, other mitigation, and/or monitoring requirements to avoid potential destruction or adverse modification of critical habitat. These recommendations may be made by NMFS without formal consultation or a finding of adverse modification under the ESA. They may be advisory, or developed as conditions under other Federal authorizations (e.g., Army Corps or EPA permits). If destruction or adverse modification of critical habitat is found at the conclusion of the consultation, the action agency (e.g., MMS, EPA, NMFS) must implement the actions necessary to avoid the likelihood of this outcome before the proposed action is initiated (unless otherwise exempted).

The areas to be designated as critical habitat under this action lie offshore (outside) of State of Alaska waters, in a relatively remote area of the central Bering Sea, as well as immediately south of Kodiak Island in the Gulf of Alaska. The following list identifies the actions funded, authorized, or carried out by Federal agencies that may reasonably be expected to occur within the proposed critical habitat area, listed by Federal agency, accompanied by an attempt to characterize the anticipated frequency of occurrence over the foreseeable future:[3]

[3] For purposes of the RIR, an analytical time frame of ten years has been assumed. This interval allows sufficient scope over which longer-cycle trends may be observed (e.g., progress towards population recovery for the North Pacific right whale), yet is short enough to allow "reasonable" projections of changes in anthropogenic "use patterns" in an area, as well as changes in exogenous factors (e.g., world petroleum supply and demand, U.S. inflation rate trends) that may be influential.

U.S. Army Corps of Engineers (Corps): Authorizes placement of structures in navigable waters, under the Rivers and Harbors Act. These may include oil and gas drilling and production rigs (uncertain probability in critical habitat); jetties and breakwaters (very low probability in critical habitat). Under the Clean Water Act, the Corps authorizes discharges of dredged and fill materials, landfills, and bulkheads (very low probability in critical habitat). The Corps' Civil Works Program also constructs harbors, installs navigational improvements, and dredges ship channels (very low probability in critical habitat).

NOAA Fisheries Service (NMFS): Approves and implements fishery management plans and amendments for Federal fisheries in the EEZ (certain to occur in critical habitat); issues fishing and fish processing permits for vessels participating in commercial fisheries in the EEZ (certain to occur in critical habitat).

Environmental Protection Agency (EPA): Approves discharges under the Clean Water Act's NPDES program, which applies to activities such as fish waste discharge from processing vessels (certain to occur in critical habitat) and discharges of mud, cuttings, and production waters from oil and gas drilling rigs (uncertain probability of occurrence in critical habitat).

Department of the Interior Minerals Management Service (MMS): Manages the Nation's natural gas, oil, and other mineral resources on the outer continental shelf (OCS). Conducts OCS lease sales, including potentially in the Gulf of Alaska and Bering Sea (likely to occur in critical habitat); authorizes pre-lease exploration activities on the OCS, e.g., seismic geophysical exploration (likely to occur in critical habitat); authorizes and regulates on-lease exploration and development activities to ensure operations are conducted in a safe manner in accordance with regulations and required mitigation measures. Under a Memorandum of Understanding (MOU) with USCG, MMS is responsible for review and approval of OCS oil spill contingency plans. The Oil Pollution Act of 1990 gives MMS responsibility for approval of coastal facility oil spill contingency plans.

U.S. Coast Guard (USCG): Approves oil spill response plans, under authority of the Oil Pollution Act of 1990 (certain to be required for activities in critical habitat). Under an MOU between USCG and MMS, the MMS is responsible for review and approval of OCS oil spill contingency plans.

U.S. Department of Defense (DoD): Conducts at-sea training exercises, such as 'Northern Edge', an annual joint training exercise designed to practice operations and enhance interoperability among the services (certain to occur in critical habitat within the Gulf of Alaska (GOA)); Conducts SURTASS Low Frequency Sonar program (low probability in critical habitat).

It is not possible to predict with certainty the list of future activities that agencies might be called upon to evaluate and authorize, and thus which might require consultation to assess the potential effects on critical habitat. This will depend, in part, on the specific actions for which authorization is sought, when, by whom, and where in relation to critical habitat it is sought. All of these factors may, in turn, be influenced by macroeconomic considerations exogenous to the regions of the North Pacific Ocean in which the actions are proposed (e.g., global demand for oil and gas, interest rates and financing availability, domestic and international demand for seafood and affiliated products, rationalization of U.S. fishing sectors, especially those operating in the Bering Sea/Aleutian Islands (BSAI) management area and the GOA management area).

Notwithstanding these limitations on predicting the number of future actions that might result in consultation, whether pre-consultation, informal consultation, or formal consultation, the following sections examine the *possible* implications of critical habitat designation for those activities and authorizing agencies enumerated above as having more than a low probability of occurrence.

Critical Habitat Designation Recommendations, Requirements, and Costs

The primary constituent elements (PCEs) identified for critical habitat designation for the North Pacific right whale are large zooplankton found in areas of the North Pacific Ocean in which these whales are known (or believed) to feed. The species of copepods upon which right whales feed include *Calanus marshallae, Neocalanus cristatus*, and *N. plumchris*. In addition, *Thysanoëssa raschii* is a euphausiid whose very large size[4], high lipid content, and occurrence in the region likely make it an important prey item for North Pacific right whales (J. Napp, pers. comm.) The PCEs are essential for the conservation of the population. (For additional detail, refer to the preamble to the proposed rule.)

Oil and Gas Exploration and Production

Any assessment of potential impacts to critical habitat, as well as any economic (or other) costs and operational restrictions that may be imposed to avoid or mitigate such impacts attributable to a discharge of oil, gas, or derivatives, would be dependent upon the scale and duration of the specific discharge event. For example, NMFS might *recommend* all drilling production waters be re-injected into the well, rather than discharged into adjacent waters, as a provision of an MMS area-wide lease program, in order to avoid adverse impacts on copepods within critical habitat. NMFS may be less likely to make such a *recommendation* for a single exploratory well within or adjacent to critical habitat, because of differences in scale (i.e., an exploratory drilling operation would likely have smaller quantities of materials discharged and no chronic effects, while a commercial production mode would present several point-source discharges with potentially both chronic and acute impacts, that are potentially capable of harming the PCEs to the point of adverse modification).

Similarly, NMFS might *recommend* restrictions on the application of large volumes of oil dispersants, used for spill response, at specific times of the year when copepods are most sensitive or vulnerable to the effects of hydrocarbons and dispersant compounds. Again, duration, location, scale, and severity of the associated event will dictate the nature (e.g., compensation, mitigation, technology requirements) and cost of such management actions (if any).

During the public comment period for a preliminary draft analysis for a proposed revision of designated critical habitat for the northern right whale (*Eubalaena glacialis*)[5], NMFS received several specific comments on the issue of oil and gas exploration in areas of the proposed designation. The complete set of comments, and NMFS' responses, are included in the administrative record of that earlier proposed rule.

The Alaska Region of MMS submitted extensive and very helpful comments. The MMS filing captures the scope of the other comments advocating exploration, development, and commercial production of oil and gas within the subject areas. As one of the agencies most likely to seek consultation with NMFS concerning future petroleum activities in or adjacent to critical habitat, MMS has contributed important

[4] In the world of zooplankton, "very large size" is a *relative* term. The largest of the species that make up the PCEs for North Pacific right whales is roughly the size of a grain of rice.

[5] Currently, the North Pacific and North Atlantic populations of right whales are listed under the ESA as a single species (i.e., the northern right whale *Eubalaena glacialis*). Because the existing critical habitat designation for this species consisted only of habitat in the North Atlantic, NMFS revised the existing critical habitat designation to include critical habitat in the eastern North Pacific (71 FR 38227, July 6, 2006). Subsequently, it was determined that the North Atlantic and North Pacific populations are, in fact, distinct species, and the latter is proposed to be reclassified as *Eubalaena japonica*, or the North Pacific right whale. The analysis referred to above supported the earlier revision of the existing designation of critical habitat for the northern right whale to include critical habitat in the eastern North Pacific. That analysis supports the current analysis for the proposed designation of critical habitat for the proposed classification of North Pacific right whale, which consists of the same areas designated in the eastern North Pacific during the recent critical habitat revision for the northern right whale.

data and background information bearing on the proposed designation. MMS' comments are too extensive to reproduce in full here, but are included by reference in the RIR, and are provided in their entirety in the administrative record.

In summary, MMS notes that there has recently (*circa* 2005) been renewed industry interest expressed in the possibility of exploration, development, and commercial gas and oil production in the OCS North Aleutian Basin planning area, which overlaps a portion of the EBS critical habitat area.[3] OCS lease sale planning is conducted on a five-year cyclical schedule, with the next plan covering 2007 through 2012. The plan for 2007-2012 was approved in June 2007.

MMS indicated that it conducted a comprehensive assessment of each of the 26 OCS planning areas, nationwide, in 2006. The evaluation included identification of any of the 26 areas estimated to have some economic value in terms of petroleum development potential. Of the 26, a subset of 15 areas was found to have (at least potentially) some oil and/or gas economic value. Among these, MMS concluded that the North Aleutian Basin area ranks 11th out of these 15 OCS planning areas, nationally, on the basis of "net social value" (NSV). That places the North Aleutian Basin in the bottom one-third of this list, based upon its net value to the Nation. MMS does note that the North Aleutian Basin ranks 4th out of 15 Alaska areas, when estimates of the risked mean, technically recoverable resources, as well as economically recoverable resources, are compared.[4] At the same time, the report indicates the North Aleutian Basin OCS planning area "... *is in the highest group for relative environmental sensitivity*" among all 26 OCS planning areas. In fact, it ranks 2nd, nationally, on this criterion, according to MMS.

Notwithstanding these rankings, there has been significant momentum to include the North Aleutian Basin in the next lease sale plan, and to initiate petroleum exploration and development. The current lease sale plan for the 2007 through 2012 cycle includes one sale in 2011 in the North Aleutian Basin among OCS areas to be made available for leasing. In January 2007, the President rescinded a long-standing Presidential withdrawal order that had effectively precluded leasing of these areas, through at least July 2012. With the rescission of this Executive Order, MMS may include the OCS North Aleutian Basin area in the 2007 - 2012 lease sale program.

As a result of the rescission order, "... the 2007-2012 OCS Oil and Gas Proposed Program, developed by Interior's Minerals Management Service (MMS), includes options for one or two lease sales in a small portion of the North Aleutian Basin – an area of about 5.6 million acres that was previously offered during Lease Sale 92 in 1988." [More information, including a fact sheet, maps of the areas and the President's memorandum is at http://www.mms.gov.] In a separate announcement of the rescission, MMS reports that, "The 2007-2012 OCS Oil and Gas Proposed Program includes two proposed lease sales in the North Aleutian Basin -- one in 2010 and one in 2012." [See:

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[3] MMS reports that approximately 20 percent of the high prospective geologic basin lies within the southeast corner of the proposed CH area, representing approximately 8 percent of the area proposed for designation in the EBS.

[4] MMS pointed out that "... *net social value reflects a Government societal value but does not reflect the oil and gas resource potential of the North Aleutian Basin that a petroleum company would be estimating if considering exploration activities in the area.*" NMFS acknowledges this important distinction and notes that it is, as required under EO12866, this "net value to the Nation" deriving from utilization of this public resource that is the subject of this RIR. In the Proposed Five Year Plan 2007-2012, MMS estimated that "The net benefits of anticipated production in this PFP area are estimated at $7.7 billion" [text page 35 at http://www.mms.gov/5- year/PDFs/MMSProposedFinalProgram2007-2012.pdf]; MMS also noted high industry interest in the area "Throughout preparation of this 5-year program for 2007-2012."

http://www.mms.gov/ooc/PDFs/010907MMSFactSheet.pdf.] Later, the number of lease sales was reduced to one sale, scheduled for 2011.

MMS also reports on its website that previous industry exploration (1975 to 1988) included 61,438 line miles of high-energy 2-D seismic data and 3,234 line miles of low energy high-resolution seismic data were collected in the North Aleutian Basin. One well was drilled in the area in 1983, to collect general stratigraphic information. A lease sale was conducted in 1988, and $95.4 million was received as high bids for 23 tracts in the North Aleutian Basin. No subsequent exploration wells were drilled. Several onshore studies involving State of Alaska, Federal, and industry representatives were conducted on the Alaska Peninsula. Following a lease sale in 1983, commercial exploration of the adjacent OCS St. George Basin planning area included 10 exploration wells drilled in the mid- to late-1980s. However, these wells revealed no commercial reserves of petroleum sufficient to justify development. Although MMS reports previous exploration was focused on oil, both of these areas are now thought to be "gas prone".

MMS provided a 2006 update of potentially recoverable resources, where mean volumes are estimated at 8.6 trillion cubic feet of natural gas and 750 million barrels of oil. These petroleum resource estimates have been derived primarily for purposes of long range planning. MMS reports that "these estimates are the result of well established and long accepted MMS models; they incorporate extensive 2-D seismic data imaging the geology, as well as information from onshore gas and oil that are actually present and in quantities (that) are commercially recoverable."[5] MMS acknowledges that no one will know with certainty whether gas and/or oil are actually present, and in what quantities, until such time as the first wells are drilled.[5]

Projected economic effects of designation on petroleum development, contained in the MMS analysis submitted as part of the public comment process for the 2006 final rule, assume that right whale critical habitat designation will permanently preclude all gas and oil exploration, development, and commercial production in this area. The following analysis shows that such an outcome cannot reasonably be anticipated as a result of the proposed designation. The designation may reasonably be expected to result in additional consultations between the action agency (e.g., MMS) and the consulting agency (NMFS) over the analytical timeframe, but the resulting consultation costs estimated below are quite small, especially when contrasted with the adverse economic impacts asserted by MMS, as referenced in the previous paragraphs.

MMS' impact estimates do not contain necessary information concerning the sequence, timing, and duration of the purported economic benefit or cost streams attributed to OCS lease sales and development, owing, as MMS reports, to the highly speculative scenarios accompanying OCS development. MMS data do suggest, however, that even the most optimistic scenario that can be envisioned for this area's petroleum development would involve many years, perhaps decades, before these potential economic benefits could be realized. Without discounting these temporally disparate costs and benefits, a meaningful interpretation of the net present value of the North Aleutian Basin OCS activity is impossible. MMS recognizes the limitations of its analytical projections resulting from undiscounted economic estimates. The decision not to provide "discounted present value" estimates in the MMS analysis was attributed to the high degree of uncertainty in the projected OCS lease sale scenario, at the time of the comment's preparation.

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[5] Department of Interior Minerals Management Service's Comments on the Proposed Rule for the Designation of North Pacific Right Whale Critical Habitat and Regulatory Impact Review Associated with the Proposed Rule October 3, 2007

[5] Per. comm., Larry Cooke, Minerals Management Service, Alaska Region. May 3, 2006.

Resulting Implications

As noted, MMS reports there has been no commercial oil or gas well drilling activity within the OCS North Aleutian Basin. A continental offshore stratigraphic test (COST) well was drilled in this area by an industry consortium in 1982, to gather geologic information. That effort was designed to obtain core sample data to assist all interested parties (including the State and Federal governments) in assessing the area's geologic potential for oil and gas. The purpose of the COST well was not to locate and extract petroleum. There have also been extensive efforts involving seismic data collection and mapping of the North Aleutian Basin (61,438 line miles of 2-D seismic data) conducted by both industry and MMS scientists. Reportedly, commercial interests participated indirectly in both of these MMS effort, by defraying some portion of the costs, in return for access to the stratigraphic and seismic data. MMS pointed out that the absence of significant private sector investment in exploration and development of this OCS area is not for lack of interest, but rather a product of the aforementioned Presidential and Congressional withdrawals, both of which have now been lifted.

On the basis of the planning information provided by MMS, through its draft 2007-2012 OCS Lease Sale Plan and comments submitted on an earlier draft of this analysis supporting the 2006 final rule, it appears the next lease sale in the North Aleutian Basin OCS area will be offered in 2011. According to MMS, a portion of the North Aleutian Basin originally offered in Sale 92 in 1985 will be offered for leasing as requested by the Governor of Alaska and some local and tribal entities. It is also possible that some "pre-sale" seismic exploration of portions of the basin may be initiated by prospective bidders; however, as noted above, this activity would (a) be subject to consultation requirements between MMS and NOAA prior to permitting, and (b) not be expected to have the potential to destroy or adversely modify critical habitat of the right whale. Actual petroleum development and commercial production (activities believed to have *some* non-trivial potential to adversely modify critical habitat) would not be expected to begin for several years, perhaps decades, following a successful 2011 lease sale. The level of uncertainty concerning how, when, where, by whom, and precisely what form this petroleum development and commercial production scenario may take, precludes meaningful quantification. Nonetheless, the presumptive impact on OCS development in the North Aleutian Basin, attributable to the designation of critical habitat for the North Pacific right whale (as proposed), would be expected to involve only several additional consultations between MMS and NOAA.

Commercial Fisheries

Arguably, the single largest scale anthropogenic use of the GOA and EBS is made by the U.S. commercial fishing sectors. These operations exploit a wide variety of finfish, shellfish, and other living marine resources in the oceanic areas off Alaska. Some relatively modest fraction of this fishing activity has historically occurred within, and/or immediately adjacent to, the proposed critical habitat boundaries. Fishery management rules do not (and likely would not in the future) restrict a fishing vessel from operating in, and/or adjacent to, the areas proposed for designation. Unlike the situation that exists with respect to commercial fisheries and the endangered western Aleutian population of Steller sea lion, in which fishing vessels actively "target" fish species that are a primary food source for these marine mammals and, thus, have been restricted in their use of areas of critical habitat for that listed species, no such interaction is believed to exist between commercial fishing operations and the North Pacific right whale's copepod/euphasiid prey, which is the PCE identified for this critical habitat designation. It follows that no fishing or related activity (e.g., at-sea processing, fishing vessel transiting) would be expected to be restricted, or otherwise altered, as a result of critical habitat designation in the two areas being proposed.

To assist in the economic analysis, the North Pacific Fishery Management Council (Council or NPFMC) submitted a substantial body of information about the fisheries of the region,

especially those traditionally operating in or adjacent to the two areas designated under this action.

According to the Council's information, the fisheries of the North Pacific Ocean are valued in the billions of dollars, annually, and provide a vast array of outputs, including the very highest quality fresh and fresh-frozen products (e.g., king crab legs and sections, wild Chinook, sockeye, and coho salmon, Pacific halibut, sablefish); high quality seafood "commodities" (e.g., pollock surimi, pollock and Pacific cod fillets and block); specialty items (e.g., Pacific herring-roe, sea urchins, live rockfish); and important industrial and animal feed products (e.g., fish oils, white and brown fishmeal).

Many of these fishery products are delivered to U.S. markets, providing direct benefits to American consumers in the form of an extraordinary variety of wholesome, reasonably priced, and consistently available high grade dietary protein. In addition, virtually all of these U.S. products are traded in the world seafood (and affiliated products) marketplace. While the United States remains a net importer of seafood, shipments from fisheries off Alaska provide, by far, the largest share of U.S. seafood and fishery product exports, and contribute positively to the Nation's balance of trade. For a detailed description of the commercial groundfish fisheries in the EEZ off Alaska, managed by NMFS in consultation with the NPFMC, see the Alaska Groundfish Fisheries Final Programmatic Supplemental Environmental Impact Statement (PSEIS) (NMFS 2004). Crab, Pacific herring, and salmon fisheries are managed by the State of Alaska. The Pacific halibut resource is managed under a bilateral treaty between the United States and Canada, and the U.S. fisheries for halibut off Alaska are managed by NMFS, with advice from the NPFMC.

The commercial fishing sectors of the North Pacific and BSAI utilize an assortment of vessel sizes, configurations, and capabilities in the prosecution of their trade. Floating factory ships in excess of 600 feet in length over all (LOA), catcher/processors from under 100 feet LOA to over 300 feet LOA, and catcher vessels ranging from small skiffs (< 20') to seaworthy ships, well over 180 feet LOA, comprise the physical capacity employed to extract the target resource.

Many different gear-types are employed in the commercial fisheries off Alaska. These include, but are not limited to, single pots (groundfish and crab), longlines (pot strings and hook-'n'-line), trawls (pelagic and non-pelagic), seines (purse seines, beach seines), gillnets (salmon and herring), troll gear (power and hand), dingle bar gear, jig gear, dredges, and diving gear.

Capital investment in vessel and gear in these fisheries is equally diverse, and although not well documented, likely ranges from hundreds of dollars per operation, to tens of millions of dollars. Some operators are very small-scale, single fishery, local "mom and pop" style businesses; others are highly diversified, participating in many different fisheries during the course of a fishing year; and some are substantially diversified beyond fishing, functioning as subsidiaries of vertically and/or horizontally integrated national, international, and multinational corporate structures.

Annual gross revenues accruing to the participants in these fisheries range from a few hundred dollars, to many millions of dollars. Data on operating costs, debt service, other fixed and variable costs, capital assets, affiliations, and ownership linkages are not available to NMFS, making it impossible to evaluate net revenue by entity.

While aggregate estimates of catch and value are systematically reported by the State of Alaska, the NPFMC, and NMFS, gross revenue data for individual entities are confidential, and may not be reported, except in aggregations of four or more independent operations (for State of Alaska

data), or three or more independent operations (under Federal law). Categorical gross revenues and landing data are available for many of these fisheries, in the annual Economic SAFE document, available from the Alaska Fisheries Science Center, NMFS, Seattle, Washington. (NMFS 2005-B). State managed fisheries' economic summary data may be obtained from the Alaska Commercial Fisheries Entry Commission, Juneau, Alaska.

As noted, public comment received in response to a previously completed analytical document supporting revision of the critical habitat designation for the northern right whale *Eubalaena glacialis* to include areas in the eastern North Pacific included several submissions pertaining to the analysis of potential designation and commercial fisheries interactions. All concurred with NMFS' finding that commercial fisheries, as practiced and managed in the GOA and EBS do not have the potential to destroy or adversely modify critical habitat, as defined under that action. The same conclusion applies to the current proposed action, in which NMFS proposes to designate critical habitat for the North Pacific right whale. (For the reasons described earlier in this document, the recent critical habitat revision resulted in final designation of the same areas that are now proposed for designation as critical habitat for the North Pacific right whale.) Several comments expressed specific concerns about direct interactions between fishing gear (e.g., pot lines hanging vertically in the water column) and/or collisions with, or direct disturbance of, right whales by commercial fishing vessels operating within or adjacent to the designated areas. These latter circumstances (i.e., entanglements and collisions) are forms of "taking", and do not bear upon the issues of destruction or adverse modification, which are the terms of reference for evaluating the designation under ESA.

While no criticism of NMFS' RIR/IRFA analyses pertaining to commercial fisheries and the designation was received in response to the public comment solicitation for the northern right whale critical habitat designation, the Council did introduce an economic and socioeconomic impact assessment of its own, prepared by Council staff, as part of the public comment record. For the reasons explained in the preceding paragraph, that submission also informs the present proposed action. While too lengthy to be reproduced in full here, the complete Council comments are contained in the administrative record of this proposed rule.

In summary, the Council's comments encapsulate the range and content of the other comments pertaining to impacts of the designation on commercial fisheries. The Council report describes the economic and socioeconomic data on commercial fisheries, including species, gear types, locations, seasons, and values for harvesting and processing participants, as well as dependent communities, attributable to recent harvests reported within each of the proposed critical habitat areas (i.e., GOA and EBS).[6] The report focuses on [1] Pacific halibut harvests, [2] groundfish catches, and [3] crab landings.

Pacific Halibut

In the case of halibut, the report reveals that harvests in the IFQ fisheries of the BSAI and GOA for 2004 totaled 58,987,937 lbs. In the BSAI, approximately 0.27 percent was from the EBS critical habitat area. In the GOA, approximately 3.2 percent was from the proposed critical habitat area.

[6] Council staff advises that fisheries statistical reporting and management areas do not neatly and precisely coincide with the boundaries of the designation. Therefore, some imprecision in attributable catch results from the unavoidable process of "lumping and splitting" reported catch, according to a "best judgment" protocol for overlapping and intersecting areas. The result is the estimates 'likely' overstate the actual attributable catch taken from the identified critical habitat.

These data reflect 2004 total reported landings (i.e., CDQ and non-CDQ fisheries). These data exclude subsistence harvested fish.

Entire BSAI (4A,4B,4C,4D,4E)	8,963,258 lbs
From Critical Habitat in the EBS	24,499 lbs
Entire GOA (2C,3A,3B)	50,024,679 lbs
From Critical Habitat in the GOA	1,604,978 lbs

Source: Marine Fisheries in Areas Proposed as Critical Habitat for the North Pacific Stock of the Northern Right Whale: Discussion Paper. NPFMC December, 2005.

The GOA harvest from within the proposed critical habitat area was made by 56 vessels; 3 vessels harvested halibut from the critical habitat area in the EBS. Total catch for 2004 for IPHC Regulatory Area 4A (3,392,035 lbs) is included in the BSAI data above; 4A straddles the NMFS BSAI and GOA Statistical Areas.

For purposes of this assessment, ex vessel prices for halibut in the GOA were assumed to range from $2.75 per pound to $3.15 per pound, while for the BSAI ex vessel prices for halibut ranged from $1.75 to $2.88 per pound. The estimated ex vessel revenues generated by halibut catch from the right whale proposed critical habitat designation ranged between $4.4 million and $5.1 million in the Gulf and approximately $43,000 to $71,000 in the EBS.

Groundfish

For groundfish, the Council report estimated that approximately 18 percent of the combined Pacific cod catch, by "fixed gear" (i.e., pots or hook'n'line) in the BSAI management area was from right whale critical habitat area. Over 95 percent of this was taken by catcher processors. The estimated first wholesale revenues from the catch exceed $22 million. Estimated catch of most other groundfish species taken from this area was reportedly relatively small, in no case exceeding 1,000 metric tons, with attributable ex vessel revenues for the inshore sector, for all species combined, of approximately $500,000. First wholesale revenues for the sector were estimated at slightly less than $800,000. Combined catch of all species was approximately 22,000 metric tons, or slightly more than $24 million in first wholesale revenues.

Likewise, in the GOA, approximately 1,500 metric tons (or 6 percent) of the Pacific cod catch by the fixed gear vessels came from the Gulf proposed critical habitat area, all of which was harvested by the shoreside sector, generating revenues at ex vessel of approximately $800,000, and first wholesale revenues of approximately $1.8 million. Approximately 150 metric tons of sablefish was caught by fixed gear vessels in the proposed GOA critical habitat area, slightly more than half of which was caught by catcher processors; generating roughly $800,000 in first wholesale revenues. In total, approximately 1,700 metric tons of fixed gear catch (which is estimated to have generated approximately $2.7 million in first wholesale revenues) was taken from this same area.

Shifting to groundfish "trawl" landings, the report concludes that a substantially greater share of the BSAI trawl catch came from the proposed EBS critical habitat area, than was the case for fixed gear. Over half of trawl caught pollock, with an estimated $500 million in first wholesale revenues, came from the proposed area in the EBS in 2004. One-fourth of this gear-type's flatfish, Pacific cod, and "other" species catch from the BSAI came from the proposed critical habitat area in 2004. The first wholesale revenues generated by these trawl harvests from the designated area were approximately $560 million.

In the GOA, groundfish of several species were taken from the proposed area by trawlers. The Council's analysis indicates that approximately one-fifth of the trawl Pacific cod harvest, Gulf-wide, was taken in the proposed critical habitat area. Slightly more than one-fourth of the flatfish harvest came

from the proposed critical habitat area. Taken together, they reportedly generated on the order of $7 million in first wholesale revenues. Roughly 7 percent of the trawl caught pollock in the Gulf came from the proposed critical habitat area and was worth more than $3 million at first wholesale. Total trawl catch from the proposed area in the GOA was approximately 14,000 metric tons, generating approximately $12 million in first wholesale revenues.

The Council's report continues with a summary of the likely communities with onshore processing plants that traditionally process groundfish from the areas being proposed. In the EBS, groundfish processing facilities in Dutch Harbor, King Cove, and Akutan are likely to be the primary facilities that would process landings from the designated area, while in the GOA, the primary facilities that would process groundfish landings from the designated area are likely plants in Kodiak. The EBS plants, identified here, are assumed to be subsidiaries of, or affiliated with, large (and, in several cases, multinational) corporations, while in Kodiak there is a mixture of relatively small independent plants, as well as those affiliated with larger companies.

The size, gear-type, and operating mode of vessels participating in the respective groundfish fisheries was summarized by Council staff in the table below from the Council document.

Number of vessels with harvests from the proposed critical habitat by gear and vessel type, 2004.

	Bering Sea/Aleutian Islands		Gulf of Alaska	
	Catcher processors	Catcher vessels	Catcher processors	Catcher vessels
Hook and Line	37	6	3	75
Pot	1	7	0	3
Pelagic trawl	18	85	0	35
Non-pelagic trawl	24	51	1	45
Total (unique)	77	108	4	122

Crab

The third species group targeted by commercial fishing operations, in and/or around the proposed critical habitat for the North Pacific right whale, is crab.[7] As the Council analysis reports, the proposed EBS critical habitat is centered in Bristol Bay. Only one crab fishery is currently prosecuted in this area, the Bristol Bay red king crab fishery. In 2004, approximately 15.4 million pounds (99.9 percent of the harvest in this fishery) came from the proposed area in the EBS. Ex vessel revenues of ~$72.5 million were generated by this catch. The location of this fishery has varied little in recent years and is anticipated to be focused in the proposed area.

While red king crab is the only species recently targeted in the EBS North Pacific right whale proposed critical habitat area, as the Council's report reveals, some portion of the Bering Sea *C. bairdi* Tanner crab fishery has historically been (and is likely to be in the future) prosecuted in this area. The Tanner fishery in the EBS has been closed due to severely depressed stocks, for several seasons. The fishery is currently managed as two stocks, under which separate TACs are established, one east and one west of 166° west longitude. The proposed EBS critical habitat area is contained within the area east of 166° west longitude. In 2005, only the area west of 166° west longitude was opened for Tanner fishing and a decision on reopening the eastern zone will be made year to year, based upon assumed stock condition.

[7] There is no Federal Fishery Management Plan for crab in the Gulf of Alaska and, thus, no Federal or Council involvement in management of these resources. Instead, GOA crab management in the EEZ is deferred to the State of Alaska.

Underway Training for the U.S. Navy

The DoD oversees authorizing and conducting of military training exercises and other related activities in areas that may overlap the proposed critical habitat designation for the North Pacific right whale. These activities potentially "may affect" critical habitat (e.g., due to ordinance explosions, or accidental pollution events). As a result, DoD would be expected to consult with NMFS prior to authorizing or undertaking military training or other operations in the designated areas.

Oil Spill Response Plans

The USCG has the responsibility to review and approve oil spill response plans for a variety of agents and activities in areas that may overlap the proposed critical habitat designation area for North Pacific right whales. Some of the activities for which oil spill response planning is required potentially "may affect" critical habitat, thus making it necessary for the USCG to consult on these response plans with NMFS. Under an MOU between the USCG and MMS, the MMS is responsible for review and approval of OCS oil spill contingency plans.

Estimating the Costs of Potential Section 7 Consultations

For purposes of the following discussion, it is assumed that there are, effectively, three distinct "levels" of consultation that may take place between an action agency and NMFS that will result from designation of critical habitat for the North Pacific right whale in the North Pacific Ocean. They increase in technical rigor, procedural complexity, time, and cost from 'pre-consultation', to 'informal consultation,' to 'formal consultation.' Furthermore, because of the uncertain nature of the projected numbers and levels of inter-agency consultations that may occur over a ten-year analytical period following critical habitat designation, and the factual complexity and differing objectives and obligations of the agencies that may be party to this process, it is not feasible to confidently disentangle agencies' costs that are *exclusively* attributable to critical habitat designation (incremental to designation) from those that may more appropriately be characterized as co-extensive with listing provisions. Therefore, unlike the balance of the benefit/cost analysis (presented herein), in which impacts accruing from each of these sources were disentangled and isolated, the hypothesized ten-year "agency consultation cost" totals reflect *all* consultation costs related to North Pacific right whale listing and critical habitat designation in the North Pacific Ocean. Because it is highly unlikely that project modifications would result from consultations on critical habitat, this suggests that these estimates likely overstate the true costs uniquely attributable to CHD, but by an unknown amount.

There is, at present, very little empirical information concerning the attributable government agency costs of ESA individual consultation. Inquiries were made within the agency, first within the Alaska Region, then more broadly across NOAA. These were followed up with inquiries made of several potential "action" agencies (e.g., EPA, ACOE). Some qualitative guidance was offered by various agency personnel. For example, NMFS Alaska Region Protected Resources Division staff suggested that, in their experience, the cost of a 'pre-consultation' is generally low, involving limited staff time and minimal analysis. They went on to advise that when one moves to the 'informal consultation' level, costs typically rise. More staff members, and more staff time and effort on the part of each party to the consultation, must be invested to adequately complete an 'informal consultation'. Likewise, the complexity of the consultation increases (as compared to a 'pre-consultation'), often involving recommendations for changes in the proposed action, made through negotiations between the action agency and the consulting agency. Finally, 'formal consultations' often result in substantially greater costs of staff time and other resources, imposed on both agencies. The associated costs of 'formal consultation' can represent a substantial share of the value of the proposed action itself. (Per. comm., Brad Smith NMFS, September 2006).

Another identified source of consultation cost information, consistent in terms of analytical scope and approach of the present North Pacific right whale critical habitat designation, comes from a document prepared in support of critical habitat designation for the Gulf sturgeon (Industrial Economics, Inc. 2003). That economic analysis of consultation costs was reportedly developed by, among other things, utilizing an assessment of numerous cases prepared for and by U.S. Fish and Wildlife Service (FWS) offices nationwide. According to this report, these files addressed consultations conducted for both listings and critical habitat designations, with costs estimated on the basis of a high, medium, and low scale of complexity (much as described by the NMFS Alaska Region, above).

The Gulf sturgeon analysis attempted to monetize this range of consultation 'classes' by making a number of simplifying assumptions. (Some of these assumptions are more reasonable, and applicable to the North Pacific right whale critical habitat designation, than are others. The interested reader is encouraged to consult the original report for more detail.) The authors employed an assumed wage rate to value staff labor costs for each type of consultation, etc. The results were reasonably consistent with expectations, given the anecdotal information referenced earlier in this section. The consulting agency's costs for an 'informal consultation' were projected to be on the order of $1,000 to just over $3,000. The action agency's costs were somewhat higher, on the order of $2,000 to perhaps $9,600, while the costs born by third parties, including the applicant in cases in which such parties incur process costs, was reported to be in the range of $1,200 to just under $3,000. In the case of formal consultations, the authors report substantially higher costs. Consulting agency expenditures are reported in the range of $6,000 per consultation; action agency costs are estimated at $20,600 per formal consultation; and third party costs (if any) come in just over $4,000 per consultation. These amounts presumably reflect the prevailing labor rate, transportation costs and distances, and support service costs that prevailed at the time and in the location of this study (i.e., 2002, Southeastern United States). These costs will be higher, in some instances substantially higher, in the Alaska context, as reflected below in the North Pacific right whale critical habitat designation per consultation cost model.

As stated above, it is highly unlikely that project modifications would result from consultations on critical habitat. However, the reported "upper-bound" total 'per consultation' amounts do, according to the authors, reflect *co-extensive* costs. The authors acknowledge the need to separately identify costs uniquely attributable to critical habitat designation because the designation decision is a distinct decision, independent of the listing decision. To the fullest extent practicable, these costs *should* be treated separately in order for society (through its decision-makers) to make informed judgments about the 'net' marginal welfare change (positive or negative) offered by the alternative critical habitat designation actions.

The Gulf sturgeon analysis explicitly recognizes the need to make this separate calculation and, in fact, supplements the *co-extensive* analysis with what the authors term "lower-bound" estimates of costs, which are interpreted as being uniquely attributable to 'designation'. The authors acknowledge the potential superiority of the latter form of assessment, but also note the added data demands, cost, and complexity that accompany its derivation.

In most instances, teasing out costs (and benefits) attributable to "jeopardy" from costs (and benefits) attributable to "adverse modification" can be quite time consuming and technically demanding, as well as data and information intensive. In the face of these challenges, the Gulf sturgeon study authors employed a "step-wise" approach, by first deriving the "upper-bound" *co-extensive* impact estimates, then extracting from that total those costs which data permitted them to uniquely assign to designation. In the present North Pacific right whale critical habitat designation analysis, NMFS identifies, to the fullest extent data allow, the costs (and benefits) that are unique to the critical habitat designation.

As discussed below, based upon the best available information and analysis, the vast majority (*perhaps all*) of Section 7 direct costs associated with critical habitat designation for the North Pacific right whale in the North Pacific Ocean will be borne by Federal agencies. NMFS is projecting that, although Federal actions *may affect* the proposed critical habitat, it is highly unlikely that any of the actions for which consultation is anticipated over the next ten years would result in a finding of destruction or adverse modification of critical habitat. Even in the case of oil and gas exploration and development, which is the only federally authorized activity in these areas with any non-trivial potential to destroy or adversely modify, (1) the probability of such an event would, in general, be very low, and (2) in this specific case, the risk approaches zero over the ten year analytical horizon employed here (i.e. even in the most optimistic scenario, oil and gas exploration activities in these areas is projected to be many years, perhaps decades, off). Thus, none of these Federal actions would be expected to require modifications that would impose additional public or private costs.

With specific reference to North Pacific right whale critical habitat in the North Pacific Ocean, NMFS Alaska Region PR staff members predict that there could be, perhaps, 5 oil consultations on oil and gas development proposals over a ten-year period (likely involving MMS as the action agency). Of these, the majority (3) are expected to be 'formal' consultation, with the balance (2) being 'informal'. (Per. comm., Kaja Brix and Brad Smith, NMFS October 2005.) Furthermore, these sources suggest that all five oil and gas related consultations would be expected to involve "exploratory" activity (as distinct from "production" activity) in or adjacent to the proposed designation areas. Gas and oil exploration in the eastern Bering Sea would principally entail use of seismic devices to identify and map potential hydrocarbon deposits for further, future exploration (e.g., drilling test wells) and possible longer term commercial development.

Seismic activity would, depending on timing, duration, intensity, and location, have the potential to adversely impact any North Pacific right whales that may be within the area (i.e., a "taking" concern). All available scientific information suggests, however, that the potential for oil and gas seismic exploration to damage or adversely modify right whale critical habitat (i.e., the zooplankton that constitute the PCEs within this proposed right whale action), is exceedingly small. Therefore, while it is not currently feasible to disentangle the share of each of these five projected consultations as to its source (i.e., uniquely attributable to "jeopardy" versus "adverse modification" concerns), it is clear the latter surely represents only a minuscule fraction of the co-extensive consultation costs (projected below) for oil and gas development actions.

During a ten-year time horizon, 2 consultations, each 'formal,' are hypothesized with respect to EPA at-sea seafood processing waste discharge permit applications. Likewise, NMFS hypothesizes 1 'formal' programmatic consultation with the USCG in connection with approval of oil spill response plans, under provisions of the Oil Pollution Act of 1990. The DoD is hypothesized to consult twice 'formally' and once 'informally' in connection with at-sea training exercises and associated activities over the ten years.

It is also hypothesized that, over this time horizon, NMFS will undertake commercial fishery actions which will trigger consultation connected to North Pacific right whale critical habitat concerns. In these instances, NMFS would serve as both the action and consulting agency. NMFS projects 11 consultations on fishery actions over the ten-year period, with two being 'formal,' six being 'informal,' and three involving 'pre-consultation' level interactions between the Protected Resources and Sustainable Fisheries Divisions of the agency. The critical habitat designation may also result in NMFS "reinitiating consultation" on existing actions, perhaps involving as many as 5 consultations over this period. (Per. comm. Kaja Brix, NMFS August 15, 2005)

As observed in connection with expected inter-agency consultations on oil and gas development, it is not possible to precisely attribute the consultation costs to "jeopardy" concerns, as distinct from those of "adverse modification." It nonetheless appears that critical habitat concerns must certainly represent

only a tiny fraction of the co-extensive consultation costs (enumerated below) for commercial fisheries, waste discharge, military training, and oil spill response planning actions, based upon the best scientific information concerning the size, distribution, abundance, and resilience of the PCE copepod and euphasiid species.

In sum, based upon the preponderance of scientific and management information (and projecting over the ten-year analytical horizon), it does not appear *likely* that any activity with a Federal nexus would destroy or adversely modify critical habitat for the North Pacific right whale in the North Pacific Ocean. Absent such a finding, NMFS would not expect to propose "reasonable and prudent" alternatives to avoid destruction or adverse modification of critical habitat. It is only in this latter instance (i.e., a finding of adverse modification) that project modifications to avoid such impacts would be imposed through the action agency, upon an applicant, possibly resulting in imposition of economic (and other) cost on the private sector. Therefore, based upon the best available information, no change in behavior or practice by any private sector entity is expected as a result of this designation of critical habitat. The only change in behavior or practice by Federal agencies would be increased awareness of and consultation on actions and applications with a Federal nexus, proposed for the areas designated as North Pacific right whale critical habitat in the North Pacific Ocean.

Lacking any private sector adverse economic impacts associated with the findings emerging from these consultations, the costs associated with the proposed North Pacific right whale critical habitat designation action will be limited to those incurred by the Federal agencies involved. As such, all the costs are effectively "internal" to the Federal government. Federal agency budgets are, for all practical purposes, "fixed" over any given budget cycle (e.g., FY), and therefore do not change at the margin, in response to small numbers of additional (or fewer) activities (e.g., ESA consultations expected to accompany right whale critical habitat designation in the North Pacific). These consultations do, of course, represent an "opportunity cost" for the agencies incurring the expense of consultation, since the resources committed to consulting on right whale critical habitat are not available for use in some alternative agency task.

By adopting a number of simplifying assumptions, it is possible to monetize the agency consultation costs that might be regarded as attributable, in some part, to the proposed North Pacific right whale critical habitat designation. For purposes of this hypothetical cost analysis, it is assumed that the number of consultations over a ten-year period following designation of North Pacific right whale critical habitat in the eastern Bering Sea and GOA is as described above. Real labor rates are assumed to be constant over the ten-year period, at an average $350.00 per staff day. Further, assume that the majority (14) of these right whale critical habitat consultations will be "informal;" a somewhat smaller number (10) will be "formal consultations," and only very infrequently (3) will an action be limited to a "pre-consultation".

NMFS staff advises that a "pre-consultation" requires one staff-day for each agency that is party to the conference (i.e., consulting and action agencies), but no other costs are incurred. They report that, on average, an "informal consultation" requires 4 staff-days for each agency and, in addition, non-labor costs accrue for data and information analyses, travel, meetings, documentation, etc. (assume $1,500 non-labor expenditures per informal consultation, for each agency). In the case of a "formal consultation," as many as 135 staff-days (the full amount of time allowed under statute) may be required. Being significantly more complex, a formal consultation would be expected to impose proportionally greater non-labor expenses (assume $50,625 per formal consultation for each agency).[8]

[8] The derivation of this dollar amount employs the assumed "informal consultation" non-staff costs per agency (i.e., $1,500), then multiplies that by the ratio of formal consultation staff days, to informal consultation staff days (i.e., 135:4) for an agency. This places the labor and non-labor expenditures for these two forms of consultation in like proportion.

The following table reflects the derived dollar amounts when these assumptions are applied to the preferred alternative. Note that unlike the balance of the benefit/cost analysis presented in this RIR, the *hypothetical* ten-year agency totals reflect consultation costs related in some part to North Pacific right whale critical habitat issue in the North Pacific Ocean, although perhaps not *exclusively* so. That is, for purposes of this section of the RIR *only*, the numerical estimates presented in the table represent the hypothetical *co-extensive* costs of consulting on right whale management in the North Pacific Ocean, in the presence of designated critical habitat. As such (ignoring for the moment that the underlying data are "hypothetical"), the numbers likely *overstate* the true consultation costs directly and uniquely attributable to the preferred alternative. Therefore, presentation of an equivalent "quantification" of consultation costs under the status quo, or 'no action' alternative, is meaningless. Perhaps the only identifiable distinction that could be presented is that associated with the five (projected) informal consultation "re-initiations." The projected costs incurred to reinitiate consultations would be made necessary uniquely because of the designation of critical habitat. But even that is not certain because "jeopardy" considerations would undoubtedly represent some (unknown) portion of these expenditures, making the estimated total costs, arguably, *co-extensive*.

Projected Aggregate Agency Consultation Costs Ten Years post-Critical Habitat Designation

Consultation Type	Number	Percent	Labor Costs	Non-labor Costs	Total 10 Yr. Cost	Average Annual Cost
Formal	10	37%	$ 945,000	$1,012,500	$1,957,500	$ 195,750
Informal	14	52%	$ 39,200	$ 42,000	$ 81,200	$ 8,120
Pre-consultation	3	11%	$ 2,100	$ 0	$ 2,100	$ 210
All Consultations	27	100%	$ 986,300	$1,054,500	$2,040,800	$ 204,080

Costs are assumed to reflect "constant real dollars", over the ten-year projection.

Discounted consultation costs

Government guidelines for the preparation of economic analyses recommend that cost and benefit streams accruing over time be "discounted", to reveal the net present value (NPV) of an action.

In the present analysis, it is not feasible to estimate NPV. This is so, in part, because calculation of "net" value *requires* all costs *and* all benefits attributable to a proposed action (e.g., critical habitat designation for the North Pacific right whale in the North Pacific Ocean) be expressed in a common unit of exchange (e.g., U.S. dollars), making possible subtraction of one from the other (i.e., netting out costs from benefits). Likewise, without specific points in time when "payments accrue" (whether costs or benefits), it is not technically possible to "discount" an economic stream (i.e., put all payments in "present value" terms).

As explained in the analysis, the actual number, type, duration, and frequency of potential consultations that might, in whole or in part, be attributable to designation are "unknown". Examples of the consultation costs that might be anticipated, under a set of simplifying assumptions were produced. Those resulting "costs" (displayed in the table immediately above) have been discounted in the two tables below. Interpretation of these PV costs necessitate even more care, because they add several additional imbedded assumption to those already employed to derive the consultation cost estimates in the example above.

One does not know when these consultation costs will accrue, but it is arithmetically possible to take the earliest year in which they could accrue, and the latest year in which they could accrue, calculate the PV for each, and express the result as a range. When this exercise is performed, one obtains the following:

Discount Rate	**0.03**

Year	Scenarios undiscounted A	B	C	Discount Factor	Scenarios discounted A disc	B disc	C disc
0	2,040,800	0	204,080	1.00	2,040,800	0	204,080
1	0	0	204,080	0.97	0	0	198,136
2	0	0	204,080	0.94	0	0	192,365
3	0	0	204,080	0.92	0	0	186,762
4	0	0	204,080	0.89	0	0	181,322
5	0	0	204,080	0.86	0	0	176,041
6	0	0	204,080	0.84	0	0	170,914
7	0	0	204,080	0.81	0	0	165,936
8	0	0	204,080	0.79	0	0	161,103
9	0	2,040,800	204,080	0.77	0	1,564,103	156,410
				sum =	2,040,800	1,564,103	1,793,069

Discount Rate **0.07**

Year	Scenarios undiscounted A	B	C	Discount Factor	Scenarios discounted A disc	B disc	C disc
0	2,040,800	0	204,080	1.00	2,040,800	0	204,080
1	0	0	204,080	0.93	0	0	190,729
2	0	0	204,080	0.87	0	0	178,251
3	0	0	204,080	0.82	0	0	166,590
4	0	0	204,080	0.76	0	0	155,692
5	0	0	204,080	0.71	0	0	145,506
6	0	0	204,080	0.67	0	0	135,987
7	0	0	204,080	0.62	0	0	127,091
8	0	0	204,080	0.58	0	0	118,776
9	0	2,040,800	204,080	0.54	0	1,110,060	111,006
				sum =	2,040,800	1,110,060	1,533,709

Scenario A assumes the full consultation cost accrues in year 1; scenario B assumes the full consultation cost accrues in year 10; and scenario C assumes the full consultation cost is divided equally in each of the ten years of the hypothetical example.

The results suggest that the hypothetical case has a discounted present value consultation cost "range", over ten years, between $1.1 million and $2.04 million, at a discount rate of seven percent; and a discounted present value consultation cost "range" of between $1.56 million and $2.04 million, at a discount rate of three percent.[9]

Benefits of Designating Critical Habitat for the North Pacific Right Whale in the North Pacific Ocean

Because NMFS does not anticipate project modifications as a result of this designation and expects that consultations on critical habitat will be a tiny fraction of the cost for consultations on endangered North Pacific right whales conducted under section 7(a)(2), we expect the benefit of designation to be relatively modest, as described below.

To adequately evaluate the relative desirability (i.e., "ranking") of competing natural resource policy

[9] Per. comm., Dr. Ben Muse, NMFS Alaska Region, Sustainable Fisheries Division. June 21, 2006.

alternatives, including the requisite "no action" option, the analysis must include costs and benefits of both market and non-market aspects of the proposed action.[7] When a good or service is traded in a conventional market, the equilibrium price reflects the marginal consumer's revealed WTP to acquire that good or service. When no market exists within which a good or service is traded, there is no price established to signal the value of that asset. Nonetheless, it is appropriate and necessary that these non-market values be accounted for, to the fullest extent practicable, when assessing the benefits and costs of a proposed regulatory action. In the case at hand, the North Pacific right whale displays a number of characteristics that make the presence of market-based use values unlikely. As an endangered species, all consumptive uses are strictly prohibited. The extreme rarity of these animals, and the geographically remote location of the most recently identified aggregations of North Pacific right whales in the U.S. EEZ off Alaska (especially the area in the mid-Bering Sea), make the existence of market based non-consumptive uses (e.g., commercial whale watching excursions) improbable. This strongly suggests that passive-use value likely constitutes the majority of the welfare benefit accruing to the American public from conservation and management of these whales and their habitat.

It is very likely that protection of these great whales and, for purposes of this analysis, the critical habitat upon which the North Pacific right whale depends, holds significant economic and other values for many people worldwide; in the same way many Americans place significant value on, say, preservation of the mountain gorilla of central Africa and the habitat critical to the survival of that highly endangered species, or the endangered Giant Panda of China and its habitat. Thus, it is probable that the true welfare benefit associated with critical habitat designation is greater than that accruing only to the U.S. population. However, OMB has directed that, when assessing a proposed management action under EO12866, benefits and costs accruing to the U.S. population should be assessed. Thus, the following evaluation of proposals to designate critical habitat for the North Pacific right whale within the U.S. EEZ off Alaska strictly adheres to that guidance. For the reasons explained elsewhere in this impacts analysis, the value of critical habitat designation in the North Pacific Ocean for this species of right whale, while not known, may be relatively modest when compared to the public's WTP to protect and enhance the possibility of recovery of this right whale species itself.

In connection with non-market valuation of natural resources, it can be demonstrated that society places economic (and other) value on environmental assets, especially when those assets are perceived to be unique (e.g., Yellowstone National Park) and/or when they possess some symbolic or charismatic characteristic (e.g., the American bald eagle). These values (i.e., passive-use or existence value) exist, whether or not the asset is ever directly encountered or exploited. For example, people place real and (potentially) measurable economic value on simply knowing that a rare or endangered species (e.g., the North Pacific right whale) is protected in its natural environment. However, for the reasons explained above in this impacts analysis, the passive-use value of critical habitat designation in the North Pacific Ocean for this species of right whale, while not known, may be relatively modest.

Unlike the whale itself, the areas that are proposed for designation as critical habitat support a wide range of market, non-market, consumptive, and non-consumptive human uses. For this reason, it is incumbent upon NMFS to correctly and completely characterize benefits and costs of the designation of critical habitat, distinct from those costs and benefits uniquely attributable to the listing of the species. While some impacts may be co-extensive and, thus, not readily amenable to unique attribution, it is the incremental change in the net benefit to the Nation, ascribable to critical habitat designation (and not the listing of the species), that is the primary focus of this analysis. Nonetheless, where impacts are co-extensive, they have been cited as such and included in this regulatory impact assessment.

[7] See: Office of Management and Budget Circular A-4. September 17, 2003.

The following discussion is predicated on an examination of the relevant literature and empirical research on passive-use values (e.g., existence value, bequest value), within the broader context of natural resource economic valuation. The literature suggests that these values may be substantial. When the American public is aware of risks posed to a unique natural asset (e.g., the Amazon rain forest), they often reveal significant WTP values for protective action. In that particular example, there is ample empirical evidence to support the existence of significant passive-use values associated with the protection of this natural habitat (e.g., revealed preference WTP, in the form of cash donations to various *Save the Amazon Rain Forest* groups or efforts, celebrity-sponsored fund raisers and large monetary donations made to the protection of this habitat, outright purchase of at-risk land, or acquisition of use-rights to at-risk areas of the Amazon habitat, etc.).

In the United States, a Department of Agriculture (Forest Service) study that used contingent valuation to measure the value the public places on the existence of *critical habitat,* designated under ESA for the northern spotted owl, indicated that Oregon residents were willing to pay a substantial amount of money, annually, specifically to protect ESA-designated critical habitat for this endangered species (Loomis et al. 1996). Similarly, a study published by Carson, et al. (2003) examined the estimated WTP of the American public in connection with the EXXON Valdez oil spill disaster. In that case, the public's WTP to avoid the *habitat destruction* and associated adverse fish and wildlife impacts was extremely large, by any measure. Both of these WTP estimates may reasonably be regarded as expressions of "*habitat*" values, as distinct from WTP for any specific endangered species. In the first example, the bid was *expressly* for ESA critical habitat protection, while in the second, the bids were expressly based upon avoiding a spill that resulted in a widespread destruction of the bundle of ecological assets that were adversely impacted in Prince William Sound, the Kenai Peninsula, Kodiak Island, and the Alaska Peninsula by the EXXON Valdez spill (i.e., ecosystem, habitat values).

It should be emphasized that there is no suggestion made here that the absolute size of the habitat WTP bids in these (and other similar) studies are necessarily indicative of the size of WTP bids that may be associated with *critical habitat designation* for the North Pacific right whale in the North Pacific Ocean.. Rather, these studies demonstrate that protection and preservation of *habitat* has an intrinsic passive-use value, and that it is technically possible to measure the passive-use value of habitat, as distinct from passive-use values for any specific species.

In a majority of cases, passive-use values have been estimated for unique, rare, and widely recognized natural assets (e.g., the Grand Canyon of the Colorado). Often, contingent valuation method (CVM) analyses of passive-use values have involved actions that propose to enhance, protect, or mitigate adverse effects on high profile *organisms*. In the literature, these are referred to as *charismatic mega-fauna* (Metrick and Weitzman 1998), and they include such species as the American bald and golden eagles, Giant pandas, lions, tigers, and bears.

There are numerous species that hold an elevated status for humans, as compared to their lesser regarded cousins in the animal kingdom. Certainly, in the United States, the great whales rank at or near the top of any list of charismatic-mega fauna. Furthermore, anecdotal evidence suggests that the rarer (i.e., more severely endangered) a species, the higher the public's WTP to protect it and, by implication, those aspects of the natural environment critical to achieving this end. At present, the North Pacific right whale is generally acknowledged to be the most severely endangered of all the world's great whale species.

With respect to North Pacific right whale *critical habitat designation*, which is the sole focus of this action, the values at stake are what economic theory defines as marginal values. Typically, these values are associated with incremental changes in the status, condition, or abundance of the asset being valued (e.g., what is the value of a 10% increase in the estuarine habitat area at the mouth of the Columbia

River?), not the value of its continued existence or complete loss. The proposed action under examination in this RIR (i.e., to designate critical habitat for the North Pacific right whale off Alaska) is no different.

Any region of ocean habitat will possess a wide range of physical characteristics. These may include the relative proportions of different sea bed types, locations of corals or other living structures, water temperature, salinity, distribution of vegetation, the abundance, presence, and (if present) concentration of specific prey species, and so on. Human activity may potentially change the nature, productivity, and value of habitat by altering these characteristics in different ways (either positively or negatively). The passive use values that society places on different regions of habitat will depend on these characteristics and can be expected to change as various combinations of characteristics of a particular region change (whether altered by human activity or through natural processes).

Formal critical habitat designation will alter the status of the subject asset (i.e., enhancing its potential marginal value to facilitate the continued existence and possible recovery of the North Pacific right whale population). It does so by providing a mechanism to better manage human activity that may have the potential to destroy or adversely modify the characteristics that make the designated area "critical" for the whales. As was shown in the cost analysis above, while the potential exists that some action with a Federal nexus may affect the proposed critical habitat (and, thus, result in consultation under section 7(a)(2) of the ESA), none of the actions for which consultation is anticipated over the next ten years is expected to result in a finding of destruction or adverse modification. Thus, none of these federally sanctioned actions is expected to require modifications that would result in more than *de minimus* incremental costs to users of these areas. As such, NMFS does not anticipate significant behavioral changes associated with this rulemaking.

In the current context, the specific areas being proposed for designation as critical habitat contribute directly to the existence and productivity of many living marine assets, in addition to the North Pacific right whale. Among these are commercially important species of fish and shellfish, Steller sea lions (including the endangered Western Aleutian population), sea birds (some of which are themselves listed under ESA and/or protected under international treaty agreements), and many other species of whales. As a result, isolating the passive-use value *unique* to North Pacific right whale *critical habitat designation* in the EEZ off Alaska presents conceptual challenges. That does not imply, however, that these values do not exist. Rather, at this time, several model elements essential to an empirical estimation of the impact of critical habitat designation on WTP are missing. These include (among others): a behavioral model relating critical habitat designation to changes in anthropogenic activity levels (e.g., fishing, transportation, oil and gas exploration, Department of Defense uses); a model relating changes in economic behavior to changes in critical habitat designation characteristics; a model relating changes in critical habitat designation characteristics to relevant North Pacific right whale population characteristics; and a model showing how WTP changes (both, uniquely for critical habitat, and for the species itself) with changes in North Pacific right whale population characteristics (e.g., abundance).

While the absence of empirical treatment of these critical habitat designation passive-use values is a limitation of the current benefit/cost analysis, previous passive-use value assessments provide some basic guidance to decision-makers and the public in evaluating the potential benefits of designating, versus 'no action,' as summarized by the following three points:

> (1) Society places a value on "*habitat*" for its own sake (i.e., direct benefit), as well as for its role in the functioning of the ecosystem and production of marketable consumptive-use and non consumptive-use goods (i.e., indirect benefit). The passive-use value placed on habitat by society may differ with the public's perception of the role of the specific habitat in the

ecosystem. For example, wetlands habitat may be perceived by the public to be of greater passive-use value than, say, desert sand habitat, or Arctic pack ice habitat.

(2) The public perception of passive-use value for marine habitat may be dependent upon how unique that habitat is believed to be, within the ecosystem. For example, passive-use value for a relatively rare, long-lived coral habitat may be perceived by the public to be higher than common mud habitat. Therefore, there may be differences in the value society places on critical habitat, depending upon its specific characteristics.

(3) The likelihood that any given mitigation measure (e.g., spatial or temporal area restrictions) will succeed in protecting critical habitat from destruction or adverse modification may also influence the public's WTP to support a designation action. (NMFS 2005-A)

While no economic WTP estimates are currently available for incremental changes in the stock characteristics of the North Pacific right whale, such estimates have been derived for several other threatened or endangered great whales. In the Pacific, for example, economic values as reflected by WTP have been estimated for incremental changes in humpback, gray, and blue whale stocks (Hageman 1985; Samples and Hollyer 1990; Loomis and White 1996).[10] Nonetheless, the "state-of-the-art" in estimating such stated preference values has advanced with time, and thus each study cited reflects the technical limitations of the period in which it was conducted. In *every* case, the estimated WTP value (when extrapolated over the relevant human population) represents a very substantial amount of money (i.e., imputed benefit or value). Expressed another way, these (and similar) studies strongly suggest that Americans place very significant economic, cultural, social, and symbolic value on protection (and recovery) of the threatened and endangered great whales, within the whale's natural habitat.

While it is certainly not theoretically (nor empirically) appropriate to arbitrarily apply a specific dollar estimate developed for one species, in a particular setting and at a particular time, to a different species, in a different setting and time, a technique referred to as "benefit transfer" has been developed, peer reviewed, empirically tested, and extensively applied by the economics profession. This technique may be useful in gaining insights into the value the public holds for similarly situated natural assets (e.g., great whales *and* the critical habitat upon which they depend). As Rosenberger and Loomis (2000) report, *"Benefit transfer is the application of values and other information from a 'study' site with data, to a 'policy' site with little or no data."* These (and other) researchers point out that primary research is the preferred analytical strategy, when adequate time and resources are available. When they are not (as is presently the case for critical habitat designation of the North Pacific right whale in the North Pacific Ocean), benefit transfer can be very helpful in illuminating the context within which the management decision will be made.

With the limitations of the benefit transfer technique clearly in mind, the fact that a number of assessments of the non-market economic value, for several different great whale species, in different times and locations, have all elicited substantial WTP estimates suggests, the North Pacific right whale likely also has a positive economic, social, and cultural value to the American public. Because WTP can be regarded as a measure of the *minimum* utility (benefit) an individual (or society, when extrapolated over the relevant population) garners from acquisition of a good or service flow, the larger the stated WTP, the greater the associated benefit derived, *ceteris paribus*.

There can be little argument that the North Pacific right whale is highly valued. And, as previously reported, while no quantitative estimate of this value can at present be derived, circumstantial support for

[10] The Hageman (1985) study was prepared under contract with NMFS' SWFSC. The results were disseminated through the NMFS Administrative Report Series. The study is part of the "gray literature" and has never been formally published, though it has been widely cited.

this conclusion is compelling. Having reasonably established that protection and recovery of these animals yields significant economic, cultural, as well as other benefits (e.g., passive-use value, bequest value, genetic and biological diversity values) to the American public, the key question within the present context is, "Does any demonstrable relationship exist between the benefit society derives from protecting this endangered *species,* and the benefit society may derive from designating *critical habitat* for this same population in the northeast Pacific and eastern Bering Sea?"

Again, although the evidence is primarily circumstantial and/or derived through benefit transfer from other similarly situated endangered and threatened species, it is reasonable to conclude, based on the best available scientific information, that a portion of the (inferred) stated preference 'value' of the North Pacific right whale, may be attributable to the protection of its habitat.[11]

Standard economic production theory demonstrates that final demand for any given good or service can be decomposed to reveal the contribution each primary constituent input makes to the production of the final good or service. This result then allows the estimation of demand curves for each input, derived from the value placed by consumers on the final good. This is referred to as *derived demand.*

The nexus between species value and critical habitat value, as revealed through stated preference techniques, is consistent with this aspect of economic theory. Because critical habitat generally contributes primary and fundamentally important "inputs to production" of the desired output (i.e., recovery of the charismatic species, in the wild), critical habitat value may be appropriately characterized as a derived demand, as Kontoleon and Swanson (2002) suggest, "... for all of the plants and animal species that together comprise the (charismatic) species' natural habitat." These authors empirically test this hypothesis, using another "flagship species" (the Giant Panda) and its native bamboo forest habitat in China. Through the application of contingent valuation techniques and a series of econometric models, these authors find in their case study that the decomposition of WTP for the charismatic species' protection and conservation, *in situ*, yields a "value" of habitat that constitutes a non-trivial portion of the total WTP bid.

Conducting an original study may in many cases not be feasible. One alternative to conducting an original study is the use of "benefit transfer" methods. Although benefit-transfer can provide a quick, low-cost approach for obtaining value *estimates*, the method is often associated with uncertainties and biases of unknown magnitude. Nonetheless, NMFS finds itself in a difficult situation, owing to the conflicting demands of assessing the benefits and costs of critical habitat designation for a species that is in many aspects unique, or has unique attributes (in which case a transferable value from an existing study may not be appropriate), and its responsibility and legal obligation to derive benefit and cost estimates (to the fullest extent practicable) attributable to the proposed action.

As previously noted when identifying the significant WTP for preservation, conservation, and recovery of great whales off the Pacific coast of the United States, it is certainly *not* suggested here that an equivalently large portion of the total WTP to protect right whales in the North Pacific is *necessarily* attributable to designation of critical habitat. However, neither is it reasonable to assume that the share of the WTP attributable to designation of critical habitat for this charismatic species approaches *zero.*

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[11] Support for this assertion can be drawn both from accepted economic theory and empirical studies reported in the professional literature. For example, Loomis and White (1996) hypothesize that the values expressed for some charismatic species may often include implicit WTP for the critical components of the habitat that support the survival of such species. Kontoleon and Swanson (2002) build on these arguments, suggesting further that these high profile charismatic species serve as *"flagship species . . . and are leading representatives to human society of the habitats from which they derive."* These authors observe that WTP values may be perceived by those tendering these stated preference amounts as the benefit gained from knowing that the species continues to exist in its natural habitat, relatively undisturbed by human activity.

Area Exclusions Based Upon Economic Impacts

Section 4(b)(2) of the ESA provides that the Secretary may exclude an area from critical habitat designation upon a determination that the benefits of exclusion outweigh the benefits of designation, but only if the exclusion would not result in the extinction of the species. The 'balancing test' provided for in section 4(b)(2) contemplates balancing benefits that are not directly comparable (e.g., the benefit to species conservation, balanced against the economic benefit of alternative uses of the area [i.e., *opportunity costs*], benefit to national security, or other relevant benefit). Section 4(b)(2) does not specify a method for this weighing process, however, agencies are frequently required to balance benefits of regulations against impacts. As previously noted, EO12866 established this requirement for all Federal agencies seeking to promulgate regulation. Ideally, such a balancing would involve, first, translating the benefits and costs into a common metric. Executive branch guidance from the OMB suggests that benefits should first be monetized (i.e., converted into dollars), to the fullest extent that this can be meaningfully done. Benefits that cannot be monetized should be quantified (for example, numbers of sea birds saved). Where benefits can neither be monetized nor quantified, agencies are required to fully describe the expected benefits in qualitative terms (OMB, 2003).

It is possible to monetize benefits of, for example, critical habitat designation for a threatened or endangered species, by means of contingent value methodologies, to obtain expressions of consumers' WTP (OMB, 2003). However, NMFS is not aware of any such peer reviewed and published analysis for right whales at the present time. Some research on this topic is underway in connection with critical habitat designation for the North Atlantic right whale, but results are not expected until, perhaps, 2008 or later. In addition, ESA section 4(b)(2) requires analysis of other than economic impacts, that are equally difficult to monetize, such as benefits to national security of excluding areas from critical habitat designation.

Non-quantitative benefit/cost analyses are anticipated and, indeed, expressly provided for under E.O.12866, consistent with generally accepted economic theory. Non-quantitative elements within benefit/cost analyses are commonplace in NMFS' fishery management and regulatory processes, for example. Individual habitat areas can, in this way, be assessed using both their biological valuation and net economic value, so that areas with relatively high conservation value, but lower net economic value, might be considered to have a higher priority for designation. Areas with a low conservation value, but higher economic value, might have a higher priority for 4(b)(2) exclusion. While this approach can provide useful information to the decision-maker, there is no rigid formula through which this information translates into exclusion decisions. Every geographical area containing habitat eligible for designation is different, with a unique set of "relevant benefit and cost impacts" (i.e., biological, ecological, economic, social, cultural) that may be considered in the inclusion/exclusion process. Regardless of the analytical approach, section 4(b)(2) makes clear that what weight the agency gives various costs, impacts, and benefits, and whether the agency excludes areas from the designation, is *discretionary*.

NMFS has identified two areas for designation that meet the definition of critical habitat for the North Pacific right whale in the North Pacific Ocean. Based upon the best available scientific and commercial information, benefits accrue to society as a result of including these designated areas, as described above. At the same time, the "benefits of exclusion" of any given area of the proposed critical habitat designation for the right whale have been shown to be quite small, approximating "zero" for the private sector of the U.S. economy.

As described above, NMFS has conducted a careful examination of the supporting materials submitted by MMS (and others), accompanying comments pertaining to the earlier revision of the *E. glacialis* critical habitat designation and OCS development. That material suggests that economically and technically recoverable amounts of petroleum may be discovered in the OCS North Aleutian Basin

planning area, but describes the scientific, economic, and technological uncertainty (and procedural complexity) associated with offshore oil and gas development. All pertinent scientific information also suggests that any seismic exploration activity that may occur has an exceedingly small potential to adversely modify critical habitat proposed for the North Pacific right whale *E. japonica.* Thus, NMFS does not anticipate that designation will have any discernable impact on private sector oil and gas activity, and certainly *not* within the time frame of this analysis. NMFS Alaska Region does anticipate a small number of consultations on oil and gas exploration activities during the interval assessed in this analysis, which would principally entail applications for the use of seismic devices to identify and map potential hydrocarbon deposits.

The information submitted by the North Pacific Fishery Management Council for the earlier critical habitat revision, which NMFS relies upon for purposes of this analysis, also confirms that there does not appear to be any potential for commercial fisheries operating within or adjacent to designated areas in the EBS or GOA to destroy or adversely modify that habitat. As a result, no project modifications (private-sector costs) are anticipated for commercial fishing activities.

NMFS Alaska Region anticipates that its Sustainable Fisheries Division will consult with its Protected Resources Division on Federal actions that potentially may affect critical habitat for the North Pacific right whale. Those actions include consultations on both the BSAI and GOA groundfish and crab fisheries at the program level. NMFS may also need to conduct consultations for future Bering Sea Essential Fish Habitat actions, the GOA groundfish rationalization program, and GOA rockfish demonstration project. Steller sea lion protection measures may also change in the future, necessitating consultation on resulting impacts of proposed management actions to protect and conserve this ESA listed species on the proposed North Pacific right whale critical habitat.

NMFS may also consult with EPA on that agency's role in authorizing seafood waste discharges from at-sea processing that may affect the proposed critical habitat for this right whale species. On the basis of the best available information, only minimal consultation costs for DoD activities and USCG oil spill response activities would be avoided by exclusion of any portion of designated critical habitat. While each of these federally approved activities, in the abstract, may affect right whale critical habitat, none is believed to be likely to destroy or adversely modify that habitat and result in any project modifications (i.e., private sector costs).

Attributable agency consultation expenditures account for an extremely small proportion of the Federal government's annual budget and, even for those Federal agencies that will likely undertake additional consultations in connection with North Pacific right whale critical habitat designation, the incremental costs are *de minimus* (owing to the likelihood of there being co-extensive aspects of projected consultation activities associated with this action). Based upon the above information, NMFS could not determine that the benefits of exclusion of any of the areas proposed under the North Pacific right whale critical habitat designation exceed the benefits of inclusion, and has not excluded any areas from the designation.

Net Benefit Conclusion

On the basis of the best available scientific data and economic information, as reflected in the foregoing analysis, NMFS rejected the 'no action' alternative (Alternative 1). The ESA requires NMFS to designate critical habitat, to the maximum extent prudent and determinable, when a species (here, the North Pacific right whale) is listed as endangered or threatened. We have determined that adoption of the no-action alternative would not satisfy the agency's obligations under the ESA.

Likewise, after reviewing Alternative 3, the Center for Biological Diversity proposal, NMFS rejected this alternative, because the petitioned area does not meet the ESA's definition of critical habitat. NMFS determined that the best scientific information available did not support a finding that the physical or biological features essential for conservation of the North Pacific right whale in the North Pacific Ocean are found throughout the entire area identified in CBD's petition. Further, NMFS determined that an area in the GOA, south of Kodiak Island, constituted critical habitat and required designation to meet the objectives of the action. This area of North Pacific right whale critical habitat was not identified in CBD's petition and would not have been designated under Alternative 3 (outlined in CBD's proposal).

It has not been possible to provide quantitative estimates for all the projected benefits and costs that may be uniquely attributable to Alternative 2 (i.e., the "preferred alternative" to designate critical habitat in the North Pacific Ocean for this species of right whale), and the agency could therefore not *quantitatively* determine that expected benefits outweigh expected costs. As required under the ESA, as well as E.O.12866, the foregoing RIR has sought to identify (and, wherever practicable, quantify) benefits and costs attributable to critical habitat designation, not just those that can be readily monetized, or that reflect market-based activities. The costs imposed as a result of this proposed designation have been shown to be small, while some larger benefit accrues to society as a result of designation, including the scientific and educational value derived from identification of the critical habitat areas within which the PCEs are found, and the indirect benefits that designation provides through improved management and oversight opportunities for the whales and the myriad other organisms that inhabit these identified offshore areas. When viewed in this context, the agency determined that the North Pacific right whale critical habitat designation (i.e., Alternative 2) can be expected to result in a net benefit to the Nation.

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A Regulatory Flexibility Act Analysis of North Pacific Right Whale Critical Habitat Designation

The Regulatory Flexibility Act (RFA), first enacted in 1980, was designed to require the government to review all regulations to ensure that, while accomplishing their intended purposes, they do not unduly inhibit the ability of small entities to compete. The RFA recognizes that the size of a business, unit of government, or nonprofit organization frequently has a bearing on its ability to comply with a Federal regulation. Major goals of the RFA are: (1) to increase agency awareness and understanding of the impact of their regulations on small business, (2) to require that agencies communicate and explain their findings to the public, and (3) to encourage agencies to use flexibility and to provide regulatory relief to small entities. The RFA emphasizes predicting impacts on small entities as a group, distinct from other entities, and on the consideration of alternatives that may minimize the impacts on small entities while still achieving the stated objective of the action.

On March 29, 1996, President Clinton signed the Small Business Regulatory Enforcement Fairness Act. Among other things, the new law amended the RFA to allow judicial review of an agency's compliance with the RFA. The 1996 amendments also updated the requirements for a final regulatory flexibility analysis, including a description of the steps an agency must take to minimize the significant economic impact on small entities. Finally, the 1996 amendments expanded the authority of the Chief Counsel for Advocacy of the Small Business Administration (SBA) to file *amicus* briefs in court proceedings involving an agency's violation of the RFA.

In determining the scope, or "universe", of the entities to be considered in a Regulatory Flexibility Act Analysis (RFAA), NMFS generally includes only those small entities that can reasonably be expected to be directly regulated by the proposed action. If the effects of the rule fall primarily on a distinct segment, or portion thereof, of the industry (e.g., user group, gear type, geographic area), that segment would be considered the universe for the purpose of this analysis. NMFS interprets the intent of the RFA to address negative economic impacts, not beneficial impacts, and thus such a focus exists in analyses that are designed to address RFA compliance.

Data on cost structure, affiliation, and operational procedures and strategies in the sectors potentially subject to the proposed regulatory action are insufficient, at present, to permit preparation of a factual basis upon which to certify that the preferred alternative does not have the potential to result in "significant adverse impacts on a substantial number of small entities" (as those terms are defined under RFA). Because it is not possible to certify this outcome for this action based on all available information, a formal Initial Regulatory Flexibility Act analysis (IRFA) has been prepared. This RFA analysis focuses on the complete range of available alternatives (including the "preferred" alternative) proposed for designation of critical habitat for the North Pacific right whale *(Eubalaena japonica)* in the North Pacific Ocean.

The Contents of an FRFA

Under 5 U.S.C., Section 603(b) and (c) of the RFA, each FRFA is required to contain:

- A succinct statement of the need for, and objectives of, the rule;
- A summary of the significant issues raised by the public comments in response to the IRFA, a summary of the assessment of the agency of such issues, and a statement of any changes made in the proposed rule as a result of such comments;
  An estimate of the number of small entities to which the rule will apply or an explanation of why no such estimate is available;

- A description of the projected reporting, recordkeeping and other compliance requirements of the rule, including an estimate of the classes of small entities which will be subject to the requirement and the type of professional skills necessary for preparation of the report or record;

- A description of the steps the agency has taken to minimize the significant economic impact on small entities consistent with the stated objectives of applicable statutes, including a statement of the factual, policy, and legal reasons for selecting the alternatives adopted in the final rule and why each one of the other significant alternatives to the rule considered by the agency which affect the impact on small entities was rejected.

The definition of a small entity

The RFA recognizes and defines three kinds of small entities: (1) small businesses, (2) small non-profit organizations, and (3) and small government jurisdictions.

Small businesses. Section 601(3) of the RFA defines a 'small business' as having the same meaning as 'small business concern,' which is defined under Section 3 of the Small Business Act. 'Small business' or 'small business concern' includes any firm that is independently owned and operated and which is not dominant in its field of operation. The SBA has further defined a "small business concern" as one "organized for profit, with a place of business located in the United States, and which operates primarily within the United States or which makes a significant contribution to the U.S. economy through payment of taxes or use of American products, materials or labor. A (small) business concern may be in the legal form of an individual proprietorship, partnership, limited liability company, corporation, joint venture, association, trust or cooperative, except that where the firm is a joint venture there can be no more than 49 percent participation by foreign business entities in the joint venture."

The SBA has established size criteria for all major industry sectors in the United States, and publishes those on their website. For example, a business involved in fish harvesting is a small business if it is independently owned and operated and not dominant in its field of operation (including its affiliates) and if it has combined annual receipts not in excess of $4.0 million for all its affiliated operations worldwide. Similarly, SBA defines a seafood processor as a small business if it is independently owned and operated, not dominant in its field of operation, and employs 500 or fewer persons on a full-time, part-time, temporary, or other basis, at all its affiliated operations worldwide. A business involved in both the harvesting and processing of seafood products is a small business if it meets the $4.0 million criterion for fish harvesting operations. A wholesale business servicing the fishing industry is a small business if it employs 100 or fewer persons on a full-time, part-time, temporary, or other basis, at all its affiliated operations worldwide.

Another SBA industrial sector size criterion, which may be pertinent to this analysis, is that of the oil and gas extraction sector. The table below includes the categories of firms in the oil and gas extraction sector, as defined by SBA, as well as the specific criterion to be used, for RFAA purposes.

Small Business Size Standards matched to North American Industry Classification System Effective June 21, 2004			
Subsector 211 - Oil and Gas Extraction (employees)			($ million)
211111	Crude Petroleum and Natural Gas Extraction		500
211112	Natural Gas Liquid Extraction		500
Subsector 213 - Support Activities for Mining			
213111	Drilling Oil and Gas Wells		500
213112	Support Activities for Oil and Gas Operations	$6.0	
213113	Support Activities for Coal Mining	$6.0	
213114	Support Activities for Metal Mining	$6.0	
213115	Support Activities for Nonmetallic Minerals (except Fuels)	$6.0	

As indicated, an oil and gas extraction business, or a firm that drills oil and gas wells, is a small business entity if it is independently owned and operated, not dominant in its field of operation, and employs 500 or fewer persons on a full-time, part-time, temporary, or other basis, at all its affiliated operations worldwide. A business involved in oil and gas extraction support activities (except drilling) is a small business if it meets the $6.0 million annual gross receipts criterion, specified for such operations, when all its affiliated operations are included, worldwide.

The SBA has established "principles of affiliation" to determine whether a business concern is "independently owned and operated." In general, business concerns are affiliates of each other when one concern controls or has the power to control the other, or a third party controls or has the power to control both. The SBA considers factors such as ownership, management, previous relationships with or ties to another concern, and contractual relationships, in determining whether affiliation exists. Individuals or firms that have identical or substantially identical business or economic interests, such as family members, persons with common investments, or firms that are economically dependent through contractual or other relationships, are treated as one party with such interests aggregated when measuring the size of the concern in question. The SBA counts the receipts or employees of the concern whose size is at issue and those of all its domestic and foreign affiliates, regardless of whether the affiliates are organized for profit, in determining the concern's size. However, business concerns owned and controlled by Indian Tribes, Alaska Regional or Village Corporations organized pursuant to the Alaska Native Claims Settlement Act (43 U.S.C. 1601), Native Hawaiian Organizations, or Community Development Corporations authorized by 42 U.S.C. 9805 are not considered affiliates of such entities, or with other concerns owned by these entities solely because of their common ownership.

Affiliation may be based on stock ownership when (1) a person is an affiliate of a concern if the person owns or controls, or has the power to control 50 percent or more of its voting stock, or a block of stock which affords control because it is large compared to other outstanding blocks of stock; or (2) if two or more persons each owns, controls or has the power to control less than 50 percent of the voting stock of a concern, with minority holdings that are equal or approximately equal in size, but the aggregate of these minority holdings is large as compared with any other stock holding, each such person is presumed to be an affiliate of the concern.

Affiliation may be based on common management or joint venture arrangements. Affiliation arises where one or more officers, directors, or general partners control the board of directors and/or the management of another concern. Parties to a joint venture also may be affiliates. A contractor and subcontractor are treated as joint venturers if the ostensible subcontractor will perform primary and vital requirements of a contract or if the prime contractor is unusually reliant upon the ostensible subcontractor. All requirements of the contract are considered in reviewing such relationship, including contract management, technical responsibilities, and the percentage of subcontracted work.

Small organizations The RFA defines "small organizations" as any not-for-profit enterprise that is independently owned and operated and is not dominant in its field.

Small governmental jurisdictions The RFA defines small governmental jurisdictions as governments of cities, counties, towns, townships, villages, school districts, or special districts with populations of fewer than 50,000.

Need for, and objectives of the proposed action

The objective of this action is to utilize the best available scientific information, including historical distribution of these animals, feeding and foraging behavior of the species and migratory and aggregation patterns within the EEZ off Alaska to identify primary constituent elements (PCEs) to characterize and, as appropriate, designate critical habitat for this species in this region. This action is proposed under the authority of section 4 of the ESA.

An estimate of any directly regulated small entities under the action

This section summarizes what is known about the potential adverse economic impacts of North Pacific right whale critical habitat designation on directly regulated small entities (if any). Several industry sectors participate in activities that are physically coextensive with the proposed critical habitat designation areas; and some of these may have members that would qualify as "small businesses", within the RFA meaning of that term. There do not appear to be any entities that are directly regulated by the proposed action that would qualify as either "small nonprofit" entities, nor "small government jurisdictions."

Oil and Gas Exploration, Development, and Production

Based upon the PCEs identified for the North Pacific right whale in the eastern North Pacific Ocean off Alaska, it appears that the only directly regulated entities that *may* potentially be adversely impacted by the designation would be businesses that, at some undefined future time, wish to undertake oil and gas exploration, development, and/or commercial production within the boundaries of right whale designated critical habitat. This is the only category of federally regulated entities for which one could reasonably conclude a *possibility* exists to impact the PCEs to the degree that the action would "adversely modify" that habitat. To reach such a finding would require the activity occur in a manner that would cause harm to these zooplankton species to such an extent that they could not support the caloric needs of the North Pacific right whales. NMFS considers this level of harm to be highly unlikely, but nonetheless *potentially* associated with oil and gas exploration and production features (e.g., discharge of drilling mud, well bore cuttings, or production waters carrying hydrocarbons). Should, after consultation on a proposed project, adverse modification of CH be found, the action agency could require measures to avoid this condition, such as changes in the timing or technology of the work.

There is, at this time, some disagreement as to whether even large marine discharges associated with commercial petroleum activities (or oil spills) have a significant potential to impact these PCEs in a manner sufficient to destroy or adversely modify critical habitat. Nonetheless, for purposes of this RFAA it is assumed that (relatively) large discharges, as *may* accompany oil and gas exploration and production, could *potentially* destroy or adverse modify the PCEs identified with right whale critical habitat.

At present, there is no active exploration or production of oil or gas going on within the boundaries of the proposed critical habitat areas, although critical habitat overlays 3 OCS planning areas: St. George Basin, Kodiak, and North Aleutian Basin. Based upon information from the Department of Interior,

MMS Alaska Region website, the table below lists *all* oil and gas lease sales in the OCS management areas off Alaska. As an examination of the data in this table reveals, both of the MMS areas that overlap right whale critical habitat in the Bering Sea have had historical lease sale activity. Kodiak planning area in the GOA has not.

OCS Oil and Gas Lease Sale Summary for Areas Off Alaska

Plan Area	Sale	Date	Leases Issued	Blocks Offered	Acres Offered	Acres Leased	Sum of All Bids Received	Sum of High Bids
Gulf of Alaska	39	4/76	76	189	1,008,499	409,058	571,871,587	559,836,587
Cook Inlet	CI	10/77	87	135	768,580	495,307	400,319,543	398,471,313
Beaufort	BF	12/79	24	46	173,423	85,776	491,728,138	488,691,138
Gulf of Alaska	55	10/80	35	210	1,195,569	199,261	117,550,113	109,751,073
Gulf of Alaska	RS-1	6/81	1	175	996,300	5,693	3,091,738	170,496
Cook Inlet	60	9/81	13	153	858,247	73,157	4,405,899	4,405,899
Cook Inlet	RS-2	8/82	0	140	785,090	0	0	0
Beaufort	71	10/82	121	338	1,825,770	662,860	2,067,604,786	2,055,632,336
Norton Sound	57	3/83	59	418	2,379,751	335,898	325,267,372	317,873,372
St. George	70	4/83	96	479	2,688,787	540,917	427,343,830	426,458,830
Navarin	83	4/84	163	5,036	28,048,995	927,989	631,228,331	516,317,331
Beaufort	87	8/84	227	1,419	7,773,447	1,207,714	871,131,327	866,860,327
Beaufort	97	3/88	202	3,344	18,277,806	1,110,764	115,261,636	115,261,636
Chukchi	109	5/88	350	4,694	25,631,122	1,976,912	478,177,948	478,032,631
North Aleutian	92	10/88	23	990	5,603,586	121,757	95,439,500	95,439,500
Beaufort	124	6/91	57	3,417	18,556,976	277,004	16,807,025	16,807,025
Chukchi	126	8/91	28	3,476	18,987,976	159,213	7,117,304	7,117,304

Beaufort	144	9/96	29	1,364	7,282,795	100,025	14,572,057	14,429,363
Cook Inlet	149	6/97	2	101	427,886	9,766	253,965	253,965
Beaufort	170	8/98	28	203	920,983	86,371	6,239,015	5,327,093
US v. AK*	n/a	6/00	2	9	10,149	10,149	n/a	n/a
Beaufort	186	9/03	34	1806	9,459,743	181,810	10,175,949	8,903,538
Cook Inlet	191	5/04	0	447	2,219,000	0	0	0
Beaufort	195	3/05	117	1728	9,301,423	607,285	46,735,081	46,735,081
Total			**1774**	**30,317**	**165,181,903**	**9,584,686**	**6,692,146,195**	**6,532,775,838**

Source: MMS, Alaska Region. [http://www.mms.gov/alaska/lease/hlease/leasetable.htm]

The following map shows the OCS Oil and Gas Lease Sale Planning Areas, and is taken from the MMS website, referenced immediately above.

The same MMS website, cited above, contains a link to reviews of Alaska Region OCS Planned Oil and Gas Lease Sale Activity. The information reported there states that, at least through May, 2007, there

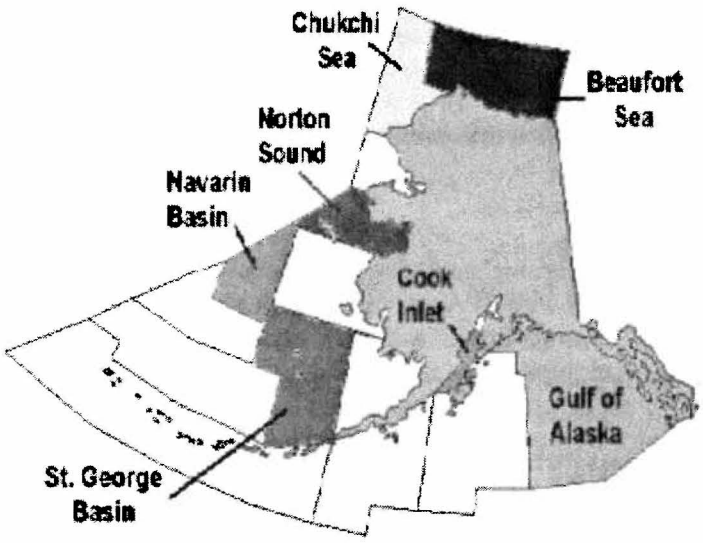
were no planned or scheduled oil or gas lease sales involving any area that overlaps the proposed EBS critical habitat designation. In October 2006, consultations with the Alaska Region of MMS revealed that the draft OCS lease sales plan for 2007 through 2012 includes the North Aleutian Basin among the areas of interest. MMS pointed out that the inclusion of this OCS area was preliminary, would be dependent upon the lifting of the Presidential withdrawal order, and would not be anticipated to be offered for lease sale until 2010, and again in 2012. According to MMS, there was no reliable information at that time as to the probability of a rescission of the Presidential withdrawal of these areas.

In January 2007, it was announced that the OCS Presidential withdrawal of the Bering Sea planning areas had been rescinded, opening the way for a lease sale of the North Aleutian Basin area within the 2007 – 2012 cycle. At this time, it appears that the first opportunity to open this area for bid will be in 2011, as proposed in the draft MMS 2007 OCS plan. This suggests that the list of *potentially* directly regulated entities, referenced below, is likely exhaustive, at least for the foreseeable future.

The MMS website presents the following table and map concerning *actual* exploration and development activity that historically has been conducted in any MMS area off Alaska, including any that are, in whole or in part, co-extensive with, or immediately adjacent to, the proposed critical habitat designation area. The MMS graphic and accompanying table indicate that the *only* MMS oil and gas lease sale planning area that is both co-extensively situated with the proposed critical habitat designation, and has experienced *any* exploratory drilling activity, is St. George Basin.

Within the OCS St. George Basin area, a total of 10 exploratory wells have been drilled. The most recent of these was drilled in March of 1985, with the first of the other nine commencing in September of 1984.

The ten lease holders responsible for this exploration activity include: SHELL Western E&P Inc. [2 wells]; ARCO Alaska Inc. [3 wells]; EXXON Corp. [2 wells]; Mobile Oil Corp. (now merged with EXXON) [1 well]; GULF Oil Corp. [1 well]; and CHEVRON USA Inc. [1 well]. These data were last updated, according to the MMS website, 03/17/2005.



EXPLORATORY DRILLING BY SALE AREA

Area	Wells Drilled
Beaufort Sea	31
Chukchi Sea	4
Norton Sound	6
Navarin Basin	8
St. George Basin	10
Cook Inlet	13
Gulf of Alaska	12
Total	**84**

While empirical data on "numbers of employees" (i.e., SBA's RFAA entity size criterion for this

sector) are not readily available for each of these six firms (five with EXXON-Mobile's merger) identified as having actually drilled exploratory wells on leases in or near the proposed right whale critical habitat in the 1980s, all are well known multinational operations within the oil and gas production sector. On that basis, it seems reasonable to conclude that each has more than 500 employees, when all affiliates, etc., worldwide, are combined, as specified by SBA. On this basis, it would not appear that there are any "small" entities in this sector that will be directly regulated by the critical habitat designation.

Subsequent information provided by MMS during the public comment for the earlier proposed action to revise the critical habitat designation for the northern right whale (*Eubalaena glacialis*) to include critical habitat in the North Pacific revealed recent expressions of interest among several oil and gas industry firms in having the North Aleutian Basin OCS area made available in the 2007-2012 Lease Sale Program. As explained at length in the RIR, rescission of the Presidential withdrawal authorizes the opening of this area to development in the 2007-2012 five-year cycle. The same group of oil companies identified above would be expected to be those participating in bidding, at such time as the area becomes available (circa 2011). None meets the threshold for "small entities", as defined by SBA for this industrial sector.

Commercial Fishing

The probability that *any* commercial fishing activity that occurs (or, is expected to occur) in the proposed critical habitat areas, has the potential of "destroying or adversely modifying" critical habitat, asymptotically approaches zero. It appears equally *improbable* that the critical habitat designation will have a significant adverse economic impact on a substantial number of directly regulated small entities in the commercial fishing sector of the economy.

While this conclusion cannot be quantitatively demonstrated, because of the uncertainty concerning future actions and events, all of the available science, management, and fisheries information points to this result. Expressed another way, the best available information concerning the PCEs associated with North Pacific right whale proposed critical habitat designation supports the conclusion that commercial fisheries in the eastern North Pacific Ocean and Bering Sea have no capacity to adversely modify or destroy the proposed critical habitat. It follows then that, while NMFS expects to consult on a number of fishery related proposed actions, annually, none of these consultations would be expected to result in a finding of "adverse modification," and, thus, none would result in imposition of costs on commercial fishery participants (whether small or large entities) in association with critical habitat designation. (See the discussion in the RIR for details on the commercial fishing sectors).

Other Activities with a Federal Nexus

The same logic, producing a similar conclusion concerning small entity impacts, would be expected to accompany the anticipated consultations with EPA on seafood processing waste discharges at-sea; DoD authorized military "underway training" activities; and U.S. Coast Guard oil spill response plan approval. Specifically, these actions are unlikely to result in an "adverse modification" finding and, thus, no mandatory modifications would be imposed. It must follow then that no "costs" are imposed, beyond those attributable to inter-agency (occasionally intra-agency) consultation. These costs, while representing "opportunity costs" for the agencies that participate in the consultation, impose no attributable costs on small entities. (See the discussion in the RIR for a detailed treatment of activities that are federally authorize, fund, or otherwise carry out in or adjacent to the proposed North Pacific right whale critical habitat areas, which may lead to consultations).

Reporting, record keeping, and other compliance requirements

The proposed action to designate critical habitat for the North Pacific right whale in the eastern North Pacific and Bering Sea contains no new reporting or record keeping requirements.

A description and analysis of any significant alternatives to the proposed action [i.e., to the preferred alternative] that would accomplish the stated objective of the ESA and any other applicable statutes and that would minimize any significant economic impact on small entities.

As noted above, NMFS initially considered the proposal for critical habitat designation offered by the Center for Biological Diversity in its "Petition to Revise the Critical Habitat Designation for the Northern Right Whale (*Eubalaena Glacialis)* Under the Endangered Species Act", submitted to NMFS on October 4, 2000. The Center proposed designation of a large area in the "middle shelf and inner front regions of the southeast Bering Sea." NMFS rejected this alternative as being inconsistent with the Endangered Species Act's definition of "critical habitat", because the best scientific information available did not support a finding that the physical or biological features essential for conservation of the right whale are found throughout the area identified in the petition. As explained above, the recent revision of critical habitat in the North Pacific for the northern right whale focuses on the same critical habitat areas now proposed by NMFS for the North Pacific right whale, which NMFS has proposed to list as a separate species from the North Atlantic right whale. As a result, NMFS again analyzed CBD's proposal as an alternative to this proposed action. NMFS rejected this alternative for the reasons provided above for rejecting the alternative in the context of the earlier critical habitat revision for the northern right whale.

Retention of the "no action" alternative is not a viable choice for several reasons. First, retention of the status quo would not be consistent with the objectives identified by the agency for this action (see the 'Purpose and Need' discussion in the RIR). Second, adoption of the no action alternative would be contrary to the agency's obligations under the ESA. Finally, because the preferred alternative does not likely have the potential to have a significant adverse economic impact on a substantial number of small entities, the status quo/no action alternative cannot result in a *smaller* burden, and could conceivably impose a greater burden, if selected (i.e., would not "minimize adverse impacts", as required under RFA).

After careful examination of the best available scientific data on North Pacific right whale needs, historic range, current population dynamics, and dependency upon and interaction with their habitat, NMFS determined that *only* the "preferred alternative" has the potential to accomplish the stated objectives and legal mandates associated with critical habitat designation for this species, while minimizing the potential adverse economic impacts on directly regulated small entities. Furthermore, while designation is expected to result in a number of additional consultations for activities that may affect critical habitat, none of the human activities with a Federal nexus that occur in, or adjacent to, these critical habitat areas is *expected* to result in a finding of 'may destroy or adversely modify' this critical habitat (i.e., the probability, while not zero, is believed to be very near zero).

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