the owner or operator shall maintain records of the monitoring device and records of all periods during which the pressure in the unit is operated at a pressure that is equal to or greater than atmospheric pressure.

* * * * *

16. Section 61.357 is amended by revising paragraphs (a) introductory text and (a)(4); by adding a new sentence at the end of paragraph (c) and a new sentence at the end of paragraph (d)(2); by removing paragraph (d)(4); by redesignating paragraph (d)(3) as (d)(4); by adding paragraph (d)(3); by redesignating paragraphs (d)(5), (d)(6) and (d)(7) as (d)(6), (d)(7) and (d)(8) respectively; by redesignating the newly redesignated paragraph (d)(7)(iii) as (d)(7)(iv); by adding paragraphs (d)(5), (d)(7)(iii), (d)(7)(iv)(J) and (d)(7)(V); and by revising paragraph (d)(1), the newly redesignated paragraphs (d)(4)(iii), (d)(7)(iv)(D) and (d)(8) to read as follows:

§61.357 Reporting requirements.

(a) Each owner or operator of a chemical plant, petroleum refinery, coke by-product recovery plant, and any facility managing wastes from these industries shall submit to the Administrator within 90 days after January 7, 1993, or by the initial startup for a new source with an initial startup after the effective date, a report that summarizes the regulatory status of each waste stream subject to § 61.342 and is determined by the procedures specified in § 61.355(c) to contain benzene. Each owner or operator subject to this subpart who has no benzene onsite in wastes, products, by-products, or intermediates shall submit an initial report that is a statement to this effect. For all other owners or operators subject to this subpart, the report shall include the following information:

* * * * *

(4) The information required in paragraphs (a) (1), (2), and (3) of this section should represent the waste stream characteristics based on current configuration and operating conditions. An owner or operator only needs to list in the report those waste streams that contact materials containing benzene. The report does not need to include a description of the controls to be installed to comply with the standard or other information required in § 61.10(a).

* * * * *

(c) * * * If the information in the annual report required by paragraphs (a)(1) through (a)(3) of this section is not changed in the following year, the owner or operator may submit a statement to that effect.

(d) * * *

(1) Within 90 days after January 7, 1993, unless a waiver of compliance under § 61.11 of this part is granted, or by the date of initial startup for a new source with an initial startup after the effective date, a certification that the equipment necessary to comply with these standards has been installed and that the required initial inspections or tests have been carried out in accordance with this subpart. If a waiver of compliance is granted under § 61.11, the certification of equipment necessary to comply with these standards shall be submitted by the date the waiver of compliance expires.

(2) * * * If the information in the annual report required by paragraphs (a)(1) through (a)(3) of this section is not changed in the following year, the owner or operator may submit a statement to that effect.

(3) If an owner or operator elects to comply with the requirements of § 61.342(c)(3)(ii), then the report required by paragraph (d)(2) of this section shall include a table identifying each waste stream chosen for exemption and the total annual benzene quantity in these exempted streams.

(4) * * *

(iii) For each process wastewater stream identified as being controlled for benzene emissions in accordance with the requirements of this subpart, the table shall report the following information for the process wastewater stream as determined at the exit to the treatment process: Annual waste quantity, range of benzene concentrations, annual average flow-weighted benzene concentration, and annual benzene quantity.

(5) If an owner or operator elects to comply with the alternative requirements of § 61.342(e), then the report required by paragraph (d)(2) of this section shall include a table presenting the following information for each waste stream:

(i) For each waste stream identified as not being controlled for benzene emissions in accordance with the requirements of this subpart; the table shall report the following information for the waste stream as determined at the point of waste generation: annual waste quantity, range of benzene concentrations, annual average flow-weighted benzene concentration, and annual benzene quantity;

(ii) For each waste stream identified as being controlled for benzene emissions in accordance with the requirements of this subpart; the table shall report the following information for the waste stream as determined at the applicable location described in § 61.355(k)(2): Annual waste quantity, range of benzene concentrations, annual average flow-weighted benzene concentration, and annual benzene quantity

* * * * *

(7) * * *

(iii) If a treatment process or wastewater treatment system unit is monitored in accordance with § 61.354(b), then each period of operation during which the flow-weighted annual average concentration of benzene in the monitored waste stream entering the unit is equal to or greater than 10 ppmw and/or the total annual benzene quantity is equal to or greater than 1.0 mg/yr.

(iv) * * *

(D) Each 3-hour period of operation during which the average concentration of organics or the average concentration of benzene in the exhaust gases from a carbon adsorber, condenser, or other vapor recovery system is more than 20 percent greater than the design concentration level of organics or benzene in the exhaust gas.

* * * * *

(J) Each 3-hour period of operation during which the parameters monitored are outside the range of values specified in § 61.349(a)(2)(iv)(C), or any other periods specified by the Administrator for a control device subject to the requirements of § 61.349(a)(2)(iv).

(v) For a cover and closed-vent system monitored in accordance with § 61.354(g), the owner or operator shall submit a report quarterly to the Administrator that identifies any period in which the pressure in the waste management unit is equal to or greater than atmospheric pressure.

(8) Beginning one year after the date that the equipment necessary to comply with these standards has been certified in accordance with paragraph (d)(1) of this section, the owner or operator shall submit annually to the Administrator a report that summarizes all inspections required by §§ 61.342 through 61.354 during which detectable emissions are measured or a problem (such as a broken seal, gap or other problem) that could result in benzone emissions is identified, including information about the repairs or corrective action taken.

* * * * *

§ 61.359 [Removed]

17. Section 61.359 is removed and reserved.

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Part III

Department of Commerce

National Oceanic and Atmospheric Administration

50 CFR Part 227

Threatened Fish and Wildlife; Listing of the Gulf of Maine Population of Harbor Porpoise as Threatened; Proposed Rule

Endangered Fish and Wildlife: Gray Whale; and Listing Endangered and Threatened Species: Northern Offshore Spotted Dolphin; Notices

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 227

[Docket No. 921232-2332]

Threatened Fish and Wildlife; Listing of the Gulf of Maine Population of Harbor Porpoise as Threatened under the Endangered Species Act (ESA)

AGENCY: National Marine Fisheries Service (NMFS), NOAA, Commerce.

ACTION: Proposed rule.

SUMMARY: NMFS was petitioned to list the Gulf of Maine (GME) population of harbor porpoise as threatened under the ESA due, primarily, to the level of incidental bycatch of harbor porpoise in the GME sink-gillnet fishery. The best available scientific information indicates that the incidental bycatch of harbor porpoise in this fishery is unsustainable. Furthermore, regulations or other provisions to reduce or limit the level of incidental bycatch by this fishery do not exist. Based on this information, and the criteria established by the ESA, NMFS has determined that the petitioned action is warranted. NMFS, therefore, proposes that the GME harbor porpoise population be listed as threatened under the ESA. The GME population includes all harbor porpoise whose range extends throughout waters of eastern North America from (and including) the Bay of Fundy (BOF), Nova Scotia south to eastern Florida.

DATES: Comments and information must be received by April 7, 1993. Requests for public hearings must be received by February 22, 1993.

ADDRESSES: Comments should be addressed to the Director, Office of Protected Resources, National Marine Fisheries Service, 1335 East-West Highway, Silver Spring, MD 20910.

FOR FURTHER INFORMATION CONTACT: Michael Payne, NOAA/NMFS, Office of Protected Resources, 1335 East-West Highway, Silver Spring, MD 20910 (303/713-2322).

SUPPLEMENTARY INFORMATION:

Background

The GME is bounded on the west by the coastline of the northeastern United States, and on the northeast by the Bay of Fundy (BOF) and Nova Scotia, Canada. There has been incidental catch of harbor porpoise in GME gillnet fisheries for a number of years. Gilbert and Wynne (1983, 1984, 1985, 1988) provided early reports regarding the incidental take of harbor porpoise and other marine mammals. Because of the bycatch of harbor porpoise, the multispecies sink-gillnet fishery in the GME (and adjacent waters) was classified as a Category I fishery under section 114 of the Marine Mammal Protection Act (MMPA) (54 FR 16072, April 20, 1989). Under the 1988 amendments to the MMPA a Category I fishery involves "frequent incidental takes of marine mammals." To determine the extent of the harbor porpoise bycatch by the sink-gillnet fishery in the GME, NMFS initiated an observer program in August 1989 (Payne, Power and Yustin 1990; Power and Drew 1991). NMFS has also conducted field studies to determine the best methods to assess the abundance of GME harbor porpoise (Polacheck and Thorpe 1990; Polacheck 1991a, 1991b; Polacheck and Smith 1989).

Harbor porpoise bycatch data collected by observers between August 1989 and July 1990 were reported at a NMFS/International Whaling Commission (IWC) workshop, October 22-25, 1990 (IWC 1991). The data indicated that the rate of harbor porpoise bycatch in the gillnet fishery was large relative to available estimates of harbor porpoise abundance in the GMW. On February 12, 1991, NMFS announced that a status review of harbor porpoise throughout their North American range would be conducted and requested information pertaining to the species (56 FR 5684).

On September 18, 1991, NMFS received a petition from the Sierra Club Legal Defense Fund on behalf of the International Wildlife Coalition and 12 other organizations to list the GME harbor porpoise population as "threatened" under the ESA. NMFS determined that the petition presented substantial information that the petitioned action may be warranted (56 FR 65044, Dec. 13, 1991). To ensure that the status review was comprehensive and based on the best available scientific data, NMFS again solicited information and comments regarding the status of the harbor porpoise, this time focusing only on the GME. This review was conducted in conjunction with the status review initiated by NMFS on February 12, 1991. Comments regarding the petition were accepted by NMFS until February 11, 1992.

NMFS convened a workshop on May 5-8, 1992, to evaluate the status of the GME harbor porpoise and adjacent populations (as described in Gaskin 1984) in eastern North America (NMFS 1992a). Information was reviewed on population structure, reproductive rates, population size, and levels of bycatch for each of the populations considered. Workshop participants reached conclusions regarding the status of harbor porpoise populations in eastern North America based on information pertaining to: (1) Removals relative to population size; (2) adequacy of existing regulations; and (3) the ecological role of the species in the GME. The information received during the comment periods mentioned above, and the results of the harbor porpoise workshop, provided the scientific information necessary to complete the status review (NMFS 1992a) and respond to the petition.

Comments Received

NMFS received comments on both the February 12, 1991, notice initiating a status review of harbor porpoise throughout U.S. waters, and the December 13, 1991, notice of receipt of the petition to list the harbor porpoise in the GME as threatened under the ESA. NMFS received information regarding the status of the harbor porpoise in the GME and BOF regions from individuals at the following organizations: National Fisheries Institute, Washington, DC; New England Aquarium, Boston, Mass; members of the New England Harbor Porpoise Working Group; Manomet Bird Observatory, Marine Mammal and Seabird Studies, Manomet, Mass; Center for Marine Conservation, Washington, DC; New England Gillnetters Association, Marshfield, Mass; Marine Gillnetters Association, Stonington, Maine; South Carolina Association for Marine Mammal Protection, Myrtle Beach SC; International Wildlife Coalition, N. Falmouth, Mass.; Woods Hole Oceanographic Institute, Woods Hole, Mass.; Center for Coastal Studies, Provincetown, Mass; National Aquarium in Baltimore, Md.; South Shore Gillnetters Association, Norwell, Mass.; and New Hampshire Commercial Fishermens Association, Rye, NH.

Comment: One comment referred to the petition as inappropriate in light of the most recent data on harbor porpoise abundance estimates released by NMFS (the abundance estimates available in Smith *et al.* (1991)).

Response: The comment cited only the preliminary abundance estimate, which was a result of analyses of sighting data from the 1991 harbor porpoise surveys (see Listing Procedures: B in this preamble). However, the commenter did not consider the revised estimate of incidental take, which was also discussed in Smith *et al.* (1991). Both of these estimates were greater than the earlier estimates that were cited in the petition, and both were considered preliminary. The ratio of the estimated incidental take to estimated population size used in this proposed rule (at NMFS 1992a) supports NMFS' determination that the petition is warranted (see Listing Procedures: B in this preamble).

Comment: One commenter asserted that the primary basis for the petition "is the alarming level of fishery kill to which the Gulf of Maine/Bay of Fundy population is subject." The commenter went on to note that the petition arrived at a figure of 1,530 harbor porpoise killed annually incidental to gillnet fishing in the GME. This figure was based on a study that included interviewing fishermen in 1987 to determine the average annual kill per boat. This figure was then multiplied by the number of vessels registered in the sink-gillnet fishery as part of the Interim Exemption for Commercial Fisheries. Although the exact number of active (as opposed to registered) gillnetters is not known, the commenter suggested that the level of effort was overestimated and that the estimate of bycatch was overestimated as well.

Response: NMFS was required to determine whether the petition presented substantial information indicating that listing may be warranted prior to the analyses of sighting data collected during the dedicated harbor porpoise survey conducted in the summer of 1991. Analyses of the data from these surveys have resulted in the best available estimate of harbor porpoise abundance in the GME (NMFS 1992a). The population estimates used in the petition ranged from approximately 3,000 to 15,000 (estimates from Gaskin *et al.* 1985; and Kraus, Gilbert and Prescott 1983). These estimates were considered by many likely to underestimate the true abundance of harbor porpoise in the GME to some unknown degree.

The petition also preceded the completion of analyses on the level of bycatch of harbor porpoise associated with gillnets in the sink-gillnet fishery. The mortality considered by the petitioners ranged from 280–800 per year (from Polacheck 1989) to approximately 1,000 per year (from Kraus 1990). The bycatch estimate used by the petitioners was based, at least in part, on the 1989–1990 data collected during a systematic observer program initiated by NMFS to determine the number of harbor porpoise taken in the GME.

Comment: Several comments addressed the issue of fishing effort as it relates to a bycatch estimator. The commenters maintained that total bycatch cannot be estimated by extrapolation using the estimates of total effort due to the seasonality of the fishery or biases in the database. One commenter suggested that the estimate of fishing effort used by the petitioners to extrapolate a total kill was too large.

Another commenter focused on trends in the gillnet fishery effort. The petition stated that "recent trends in fishery effort suggest that these numbers cannot be expected to slacken off anytime in the near future." The commenter replied that this is not true, and cited the development of a groundfish management plan by the New England Fishery Management Council (NEFMC) which may propose a 50-percent reduction in fishing effort in the GME. Therefore, the commenter continued, in 1992 there will likely be a marked decrease in gillnetting effort due to the effort reduction plans.

Response: Most gillnet fishery effort is recorded in a NEFSC weighout database, and several measures of fishing effort that can be used for estimating total bycatch of harbor porpoise are included in the database. The petitioners used the number of days fished (trip-based estimator) to determine fishing effort. There are, however, as mentioned by the commenters biases inherent in the weighout data (Bisack and Dinardo 1991; Bisack 1992b) which affect this estimator. these biases were addressed at the Thirteenth Northeast Regional stock Assessment Workshop (NMFS 1992b). Based on discussion at the Stock Assessment Workshop, Bisack (1992a) considered two effort estimators from the weighout database, trips (days absent) and landings (bycatch per total fish landed), to calculate estimates of harbor porpoise bycatch in the GME (see Listing Procedures: B in this preamble). NMFS concluded that total landings in the sink-gillnet fishery are more completely and accurately monitored than is fishing effort based on trips (the number of days absent) (NMFS 1992b), and is therefore a better indicator of effort than that used by the petitioners.

Several management plans are being considered that may decrease overall fishing effort throughout the GME in an attempt to rebuild selected fish stocks. At this time it is not known what plan may be implemented, or to what extent any plan will impact the gillnet fishery, or how it might result in a shift of the gillnet effort into other portions of the harbor porpoise range. It is also not clear whether measures used to reduce fishery effort in an attempt to rebuild fish stocks will also reduce the bycatch of harbor porpoise in the GME. Therefore, given the best information available at this time, it is not reasonable to predict the level of effort that will occur in the GME during the next few years, or the effect any plan will have on the bycatch of harbor porpoise.

Comment: Several commenters mentioned and supported the activities of the Harbor Porpoise Working Group, which has been meeting regularly since 1990. the group membership consists of gillnet fishermen throughout New England coastal states, NMFS and NEFMC representatives, environmental organizations, and several biologists from non-governmental organizations who have studied the biology and fishery-interaction issues of harbor porpoise throughout the GME and BOF areas. This group has made an effort to encompass all concerned parties. The group has been working to provide accurate information for the NMFS status review, and workable solutions to the problem of harbor porpoise incidental take in GME gillnets.

Response: NMFS supports the activities of the working group and has been an active participant. NMFS has used the working group meetings as a forum to discuss all issues related to harbor porpoise and the sink-gillnet fishery in the GME.

Determination of "Species" under the ESA

To consider the GME harbor porpoise population for listing, it must qualify as a "species" under the ESA. Section 3(15) of the ESA defines "species" to include "any subspecies of fish or wildlife or plants, and any distinct population segment of any species of vertebrate fish or wildlife which interbreeds when mature." Although this definition of "species" under the ESA is in part a legal interpretation, species and populations are biological concepts that must be defined on the basis of the best scientific data available (NMFS has adopted a policy to determine whether stocks of Pacific salmon can be considered a species under the ESA (described at 56 FR 58612, Nov. 20, 1991 and at Waples 1991). However this policy was specific to Pacific salmon and not of general applicability to other species. NMFS has not adopted a similar policy for marine mammals).

NMFS uses all available lines of evidence regarding the population structure of harbor porpoise in the western North Atlantic, recognizing the limitations of each and taking advantage of the complementary nature of the different types of information. Some of the factors which have been used in making population determinations are distribution and migration patterns; isolation at the time of reproductive activity; potential geographical and oceanographic barriers (e.g. broad stretches of open ocean) which may limit genetic exchange; the distribution of known prey; and pollutant and parasite loads (Gaskin 1984; Dizon *et al.* 1992).

Based on the best available information, NMFS issues this proposed determination that the GME harbor porpoise population qualifies as a "species" as defined by the ESA and is, therefore, eligible for listing as threatened. The bases for this determination are provided below.

Distribution of Harbor Porpoise in the North Atlantic

The harbor porpoise is confined to the Northern Hemisphere, and Gaskin (1984) suggested that there were three isolated, populations: (1) A North Pacific population; (2) a Black Sea-Sea of Azov population; and (3) a North Atlantic population. Yurick and Gaskin (1977) presented evidence for western and eastern regional populations of harbor porpoise in the North Atlantic, and Gaskin (1984) suggested that smaller, functional population units occur within each of these regions. Gaskin (1984) divided the western North Atlantic region into the following four populations: (1) West Greenland; (2) Eastern Newfoundland-Western Davis Strait; (3) St. Lawrence Estuary; and (4) Southern Nova Scotia-North Carolina.

The largest concentrations of the Southern Nova Scotia-North Carolina population occur during summer in the BOF and the northern GME. The petitioner referred to this population as the Gulf of Maine/Bay of Fundy, or more simply, the Gulf of Maine population. NMFS will use the petitioner's language and refer to harbor porpoise that occur throughout waters of eastern North America from (and including) the Bay of Fundy (BOF), Nova Scotia south to eastern Florida, but whose greatest concentrations occur in the GME and BOF, as the "GME" population.

Seasonal Distribution of the GME Population of Harbor Porpoise

Available sighting data indicate that GME harbor porpoise are highly mobile, with strong seasonal north/south movements throughout shelf waters of the BOF and the northeastern United States (CeTAP 1982; Payne, Power and Yustin 1990).

The greatest density of harbor porpoise occurs during late summer in a "high-density" area north of 43°N. latitude in the northern GME/BOF. Between the putative GME population and the adjacent populations of porpoise, there is a distinct density gradient during later summer which decreases rapidly from the high-density areas of the northern GME and BOF to near-zero density around the southern tip of Nova Scotia north to Cape Breton, Nova Scotia.

By late autumn, most harbor porpoise in this population migrate south from the BOF towards the lower GME. The winter distribution of the GME population of harbor porpoise is poorly known. There are records of winter strandings from New England to Cape Hatteras, and rarely to Florida (Polacheck and Wenzel 1990). Limited sighting and bycatch data also indicate a population that is dispersed in shelf waters south to at least North Carolina. Although strandings occur south of Cape Hatteras during winter, the available information indicates that the southern limit to large concentrations of harbor porpoise is Cape Hatteras, North Carolina.

The number of harbor porpoise sightings in the southern GME increases in spring (CeTAP 1982). Sightings between April and June in the southern GME indicate that the animals are moving in a northerly direction—further evidence that a large percentage of the GME population winters south of the GME. The distribution of porpoise sightings shifts from the southern GME in spring, to the northern GME/BOF by mid- to late summer (CeTAP 1982).

Evidence of Reproductive Isolation

Periods of reproductive activity for cetacea species can be inferred, generally, from direct observations of mating behavior, from the distribution of the annual peak of births, and from studies of the state of the testes of adult males (Gaskin *et al.* 1984). Throughout the North Atlantic, harbor porpoise mate and give birth from May to August (Fisher and Harrison 1970; Harrison 1970; Gaskin *et al.*, 1984; Read 1990a). Evidence that the reproductive activity in the GME is seasonal and does not occur during other periods of the year was provided by Gaskin *et al.* (1984), who demonstrated that seminiferous tubule diameter and the percentage of tubules containing sperm declined between July and September. This indicates a seasonal cycle of spermatogenesis in the GME, and agrees with data presented by Fisher and Harrison (1970), who concluded that testicular activity in North Atlantic harbor porpoise increased from May onwards (reaching a peak in the latter half of July), and then decreased dramatically by mid-August. Decreasing testicular volume from July through September was considered further evidence of the existence of an annual reproductive cycle in the male harbor porpoise (Gaskin *et al.*, 1984). Female harbor porpoise also display significant reproductive seasonality in the timing of ovulation (late June through early August) (Read 1990a). Generally, therefore, peak reproduction activity (and genetic exchange) does not occur outside the summer range of the harbor porpoise, where populations are most discrete.

The summer arrival times within all of the four proposed populations in the western North Atlantic coincide closely with each other (mother-calf pairs begin to arrive in the BOF coastal waters in June, or rarely in late May). This also indicates that, while more than one population of harbor porpoise may occur seasonally in the GME, the likelihood of these populations mixing during the period of greatest reproductive activity is thought to be very low, and supports the population structure in the western North Atlantic characterized by Gaskin (1984).

Each of these population concentrations has large areas of zero or near-zero harbor porpoise density between them at this time of the year. Although these "density troughs" (Dizon *et al.*, 1992) imply a high degree of segregation and an extremely limited exchange rate, it cannot be ruled out that some interchange may occur, and this population cannot be considered completely allopatric. However, reproductive isolation does not have to be absolute for a population to be considered distinct (FR 56 58612, Nov. 20, 1991). Considering (1) the limited seasonality of peak reproductive activity, and (2) the average distance and "density troughs" that segregate the northwest Atlantic into obvious, discrete reproductive groupings during peak reproductive activity, the degree of genetic exchange between the harbor porpoise population in the GME, and adjacent populations, is considered to be minimal.

Evidence of Site-Fidelity (Population) Between Years

Gaskin, Smith and Watson (1975), Read and Gaskin (1985) and Gaskin *et al.* (1985) found no evidence that harbor porpoise caught and radio-tagged in the western BOF range into adjacent waters (such as the GME and southwest Nova Scotia) during the summer months. Gaskin and Watson (1985) determined that recognizable animals returned each year to re-establish "specific ranges in virtually the same locations in the western BOF each summer."

Those authors were able to resight individual animals during the summers of 1973–1975 and in 1977. Gaskin and Watson (1985) suggested that possible "home-ranges" in harbor porpoise should not be surprising. Similar patterns, although sometimes on very different geographical scales, have been recorded for other species of small cetaceans.

It is also worth noting that three recognizably marked females studied by Watson (1976) in the Fish Harbour region (western BOF) not only returned several years in succession (3 years, 2 years and 2 years), but in each year had newborn calves with them.

These demonstrated "specific ranges" and annual returns by individual harbor porpoises in the BOF further suggest geographic isolation (therefore reproductive isolation) between the GME population and other porpoise in the western North Atlantic during the peak reproductive season.

Population Response Data

A self-sustained population's life histories may be modified through density-dependent responses to over-exploitation. Such responses have been used to distinguish populations. Read and Gaskin (1988) demonstrated significant differences between the frequency distribution of body lengths of porpoises retrieved from gillnets during 1981–1986, and of porpoises collected in 1969–1973 by Smith *et al.* (1983). The observed changes had two main components: An increase in the length of calves from the earlier collection to the 1980s, and an absence of large animals during the 1980s. The increased mean calf length could have been caused by increased prey resources, concomitant with a decline in local density, allowing females to invest more energy in their offspring during pregnancy and/or lactation, resulting in larger calves. The authors concluded that the observed differences between the gillnet samples in the 1980s and samples collected from 1969–1973 reflected real changes in body size that have occurred in the population between the sampling periods. The authors further suggested that sustained incidental mortality from gillnets makes it unlikely that porpoises lived long enough to reach large sizes, and population resilience to exploitation is limited (female harbor porpoise in the 1969–1973 sample reached sexual maturity at age 4, and few animals lived more than 7 years, Gaskin and Blair 1977).

It was recognized by Read and Gaskin (1988) that gillnets possibly catch certain size classes of porpoises and do not catch small or large animals. Therefore Read and Gaskin also examined a small sample of porpoise caught in herring weirs during the two different time periods. The frequency distributions of body length of porpoises captured in herring weirs in 1981–1986 and in 1969–1973 were also significantly different, further suggesting that the differences observed in samples from the gillnets reflected real changes in the population.

The May 1992 harbor porpoise assessment workshop discussed these data and suggested that harbor porpoise abundance in the BOF could have been reduced by incidental catches, or other factors, leading to an increased per-capita food consumption (as suggested by Read and Gaskin 1988); or that changes in prey biomass may have led to an increase in per-capita food consumption, regardless of the trajectory of the porpoise population.

Contaminants

Nearshore marine mammals such as pinniped and small cetaceans are long-lived and feed high on the food chain; therefore they tend to accumulate chlorinated hydrocarbons in their blubber layers which serve as stable repositories for these lipophilic contaminants (Calambokidis and Barlow 1991). As such, pollutant ratios in the blubber of coastal marine mammals are useful as indicators of population or regional discreteness, and useful in evaluating the extent of movement and interchange between regions.

Calambokidis and Barlow (1991) found very strong pollutant ratio gradients with latitude in harbor porpoise from the west coast of the United States. Because chlorinated hydrocarbons accumulate over long periods of time (the entire lifespan of male harbor porpoise), the authors inferred, based on the significant differences in levels of pollutants in the blubber samples by region, that most harbor porpoises remain in a region for extended periods, if not most of their lives. This implies long-term geographical and genetic isolation from other porpoise from other regions. If the population(s) were panmictic (randomly mixed), homogeneous pollutant ratios between samples from all areas should exist.

Gaskin (1984) used the lack of any significant differences in mercury and polychlorinated biphenyl levels in animals from different parts of the GME and BOF (data at Gaskin 1982; Gaskin, Frank and Holdrinet 1983), combined with data on the migration patterns and movements of radio-tagged porpoise in the BOF, to suggest that the harbor porpoise from the BOF, south into U.S. waters, represented a single, functional population unit.

Genotypic Data

Evidence obtained from genetic methods is often considered by resource managers as the most unequivocal means for differentiating species and their intraspecific population structure. The mitochondrial genome (mtDNA) exhibits several features that make it particularly useful for comparing closely related taxa: (1) It is inherited maternally (Brown, George and Wilson 1979) and does not undergo recombination during replication, thus allowing for clearer inferences of phylogenetic relationships; (2) the lack of recombination allows mtDNA genotypes to persist through generations without disruption; and (3) mtDNA evolves faster than nuclear DNA (Brown, George and Wilson 1979), which means that differences among local populations leading to population differentiation will accumulate more rapidly, allowing for higher resolution in the differentiation of recently diverged taxa. These features have made the analysis of mtDNA, through DNA sequencing and restriction fragment length polymorphism (RFLP) studies, a powerful tool for determining patterns of geographic variation in natural populations (Advise *et al.* 1987; Slatkin and Maddison 1989; Stoneking *et al.* 1990; Thomas *et al.* 1990).

Recent comparisons of the mtDNA of harbor porpoise from different areas were presented at the May 1992 workshop. Rosel (1992) presented the results of sequencing the mtDNA from samples taken from the eastern and western North Atlantic. This analysis could not detect population differentiation between eastern and western North Atlantic populations. Wang, Gaskin and White (1992) presented preliminary results from RFLP analysis to assess the levels of mtDNA differentiation between three of the putative populations (eastern Newfoundland, Gulf of St. Lawrence, and the GME) in the western North Atlantic. The amount of genetic diversity found within each of the populations was greater than that found between populations (i.e. the analyses did not detect differences between the putative populations). Thus, results of genetic analyses obtained thus far do not support reproductive isolation between the population structure proposed by Gaskin (1984).

Due to limitations in the interpretation of the genetic analyses, however, the inability to detect genetic differences among these groups does not rule out the possibility that they are distinct populations. Where genetic barriers are "leaky" (no more than a few individuals per generation) mtDNA genomes can rapidly penetrate neighboring populations, independent of the adaptive chromosomal genome (Ferris *et al.* 1983). These mtDNA genomes are considered neutral, and not selectively removed from the population. The presence of these foreign genomes may argue for the presence of "homogenizing" gene flow and lumping the separate population as one stock, when they may be separate stocks.

Dowling *et al.* (1992) further stated that the failure to find diagnostic molecular charactistics among distinct forms does not necessarily imply conspecificity, but rather indicates that the available genetic data (typically representing only a small fraction of the genome) do not allow rejection of the null hypothesis (i.e., no difference). Read (at the May 1992 workshop) noted that a preliminary study using protein electrophoresis failed to differentiate *P. phocoena* from *P. spinipinnis*. Speciation could conceivably result from very few genetic changes (or even one); therefore, levels of genetic divergence alone are not valid measures of specific status. Dowling *et al.* (1992) further suggested that it is important to realize that two adjacent forms (or, in this case, populations of harbor porpoise) should not be discriminated against because of their lack of genetic "purity." The dismissal of distinct entities (i.e., forms, or populations) due solely to lack of "purity" or apparent lack of genetic devergence is unacceptable (Dowling *et al.* 1992).

Dizon *et al.* (1992) described four operational categories of populations based on the degree of response to differential selection likely to have occurred in one population relative to another. Under their scheme, differences found in demographic, morphological, or mtDNA measures are taken to be proxies indicating that selection (potential gene flow) may be operating differentially on one population relative to another. Their categories I–IV represent gradients from the easiest situation demonstrating separate populations (category I-allopatric populations with significant genetic differences) to a situation where there are no geographical barriers between populations, there is considerable intermixing on the breeding range, and the potential for extensive gene interchange is great (category IV). The latter category demonstrates the weakest evidence for differentiation between populations.

Following the classification criteria considered by Dizon *et al.*, harbor porpoise in the GME most closely resemble a Category III population (i.e., there is strong geographic partitioning at the reproductive season indicating reproductive isolation to some degree; however, the geographically separated assemblages are characterized by little or no genetic differentiation). Dizon *et al.* suggested that a Category III population should be considered and managed separately due, at a minimum, to the geographic partitioning of the breeding assemblages.

Participants at the harbor porpoise workshop also recognized that, even though rates of exchange between harbor porpoise in the northwest Atlantic may be great enough to eliminate genetic differences, groups could still be sufficiently distinct to justify management as separate stocks or populations (NMFS 1992a). Recent separation or very low levels of mixing would hamper attempts to detect genetic differences. Therefore, participants at the May 1992 workshop suggested that Gaskin's proposed population structure of the northwest Atlantic be used as the working hypothesis (NMFS 1992a).

Although the direct genetic evidence for consideration of the GME harbor porpoise as a distinct population is inconclusive, all other lines of biological evidence strongly support a species status recognition under the ESA. Seasonal movements into the northern GME/BOF during summer, the known summer reproductive periodicity and spatial segregation from other conspecific groups at that time, and the subsequent dispersal during late fall and winter from the GME south to at least North Carolina, strongly suggests a unified, single breeding assemblage. The best scientific information available indicate that the viability of harbor porpoise in shelf waters of the eastern U.S. is dependent upon harbor porpoise in the GME and BOF. Therefore, based on this information, NMFS proposes that the harbor porpoise that occur in the GME and BOF represent a distinct population, and therefore a "species" under section 3(15) of the ESA.

Listing Procedures: Summary of Factors Affecting the Species

Section 3 of the ESA (16 U.S.C. 1532(19)) defines a threatened species as "any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range."

To determine whether a species should be listed as endangered or threatened, section 4(a)(1) of the ESA (16 U.S.C. 1533(a)(1)) sets forth the following five criteria:

(A) The present or threatened destruction, modification, or curtailment of its habitat or range;

(B) Overutilization for commercial, recreational, scientific, or educational purposes;

(C) Disease or predation;

(D) The inadequacy of existing regulatory mechanisms; or

(E) Other natural or manmade factors affecting its continued existence.

A. *The Present or Threatened Destruction, Modification, or Curtailment of Habitat or Range:* Although the nearshore habitat of this species along the eastern U.S. coastline is potentially threatened with destruction or physical modification (see E. of this preamble), there is no evidence that such modification or destruction to date has contributed to a decline of harbor porpoise in the GME.

There is no evidence that the range of this subspecies has changed significantly (see E. of this preamble), or has contributed to a decline of harbor porpoise in the GME.

B. *Overutilization for commercial, recreational, scientific, or educational purposes:* Information on the bycatch of harbor porpoise in the GME has been obtained from several sources throughout the 1980s. Some of this information has been from scientific, but not systematic surveys. Gilbert and Wynne (1988) documented relative levels of marine mammal bycatch (including harbor porpoise) in GME fisheries. These data were used by NMFS to classify the GME sink-gillnet fishery as a Category I fishery (54 FR 16072, April 20, 1989). However, due to an inability to place observers systematically aboard domestic fishing vessels prior to the implementation of section 114(f) of the MMPA, it was not possible, until recently, to obtain the temporal and spatical sampling required for a reliable estimate of harbor porpoise bycatch in GME fisheries from rate-of-take data such as that collected by Gilbert and Wynne.

Vessels operating in a Category I fishery are required, under section 114(e) of the MMPA, to take onboard an observer to obtain information on the species and number of marine mammals taken incidental to the fishery. This latter requirement has been implemented in the GME multispecies sink-gillnet fishery through the NMFS/NEFSC Sea Sampling Program (SSP).

(i) Observer Effort

The SSP observer effort has been allocated by month and NMFS fishery statistical areas within the GME, based on the total number of days that fishing vessels were absent from port (as indicated in the NEFSC weighout database) for the previous year (Power and Drew 1991; Bisack 1992a). Bisack (1992a) partitioned the GME into a northern component (NMFS statistical areas 511 and 512) and a southern component (statistical areas 513–515). Most of the sink-gillnet fishery effort (based on the weighout database) in the GME occurs in these statistical areas.

(ii) Bycatch Estimators From Weighout Database

The porpoise rate-of-take information collected by SSP observers needs to be combined with some measure of total fishing effort to calculate a total bycatch for the GME. Several measures of fishing effort that can be used for estimating total bycatch are available in the weighout database. Smith *et al.* (1991) presented preliminary estimates of bycatch based on the product of the mean bycatch rate per fishing trip from the SSP database and the total number of fishing trips in the sink-gillnet fishery as estimated by NEFSC port agents and recorded in the weighout database (i.e. a trip-based effort indicator). There are, however, biases inherent in the weighout data (Bisack and DiNardo 1991; Bisack 1992b). These were discussed at the Thirteenth Northeast Regional Stock Assessment Workshop (NMFS 1992b). It is known, for example, that for some vessels, the number of days absent or days at sea (trip estimator) are underestimated in the weighout data. Vessels under 5 tons represent one-third of the weighout trips, but they cannot be tracked in the database; therefore, little information is available about the number of these participating vessels and the association between the number of days absent and total fishing effort (Bisack and DiNardo 1991). Also, the weighout database is intended to provide catch data through port interviews with the fishermen. The amount of interview effort from the northern GME reported in the weighout database has not been adequate and significantly underestimates the amount of fishing effort in that region. Since total effort estimates from the weighout database are needed to estimate marine mammal bycatch, the bycatch estimates may be downwardly biased as a result of underestimating effort in northern GME ports (Bisack and DiNardo 1991).

An alternative method of estimating total bycatch of harbor porpoise killed in the fishery from the weighout data could be determined based on the number of harbor porpoise taken per ton of fish landed (based on SSP sampling data), expanded by the total tons of fish landed from the weighout database (i.e. a landings estimator). The participants of the Stock Assessment Workshop (NMFS 1992b) suggested that estimates of total landings in the grillnet fishery are more accurate than estimates of total fishing effort.

(iii) Estimates of Harbor Porpoise Bycatch in the GME

The present estimates are based on data collected from June 1989 through the second half of 1991. SSP observers reported 67 harbor porpoise taken by gillnet vessels from June 1989, through 1991. Most (58/67) of the harbor porpoise bycatch occurred in the southern GME, primarily from October through May (fall and winter, Bisack 1992). In the northern GME, the by-catch occurred primarily in the summer and fall (Table 1). The timing and location of takes are consistent with known seasonal movements of harbor porpoise between the southern GME and the northern GME/BOF.

There were no harbor porpoise takes reported during the summers of 1989 or 1990 (Table 1). During these periods the distribution of sampling effort was often disjunct with the known distribution of harbor porpoise (i.e., SSP observers were allocated to the southern GME at a time when harbor porpoise were primarily in the northern GME (Payne, Power and Yustin 1990). It is only since June 1991, when SSP effort increased throughout the GME, that statistically reliable bycatch estimates can be made for all regions and seasons within the GME (Bisack 1992b).

The bycatch estimates using trips and landings as estimators are similar, except in the fall of 1990 and the winters of 1990 and 1991 (Table 2). During these periods, the bycatch estimates using landings as the effort estimator were substantially higher than the trip-based estimates (NMFS 1992a). The differences in the trip-based and landings-based estimates could be due to several known difficulties with the databases (discussed previously, and in DiNardo and Bisack 1991; Bisack 1992b).

Given the recommendations of the Stock Assessment Workshop participants that estimates of total landings in the gillnet fishery are more accurate than estimates of total fishing effort, a landings-based bycatch estimator is considered more accurate than one based on total fishing effort. The best estimate of the average annual bycatch of harbor porpoise in the entire GME gillnet fishery (northern and southern GME) is 2,000 (95 percent confidence interval (CI)=1,200–2,800) (Bisack 1992a). The landings-based estimates ranged from 2,396 to 1,672 for 1990 and 1991, respectively (NMFS 1992a). The 95-percent CI in 1990 ranged from 1,600 to 3,500, and in 1991 from 1,100 to 2,500 (NMFS 1992a)

These estimates are not likely to be biased upward because landings were overestimated. Landings would only be overestimated if there were incorrect gear assignments, that is, if other gear types were recorded as sink gillnet gear. It is more likely that sink gillnet gear has been incorrectly assigned to other gear types (Bisack 1992b), which would result in trips and landings being underestimated; therefore, bycatch would also be underestimated.

TABLE 1.—ANNUAL SEA SAMPLING (SSP) TRIPS, TOTAL OBSERVED HARBOR PORPOISE BYCATCH, WEIGHOUT (WO) TRIPS, AND WO LANDINGS (TONS) BY YEAR AND SEASON (SUMMER, FALL AND WINTER) FOR THE NORTHERN GULF OF MAINE (UPPER) THE SOUTHERN GULF OF MAINE (LOWER).

[Northern Gulf of Maine]

Year	Season	SSP trips	Porpoise bycatch	WO trips	WO landings
1989	S	2	0	888	1641
	F	1	0	378	528
	W	2	0	154	186
1990	S	6	0	856	1269
	F	2	1	433	392
	W	2	0	235	215
1991	S	91	5	1033	1975
	F	33	3	429	668

[Southern Gulf of Maine]

Year	Season	SSP trips	Porpoise bycatch	WO trips	WO landings
1989	S	7	0	2158	4945
	F	1	0	3821	6214
1990	W	56	9	3082	2916
	S	21	0	3602	7669
	F	38	7	3848	5564
1991	W	36	10	2693	2229
	S	325	2	2871	5483
	F	326	30	3055	3005

TABLE 2.—ESTIMATED BYCATCH (K) AND STANDARD DEVIATION OF THE ESTIMATE (SD) WITH TRIPS AND LANDINGS AS AN ESTIMATOR BY REGION AND SEASON.

Year	Season	Trip Estimator				Landings Estimator			
		N. GME		S. GME		N. GME		S. GME	
		K	SD	K	SD	K	SD	K	SD
1989	S								
	F			372	170			337	174
1990	W			495	217			1264	159
	S								
	F	217	216	748	298	87	400	1045	347
1991	W			748	294			1201	331
	S	57	28	18	17	65	28	19	17
	F	39	209	281	56	48	22	339	61

It should be re-emphasized that the incidental bycatch estimates are only for the multispecies sink-gillnet fishery in the GME. The harbor porpoise bycatch estimates do not include known bycatch from this population that also occurs in the BOF, and in U.S. waters below the GME (during the winter-spring) by other gillnet fisheries.

(iv) Estimate of Bycatch in the BOF

Harbor porpoise from the GME population are taken incidentally by several fisheries in the BOF.

The size of the gillnet fleet in the western BOF, and the level of porpoise bycatch, remained relatively stable between 1986 and 1989, when approximately 100 porpoises were reported killed each summer in the groundfish gillnet fishery (Read and Gaskin 1988, 1990). Incidental takes of harbor porpoise are also likely to occur in the eastern BOF but have not been quantified (NMFS 1992a).

Smith, Read and Gaskin (1983) also estimated that approximately 70 porpoises are trapped each summer in herring weirs in the western BOF, and that, on average, approximately 27 die annually as a result of entrapment. Small numbers of harbor porpoises are also taken in herring weirs scattered along southwestern Nova Scotia (Smith, Read and Gaskin 1983).

Based largely on the magnitude of the incidental take in the western BOF gillnet fishery, and changes in local density and life history parameters of harbor porpoise in that region, the harbor porpoise was listed as a threatened species by the Committee on the Status of Endangered Wildlife in Canada (Gaskin 1989).

(v) Other Harbor Porpoise Bycatch in U.S. Waters

Harbor porpoise takes in the sink-gillnet fishery south of the GME have also been reported in the SSP database, but not considered in this estimate of total bycatch for the GME. There is increasing evidence that harbor porpoise have been taken incidental to gillnet fisheries for anadromous fish species, such as herring and shad, in coastal southern New England/Mid-Atlantic waters (south of the GME), winter through spring (57 FR 1900, Jan. 16, 1992). Fourteen harbor porpoises, some of which had net marks and full stomachs (characteristics indicative of gillnet mortality) washed up on New Jersey beaches in the spring of 1991, in the vicinity of shad gillnets (57 FR 1900, Jan. 16, 1992). Increased enforcement inquiries in southern New Jersey in late March, 1991, resulted in reports from coastal gillnet fishermen of two lethal and two live takes in the shad gillnet fishery in that area. During this same time period six harbor porpoises also stranded on Virginia beaches, including four with net marks on the leading edge of the flukes and dorsal fins. The first was found the day after the opening of the Virginia nearshore gillnet fishery for shad. Harbor porpoises have also been taken in shad gillnets in the Chesapeake Bay (57 FR 1900, Jan. 16, 1992).

The magnitude of the bycatch in these coastal and nearshore gillnet fisheries is not known. Observer coverage of the sink-gillnet fleet in southern New England only started in August 1992, and therefore, insufficient data are available to estimate the total extent of this bycatch.

(vi) Harbor Porpoise Abundance

Field and analytical experiments to determine the best method of assessing harbor porpoise abundance in the GME have been conducted by the NEFSC since 1988 (Polacheck and Thorpe 1990; Polacheck 1991a, 1991b; Polacheck and Smith 1990). Previous harbor porpoise surveys or abundance estimates (Gaskin 1977; Prescott *et al.* 1981; CeTAP 1982; Kraus, Gilbert and Prescott 1983; Gaskin *et al.* 1985) provided survey coverage for only a limited part of the range of the harbor porpoise, and resulted in minimum abundance estimates, which are considered dated and inadequate. During July and August 1991, NMFS conducted sighting surveys in the offshore waters of the GME/lower BOF/southern Scotian Shelf (Palka 1992a), and GME inshore waters (Read and Kraus 1992). Preliminary estimates from these surveys were presented by Smith *et al.* (1991). Several commenters referred to these estimates in their comments to NMFS regarding the petition to list GME harbor porpoise as threatened under the ESA. These estimates were considered preliminary by NMFS in that further review of the data was needed to confirm the following areas of uncertainty:

(a) Two teams of observers were used in the offshore survey. Each team searched simultaneously for harbor porpoise, but recorded all sightings separately (Palka and Potter 1992). The use of two observer teams allowed abundance to be estimated in several manners (Palka 1992a, 1992b; NMFS 1992a). The sighting data for the two observer teams were combined to calculate a 1991 estimate (following a technique described at Butterworth and Borchers 1988), correcting for the fraction of the sightings missed by both teams. An uncertainty in the number of duplicative sightings between the two observer teams needed to be further addressed.

(b) The preliminary estimates assumed the density of porpoise in nearshore areas to be the same as the density of porpoise immediately offshore. Rather than assuming that the densities were the same in the two areas, the participants at the May 1992 workshop suggested a different and perhaps better approach. The participants suggested using the measured ratio of porpoises seen in the two areas as an estimate of density in the nearshore area (NMFS 1992a).

(c) Finally, previous survey data suggested that these animals avoid research vessels, at least at close ranges. The distributions of observed swimming directions indicated that harbor porpoise were reacting to the vessel prior to (Palka 1992c) and after (Polacheck and Thorpe 1990) being observed. Significant bias can be introduced into density estimates if animals react to a survey vessel (Polacheck and Thorpe 1990). However, there was no indication from the distribution of perpendicular sighting distances to the harbor porpoises that they were avoiding the survey vessel. Given available data, the workshop participants concluded that it was impossible to assess the effect of animal movement in reaction to the vessel on abundance estimates (NMFS 1992a).

Detailed descriptions of the survey methodology and the sighting data analyses used in the 1991 surveys are provided in Palka (1992 a, b, c, d), Palka and Potter (1992) and Read and Kraus (1992). Participants at the 1992 workshop agreed that the 1991 harbor porpoise survey provided reliable density estimates using the best available survey techniques (NMFS 1992a). Methods of estimating confidence limits around the abundance estimate are also provided in Palka (1992a) and NMFS (1992a). The average abundance estimate produced from the 1991 survey, 45,000 (95-percent CI: 23,000–80,000), is considered the best estimate of the GME harbor porpoise population.

(vii) Harbor Porpoise Productivity versus Bycatch in the GME

Woodley and Read (1991) used demographic models to evaluate the effects of different rates of incidental removal of animals from the harbor porpoise population in the GME/BOF. Woodley and Read (1991) estimated the potential intrinsic rate of increase (r_{max}) of the GME harbor porpoise population using empirical data on reproductive rates (at Read 1990c) and several hypothetical survival schedules. Survival schedules were calculated to maximum ages of 12 and 15 years using estimates of natural mortality combined with the following rates of incidental mortality: 0.0183, 0.0352, 0.0523, and 0.1006. The incidental mortality rates were estimated assuming that the proportion of all age classes of porpoise greater than age 0 are equally affected by incidental mortality, and by calculating ratios from estimates of bycatch to total population size. The range of the bycatch to abundance ratios calculated by Woodley and Read (1991) is identical to the range of the 95 percent CI values around the average bycatch to abundance ratios in the GME using the results of bycatch data presented in Bisack (1992a), and abundance estimates from Palka (1992a) (the 95-percent CI values around the bycatch to abundance ratio range from 0.018 to 0.109 (NMFS 1992a).

The model used by Woodley and Read (1991) incorporates the best available scientific information on the range of life history parameters of harbor porpoise in the GME and BOF, and has resulted in the best available estimate of maximum net productivity for harbor porpoise in the GME. Woodley and Read (1991) found that the model population could not sustain levels of incidental mortality greater than 0.04. At the two higher levels of incidental mortality (0.0523 and 0.1006), only negative population growth rates were possible (i.e., population could only decrease). Woodley and Read concluded, in agreement with Barlow (1986), that harbor porpoises have a limited capacity for population increase, and cannot sustain even moderate levels of incidental mortality.

The IWC reviewed net reproductive rates of harbor porpoise and related species in an attempt to place an upper limit on the range of R_{max}. Theoretical upper limits to phocoenid R_{max} have approached 10 percent (IWC 1990; Barlow and Boveng 1991); therefore R_{MNPL} could theoretically approach 0.05. It should be re-emphasized, however, that the IWC Committee concluded that "it had no firm basis" for estimating a net reproductive rate for harbor porpoise, and none of the calculated estimates of R_{max} for any phocoenid population have been as large as 10 percent (IWC 1990). Barlow and Boveng (1991) envisioned the primary use of their modeling efforts as exploratory, and recommended that their approach (and the resulting survival parameters) not be used for estimating the actual growth rates for any population.

The IWC (1990) concluded that any estimate of acceptable harvest and incidental take rates of harbor porpoise should be conservative, i.e., lower than half of the estimated value of the maximum rate of increase. Therefore, r_{max} values in the range of 4 percent per year indicate a porpoise population that could possibly sustain a level of incidental take that approaches, but does not exceed, 2 percent of the population estimate. Annual human-induced mortality exceeding two percent is not considered sustainable for other species of small cetaceans (MMC 1979, reviewed by Hammond 1991).

(C) *Disease or predation:* There is no indication from stranding data, or tissue analyses from harbor porpoises taken in gillnets, that disease has had an impact on harbor porpoise in the GME. Likewise, harbor porpoise are known to be preyed upon by sharks and killer whales. However, killer whales are not common enough in the GME/BOF to have a measurable effect on the abundance of porpoise, and there is no evidence that shark predation has contributed to the decline of harbor porpoise in the GME.

Harbor porpoise in the GME are know to carry high levels of heavy metals and organochlorines in their tissues (Gaskin, Holdrinet and Frank 1982). Of particular concern are the polychlorinated biphenyls (PCBs) and their lipophilic organichlorines found in harbor porpoise (Gaskin, Holdrinet and Frank 1982; Gaskin, Frank and Holdrinet 1983). These organochlorine residues are known to be mobilized and transferred from adult females to their calves during lactation (Gaskin *et al.* 1982). However, at the present time, the presence of these contaminants in harbor porpoise tissues does not appear to pose a serious threat to this population (Read and Kraus 1991).

(D) *The inadequacy of existing regulatory mechanisms:* One of the strongest recommendations from the May 1991 harbor porpoise assessment workshop was that the present level of bycatch of porpoise in the GME sink-gillnet fishery needs to be reduced. The 1988 Amendments to the MMPA, as amended, established the Marine Mammal Exemption Program (MMEP). The MMEP allows commercial fisheries to take harbor porpoise without a timely mechanism for control. However, the amendments do not contain emergency provisions that can be employed. It was indicated at the harbor porpoise assessment workshop that the harbor porpoise bycatch levels may not appropriately be considered an "emergency" at this time. However, the workshop results did determine that the bycatch levels may "have a significant adverse impact over a period of time longer than one year". Therefore, independent of the ESA, NMFS is proceeding under section 114(g)(3) of the MMPA to address the bycatch problem. Pursuant to the MMPA, NMFS requested that the New England Fishery Management Council (NEFMC) introduce measures in Amendment 5 to the Northeast Multispecies Fishery Management Plan (FMP) that will reduce harbor porpoise mortality to acceptable levels.

The NEFMC is considering proposals to amend the FMP to reduce fishing to levels that would allow selected stocks of groundfish to recover. One of the proposals being considered is a reduction in fishing effort through reductions in allowable fishing time. For vessels participating in the gillnet fishery, the NEFMC has proposed that gillnets be removed from the water for specific periods of time. The NEFMC will also request comment on a proposal that would allow changes to this management measure in subsequent years. This seconds proposal would allow for annual review of more recent information on areal and seasonal distributions of harbor porpoise and possible measures to mitigate their takings. It is envisioned that this process will be able to respond in a more timely fashion to new information or increased understanding of the interactions of marine mammals and this fishery. Public hearings are planned for both proposals early in 1993. After receipt of public comment, the NEFMC will determine what measures are to be included in amendment 5, then submit the amendment to them for submission to the Secretary for approval. Further data regarding the species status, and the final amendment 5 measures will be considered in the decision for final listing.

The FMP restrictions may not address bycatch in state-regulated fisheries/state waters. However, under section 114(g)(3), NMFS could request the states to take such action within their authority (such as imposing restrictions on state-regulated fisheries) as it considers necessary to mitigate the bycatch.

NMFS could also, pursuant to section 114(g)(2) of the MMPA, consult with NEFMC and state fishery managers to prescribe emergency regulations to prevent, to the maximum extent possible, any further taking of harbor porpoise. Such emergency regulations must also, to the maximum extent possible, avoid interfering with existing state or regional FMPs. While this option would provide immediate relief to harbor porpoise in the GME, it would only be a temporary solution since emergency regulations promulgated under section 114(g)(2) would be effective for only 180 days or until the end of the fishing season, whichever is earlier. Further, the results of the harbor porpoise assessment workshop indicate that the situation may not appropriately be considered an "emergency."

(E) *Other natural or manmade factors affecting its continued existence:* Although incidental catches in gillnet fisheries are believed to pose the greatest threat to harbor porpoises in the GME, Read and Kraus (1991) listed several other factors that may influence this population, including the following: Loss of habitat (see A. in this preamble), coastal pollution and environmental pollution (see C. in this preamble), and competition with fisheries for prey resources.

The most important prey of harbor porpoises in the GME/BOF is Atlantic herring (Smith and Gaskin 1974; Recchia and Read 1989). Between 1967 and 1976, there was a 75-percent reduction in herring biomass on Georges Bank (Sissenwine, Overholtz and Clark 1984), and in 1977 the commercial fishery for herring failed completely. There was virtually no evidence of a Georges Bank herring population between 1977–1983, despite considerable sampling by research vessels during that period. Kenney *et al.* (1991) suggested that, in response to the complete collapse of a Georges Bank herring stock, harbor porpoise may have shifted their distribution nearshore during the early 1980s, away from Georges Bank. Such a response to a human-induced prey depletion might result in local increases in harbor porpoise abundance, an increased density in areas of the GME and BOF where reduced prey are concentrated, and increased opportunities for fishery-harbor porpoise interactions in the GME and BOF.

Connor (1971) and Ulmer (1977) reported harbor porpoise (in small groups) in the summer months (during the 1940s) in lower New York Bay. It is difficult to determine what "a small number" implies; however, harbor porpoise, at present, are rarely observed outside the northern GME and BOF during summer. Therefore, it does seem possible that the distribution and seasonal occurrence of harbor porpoise have shifted in recent decades. Although cause and effect can rarely be demonstrated, such a seasonally reduced sighting distribution may be precipitated by a change in the availability of prey.

Recent fishery conservation measures are allowing herring stocks to recover from previous low levels, and fishing pressure on these stocks is currently light. Therefore, there is no evidence at this time that harbor porpoises are affected by prey densities.

Vessel traffic has also been documented to have a negative impact on harbor porpoise behavior. Flaherty and Stark (1982) suggested that harbor porpoise abandoned areas of the Washington coastline because of vessel traffic. Polacheck and Thorpe (1991) demonstrated ship avoidance to a research vessel by harbor porpoise in the GME. If ship avoidance were a widespread phenomenon, harbor porpoises might be expected to abandon areas of heavy vessel activity in the GME. Most of the summer range of the GME population occurs in areas of light vessel traffic, and it is unlikely that porpoise are affected by vessel traffic at this time. During the winter and spring, the distribution shifts into the southern GME and adjacent southern New England waters. It is during this period that porpoise behavior may be influenced by increased vessel traffic. The petitioners have demonstrated that vessel traffic has increased in the GME in recent years. However, it is not known to what extent, if any, this increased vessel density has affected harbor porpoise in the GME.

Determination

Based on the assessment of available scientific information, NMFS proposes that harbor porpoise in the GME is a "species" under the ESA.

The best estimate of the average annual bycatch of harbor porpoise in the entire GME gillnet fishery (northern and southern GME) is a minimum of 2,000 (95-percent CI=1,200–2,800) (Bisack 1992a). This estimate is based only on data for the multispecies sink-gillnet fishery in the GME, and does not include known bycatch from this population which occurs in the BOF, or in U.S. waters below the GME (during the winter-spring range of the GME harbor porpoise population).

The best estimate of the size of the GME harbor porpoise population from the 1991 survey is 45,000. Therefore, the minimum bycatch of the GME population is approximately 4.5 percent of the best estimate of its abundance.

Harbor porpoises have a limited capacity for population increase, and are unlikely to sustain even moderate levels of incidental mortality. The best available estimate of maximum net productivity (r_{max}) for harbor porpoise in the GME does not exceed 4 percent (Woodley and Read 1991). At greater levels of incidental take, the population will likely decline. The IWC (1990) believes that any estimate for acceptable harvest and/or incidental take rates of harbor porpoise should be conservative, i.e., lower than half of the estimated value for r_{max}. Therefore, r_{max} values in the range of 4 to 5 percent per year indicate a porpoise population that could sustain a level of incidental take no greater than 2 percent of the population estimate. NMFS believes that annual human-induced mortality exceeding this value for other species of small cetaceans is unsustainable. The best available information indicates that the bycatch of the GME population of harbor porpoise must be reduced by more than 50 percent to be sustained by the present GME population. This includes a reduction in bycatch by the GME multispecies sink-gillnet fishery as well as the southern New England/Mid-Atlantic gillnet fisheries for herring, shad and other coastal species. At present the extent of bycatch in the gillnet fisheries is considered a threat to the continued existence of the GME harbor porpoise. NMFS concludes that the GME population of harbor porpoise is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and determines that the petitioned action is warranted. NMFS, therefore, proposes to list the GME population of harbor porpoise as threatened under the ESA.

Proposed Protective Regulations

Until more comprehensive regulatory or other action can be implemented to reduce sources of harbor porpoise mortality (e.g., bycatch), NMFS is proposing to adopt the ESA section 9 prohibitions applicable to endangered species to prohibit taking, interstate commerce, possession, sale, receipt, transport, or shipping of harbor porpoises. Generally, then, the prohibitions of § 9 that are applicable to endangered species would be applicable to harbor porpoises, with certain exceptions.

NMFS is proposing to adopt the following exceptions to the general prohibitions: (1) Taking of harbor porpoise incidental to commercial fishing operations if the incidental takings are consistent with the following bycatch reduction program; (2) taking in a humane manner (including euthanasia) by federal, state and local officials and employees, and others designated by the Assistant Administrator pursuant to § 112(c) of the MMPA, in the course of their official duties; and (3) taking for purposes of scientific research pursuant to § 104 of the MMPA and § 10 of the ESA. These exceptions are more fully discussed below.

Exceptions—Commercial fishing: Under this proposed rule, the general prohibitions would not apply to the taking of harbor porpoise incidental to commercial fishing operations if the take complies with the harbor porpoise bycatch reduction program. NMFS is proposing to adopt a bycatch reduction program aimed at progressively reducing total harbor porpoise bycatch in all gillnet fisheries, including bycatch from other gillnet fisheries that impact this population outside the GME. Programs to reduce bycatch must be initiated within the next 18 months with a goal of reducing bycatch to an amount not exceeding 2 percent of the best estimate of population abundance within a period of time not to exceed 4 years beginning in 1993. This would require, at a minimum, a reduction in incidental take in the GME by at least 50 percent of the present take level. To achieve the necessary reduction in bycatch, protective regulations need to be implemented. NMFS is considering area closures, seasonal restrictions, incidental take allocations and other measures to reduce bycatch. Comments are specifically requested concerning the best management measures to achieve the bycatch reduction goal. Since takings incidental to commercial fishing operations would not be prohibited by this rule, separate incidental take authorization pursuant to Sections 7(b)(4) or 10(a)(1)(B) of the ESA would not be required.

In order to monitor the bycatch, the Assistant Administrator of Fisheries (Assistant Administrator) may require the placement of an observer on any gillnet fishing vessel operating in U.S. waters in order to conserve a species listed under the ESA. Therefore, NMFS may notify owners and operators of gillnet vessels operating within the known range of the Gulf of Maine population of harbor porpoise that they must carry a NMFS-approved observer on board such vessel(s) if requested to do so. If the observer data indicate a need, the Assistant Administrator may take actions including, but not restricted to, the issuance of emergency rules to establish closed areas from further fishing, the allocation of the "incidental take" among NMFS statistical areas, or other actions(s) to ensure that commercial fishing operations do not jeopardize the continued existence of the species. NMFS is also requesting comments and recommendations concerning the implementation and seasonal timing of an observer program to monitor bycatch of the GME population of harbor porpoise throughout their range, specifically in Southern New England and Mid-Atlantic coastal waters south to Cape Hatteras, North Carolina.

Official Activities—Under this proposed rule, the general prohibitions would not apply to the taking of harbor porpoises by federal, state or local government officials or employees, or persons designated by the Assistant Administrator under section 112(c) of the MMPA, in the course of their duties as officials, employees or designees, if the taking is for the protection or welfare of the harbor porpoise, is for the protection of the public health or welfare, or the non-lethal removal of nuisance animals. Any such taking would have to be done humanely, which could include euthanasia in some cases. The primary purpose of this exception to the general prohibitions is to provide for the activities of Marine Mammal Stranding Networks, which perform important services in rescuing and rehabilitating stranded marine mammals. In cases where it is determined that stranded harbor porpoises cannot be saved, euthanasia would be authorized. This exception also provides flexibility for responding to unlikely situations where a dead or diseased harbor porpoise could be considered a threat to the public health or welfare, or where harbor porpoises are perceived as public nuisances. It should be stressed, however, that this exception is not intended to authorize lethal takes or harassment of harbor porpoises to stop or dissuade them from interfering with commercial fishing operations.

Permits—Finally, under this proposed rule, the general prohibitions would not preclude scientific research currently authorized under section 104 of the MMPA for a period of one year following final listing of harbor porpoise as threatened. After that one year period, a scientific research permit or a permit to enhance the propagation or survival of the species issued pursuant to section 10 of the ESA would be required. Takes of harbor porpoise incidental to other lawful activities may also be authorized under section 10.

Critical Habitat

NMFS has not completed the analysis necessary for the designation of critical habitat, but has decided to proceed with the proposed listing determinations now and to proceed with the designation of critical habitat in a separate rulemaking. NMFS believes that this action is consistent with the intent of the 1982 amendments to the ESA: "The Committee feels strongly, however, that where the biology relating to the status of the species is clear, it should not be denied the protection of the Act because of the inability of the Secretary to complete the work necessary to designate critical habitat" (H. Report No. 567, 97th Congr., 2nd Sess. 19, 1982).

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Classification

The 1982 amendments to the ESA (Pub. L. 97–304), in section 4(b)(1)(A), restricted the information that may be considered when assessing species for listing. Based on this limitation of criteria for a listing decision and the opinion in *Pacific Legal Foundation* v. *Andrus*, 657 F. 2d 829 (6th Cir., 1981), these decisions are excluded from the requirements of the National Environmental Policy Act.

The Conference Report on the 1982 amendments to the ESA notes that economic considerations have no relevance to determinations regarding the status of species, and that E.O. 12291 economic analysis requirements, the Regulatory Flexibility Act, and the Paperwork Reduction Act are not applicable to the listing process. Similarly, listing actions are not subject to the requirements of E.O. 12612, or the President's Memorandum of January 28, 1992.

List of Subjects in 50 CFR Part 227

Endangered and threatened species, Exports, Imports, Marine mammals, Transportation.

Dated: December 30, 1992.

William W. Fox, Jr.,

Assistant Administrator, Fisheries.

For the reasons set out in the preamble, 50 CFR part 227 is proposed to be amended as follows:

PART 227—THREATENED FISH AND WILDLIFE

1. The authority citation for part 227 continues to read as follows:

Authority: 16 U.S.C. 1531 *et seq.*

2. In § 227.4, new paragraph (i) is added to read as follows:

§ 227.4 Enumeration of threatened species.

* * * * *

(i) Gulf of Maine (GME) population of harbor porpoise *(Phocoena (phocoena))*. The GME population includes all harbor porpoise whose range extends throughout waters of eastern North America from (and including) the Bay of Fundy (BOF), Nova Scotia south to eastern Florida.

3. A new § 227.13 is added to subpart B to read as follows:

§ 227.13 Gulf of Maine harbor porpoise.

(a) *Prohibitions.* The prohibitions of section 9 of the Act (16 U.S.C. 1538) relating to endangered species apply to the threatened species of harbor porpoise listed in § 227.4(i) of this part, except as provided in paragraph (b) of this section.

(b) *Exceptions*—(1) General exceptions. The exceptions of section 10 of the Act (16 U.S.C. 1539) and other exceptions under the Act relating to endangered species, and the provisions of regulations issued under the Act relating to endangered species (such as 50 CFR part 222, subpart C—Endangered Fish or Wildlife Permits) also apply to the threatened population of harbor porpoise listed in § 227.4(i) of this part, except as otherwise provided in subsections (b)(2), (b)(3) and (b)(4). This section supersedes other restrictions on the applicability of 50 CFR part 222, including, but not limited to, the restrictions specified in §§ 222.2(a) and 222.22(a).

(2) Official activities—The prohibitions of paragraph (a) of this section do not restrict a Federal, state or local government official, his or her designee, or other person authorized by the Assistant Administrator pursuant to regulations at 50 CFR part 216, subpart C, who is acting in the course of official duties, from taking a harbor porpoise in a humane manner, including euthanasia, if the taking is for the protection or welfare of the animal, the protection of the public health and welfare, or the nonlethal removal of nuisance animals.

(3) Permits—The prohibitions of paragraph (a) of this section do not apply to scientific research activities authorized pursuant to section 104 of the Marine Mammal Protection Act and regulations at 50 CFR part 216, subpart D—Special Exceptions, for a period of one year from the final listing of the GOM harbor porpoise as threatened. After that period, such activities must be authorized by the Assistant Administrator in accordance with and subject to the provisions of 50 CFR part 222, subpart C—Endangered Fish or Wildlife Pemits.

(4) Commercial fishing exemptions. The prohibitions of paragraph (a) of this section, insofar as they relate to the taking of harbor porpoise incidental to commercial fishing operations, do not apply to incidental takings that are consistent with the by-catch reduction program under paragraph (3)(c). Intentional lethal taking of harbor porpoise for any reason is not authorized under this paragraph (b)(4).

(c) *Bycatch Reduction Program.* The bycatch reduction program will progressively reduce total harbor porpoise bycatch in all gillnet fisheries, including bycatch from other gillnet fisheries that impact this population throughout U.S. waters outside the Gulf of Maine, to an amount not exceeding 2 percent of the best estimate of population abundance within a period of time not to exceed 4 years from the effective date of this section.

(1) Bycatch Reduction Program Methodology. [Reserved].

(2) Observer Requirements. [Reserved].

[FR Doc. 93–39 Filed 1–6–93; 8:45 am]

BILLING CODE 3510–22–M

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[Docket No. 921233-2333]

Endangered Fish and Wildlife; Gray Whale

AGENCY: National Marine Fisheries Service (NMFS), NOAA, Commerce.

ACTION: Notice of determination.

SUMMARY: Under the Endangered Species Act (ESA), NMFS has determined that the eastern North Pacific (California) stock of gray whale should be removed from the List of Endangered and Threatened Wildlife (the List). This determination is based on evidence showing that this stock has recovered to near its estimated original population size and is neither in danger of extinction throughout all or a significant portion of its range, nor likely to again become endangered within the foreseeable future throughout all or a significant portion of its range. NMFS believes that the western Pacific gray whale stock, which is geographically isolated from the eastern stock, has not recovered and should remain listed as endangered. In accordance with section 4(a)(2)(B) of the ESA, NMFS is recommending that the Department of the Interior implement this action by amending the List accordingly.

EFFECTIVE DATE: This determination is effective on January 7, 1993.

ADDRESSES: Copies of the references used in this document are available from: Office of Protected Resources, National Marine Fisheries Service, 1331 East-West Highway, Silver Spring, Maryland 20910.

FOR FURTHER INFORMATION CONTACT: Mr. Kenneth R. Hollingshead, Office of Protected Resources, NMFS, at (301) 713-2055.

SUPPLEMENTARY INFORMATION:

Background

The Endangered Species Act of 1973 (ESA; 16 U.S.C. 1531 *et seq.*) is administered jointly by the U.S. Fish and Wildlife Service (FWS), Department of the Interior, and NMFS. NMFS has jurisdiction over most marine species and makes determinations under section 4(a) of the ESA as to whether the species should be listed as endangered or threatened. The FWS maintains and publishes the List of Endangered and Threatened Wildlife (the List) in 50 CFR part 17 for all species determined by NMFS or FWS to be endangered or threatened. A list of threatened and endangered species under the jurisdiction of NMFS is contained also in 50 CFR 227.4 and 50 CFR 222.23(a), respectively.

Section 4(c)(2) of the ESA requires that, at least once every 5 years, a review of the species on the List be conducted to determine whether any species should be (1) removed from the List; (2) changed in status from an endangered species to a threatened species; or (3) changed in status from a threatened species to an endangered species. NMFS completed its first 5-year review on the status of endangered whales in 1984 (Breiwick and Braham 1984). Based upon that status review, NMFS concluded that although no longer in danger of extinction, because of limited calving grounds and coastal habitat which is being subjected to increasing development, the eastern Pacific gray whale (*Eschrichtius robustus*) stock should not be delisted but should be upgraded to threatened (49 FR 44774, November 9, 1984). No further action was taken, however.

On January 3, 1990 (55 FR 164), NMFS announced that it was conducting status reviews on certain listed species (including the gray whale) under its jurisdiction, and solicited comments and biological information. That status review was completed and made available to the general public on June 27, 1991 (56 FR 29471). The **Federal Register** notice also stated that NMFS intended to publish a proposed determination that the listing status of the eastern North Pacific population of gray whale should be changed. That proposed determination and rule was completed and published in the **Federal Register** on November 22, 1991 (56 FR 58869).

In the proposed rule, NMFS gave notice that the comment period would close on January 21, 1992. However, as provided under section 4(b)(5)(E) of the ESA, NMFS received and accepted a request for a public hearing on the proposal (57 FR 3040, January 27, 1992). Public hearings were held in Silver Spring, Maryland, on February 14, 1992 and Long Beach, California on February 25, 1992. The comment period was extended until March 6, 1992 (57 FR 2247, January 21, 1992) in order to allow the public sufficient time to attend the hearings and complete their written comments.

Petition

Coincident with completion of the status review (but prior to its availability to the public), under section 4(c)(2) of the ESA and after work was initiated on the proposed determination and rule, the Secretary of Commerce (Secretary) received, on March 7, 1991, a petition from the Northwest Indian Fisheries Commission and others, which requested, under section 4(b)(3)(A) of the ESA, the removal of the eastern stock of the North Pacific gray whale from the ESA. On March 27, 1991, the Under Secretary for Oceans and Atmosphere, NOAA, acknowledged, the petition and NMFS began a review to determine whether the petition presented "substantial scientific or commercial information" that would support such an action.

NMFS completed that review and made a determination on December 10, 1991 (56 FR 64498), that the petition presented substantial information indicating that the requested action was warranted. The notice stated, however, that, because the status review had been completed, published, and made available to the general public, it had been determined that conducting another status review under section 4(b)(3)(A) would be duplicative and unnecessary. The notice concluded that the November 22, 1991, proposal could be accepted as the finding action required by section 4(b)(3)(B) for petitions found to contain substantial information.

Comments and Responses

During the 104-day comment period, NMFS received 103 letters and 612 photocopied form letters from the general public, all either opposing the delisting or recommending upgrading the status to threatened. Most of those commenting stated they opposed changing the status of the gray whale because of increased coastal pollution and development and boating activities. Oil and gas development, an increase in pressure to resume whaling, and "low genetic diversity" were other reasons given to oppose the proposed action.

In addition to the above, 30 letters were received within the comment period that substantially discussed the science upon which the proposal was based. Letters were received from the Governments of Canada, Russia and Mexico. Although all three governments chose not to comment on the internal decisions of another nation, the Government of Mexico submitted comments on behalf of its fisheries agency. These comments are addressed below. Comments and recommendations were received from the Marine Mammal Commission (MMC) on May 15, 1992. As provided by section 202(d) of the Marine Mammal Protection Act (MMPA) (16 U.S.C. 1361 *et seq.*), NMFS will respond in detail to the MMC's specific recommendations by a separate letter. However, their comments and recommendations and the comments of others are discussed below.

General Comments: Population Estimates

Comment: Two commenters questioned the accuracy of the population estimates given in the proposed rule, in particular the difference in population estimates between the United States and those supplied by the Government of Mexico in its submitted comments.

Response: The Mexican estimate of 15,000 (± 2,000) was obtained through aerial surveys of Mexican waters and is contained in a document submitted to the International Whaling Commission (IWC) Scientific Committee on the Assessment of Gray Whales. As the Document analyzed only raw data, the IWC Committee concluded it was not valid for indexing either abundance or trends (IWC 1990). In addition, the Mexican surveys, while limited to the breeding grounds, did not include all breeding lagoons and offshore waters. There was general agreement among scientists at the IWC meeting that the shore censuses along the migratory route are at present the appropriate way to estimate absolute abundance for this stock (IWC 1990). Reilly (1984) provides a more detailed explanation of the methods, assumptions and biases encountered with both aerial surveys and shore censuses of gray whales.

Comment: Two commenters noted that the U.S. population estimate for the eastern Pacific stock of gray whales is over 4 years old. They recommended that no action should be taken until new population estimates are made.

Response: The population estimate used in the proposed rule (21,113 (± 688) was made in 1987/88. Although a revision of the 1987/88 estimate was presented at the 1992 IWC meeting (*i.e.* 23,859, CV=0.0536, 95% CI 21,500–26,500), a stock size of 21,113 has been accepted by the IWC as the best estimate available (IWC 1990). That latter number is accepted also by NMFS as the best estimate available for the population size in 1987/88. Considering that previous population estimates indicated that the stock has been increasing at a rate of 3.2 percent (± 0.5 percent) annually between 1967 and 1988 (IWC 1990), it is considered neither necessary nor appropriate, to delay the action in order to accrue more data on the population. Monitoring required by section 4(g) of the ESA will include biennial surveys to continue the assessment of the stock and emergency provisions that could be imposed if the stock declined precipitously.

Comment: Several commenters questioned NMFS' estimate that carrying capacity was in the range of 24,000 animals. Three commenters cited Reilly (in press) indicating that the carrying capacity may be as high as 35,000 which would affect the NMFS calculation that the population was about 88 percent of carrying capacity.

Response: The recent paper by Reilly was not available prior to completion of the proposed rule. The status review in this final determination has been modified to address the carrying capacity issue.

General Comments: Consideration as a Species Under the ESA

Comment: One commenter questioned the accuracy of the statement that there are two stocks in the Pacific Ocean and stated that unless it can be demonstrated that the populations are separate, then the western stock remains vulnerable as recolonization is dependent upon the eastern stock. Therefore, protection of the eastern stock is required. The commenter recommended that NMFS conduct photo-identification and skin biopsy studies to determine "the degree of isolation and/or possible genetic exchange between these two stocks."

Response: Section 4 of the ESA provides for listing (and therefore delisting) at different evolutionary levels (i.e., species, subspecies, or "distinct population segment") on the basis of the best scientific and commercial data available. For the reasons detailed below, NMFS concludes that the best available scientific evidence supports the finding that the stocks are geographically and reproductively isolated (see for example, IWC 1990). The basis for determining stock discreetness for gray whales was fully addressed in the proposed rule and continued in this determination. However, it should be recognized that as the western stock of gray whales will remain listed under the ESA and as gray whales will remain protected also under the MMPA and the International Convention on the Regulation of Whaling, implementation of this action will not affect the ability of the eastern Pacific stock to repopulate the western Pacific if research later were to demonstrate that the two stocks are in fact a single stock. The research proposed by the commenter, while useful, is neither necessary prior to implementing this action, as populations do not need to be totally isolated genetically in order to be listed or delisted, nor assured of success considering the extremely low numbers of the western Pacific stock sighted in recent years. However, NMFS scientists will strongly encourage their Russian counterparts at IWC to collect and analyze appropriate samples from gray whales stranded in and around the Sea of Okhotsk for comparison with whales in their harvest. U.S. scientists plan to collect skin biopsy samples as part of the marine mammal stranding program and these samples will be available for comparison with any biopsy samples taken by Russia.

Comment: One commenter at the Silver Spring, Maryland, hearing objected to removing the eastern stock of gray whales from the List until the stock outgrows its (food) resources enough to trigger an expansion into its former range (i.e., the western North Pacific and Atlantic Oceans).

Response: As the proposal indicated, there are three distinct stocks of gray whales. One is extinct, a second near extinction and the third, the eastern Pacific stock, has recovered and is close to carrying capacity. Physical barriers (e.g. summer ice limits) prevent the eastern Pacific stock of gray whales from recolonizing habitat of the extinct Atlantic Ocean stock. It is also possible that a physical oceanographic barrier along the Kamchatka coast discourages intermingling of eastern and western Pacific stocks. To wait, as the commenter suggests, until these barriers are breached before removing the eastern Pacific stock from the List is not practical and is not required by section 4 of the ESA, which provides for listing (and therefore delisting) at different evolutionary levels (i.e., species, subspecies, or "distinct population segment").

General Comments: Use of Personnel

Comment: Two commenters were concerned that NMFS was spending time on this proposal that would be better utilized in listing species and designating critical habitats.

Response: NMFS is required under section (4)(c)(2) of the ESA, at least once every 5 years, to review the status of the species on the List to determine whether any species status warrants change. NMFS completed this review in 1991 and, based upon that status review, and as required by section 4(c)(2)(B) of the ESA, concluded that the gray whale stock had recovered to near its estimated original population size and is neither in danger of extinction throughout all or a significant portion of its range, nor likely to become endangered again within the foreseeable future throughout all or a significant portion of its range. Based on that review, NMFS determined that the status of the eastern gray whale stock should be changed (56 FR 29471, June 27, 1991).

Furthrmore, on March 7, 1991, the Secretary was petitioned under section 4(b)(3)(A) of the ESA to remove the eastern stock of the North Pacific gray whale from the List. Thus, NMFS has a statutory obligation to review and take appropriate action on the status of listed species and also to take appropriate action upon receipt of a petition to amend the List.

General Comments: Monitoring

Comment: Several commenters expressed concern over NMFS' monitoring program and offered suggestions on the composition of the Task force, the types of research to be carried out and coordination with appropriate foreign governments. One organization recommended that the gray whale not be delisted unless their recommended extensive research and monitoring program can be conducted. Another suggested that the monitoring program be conducted but that the stock only be upgraded to threatened status.

Response: Because they will be advising the Assistant Administrator on grants and on internal NMFS research on gray whales, including budgetary actions, the gray whale task force will be composed of NMFS marine mammal scientists. The final determination has been modified to make this issue more clear. Also, some types of research suggested for NMFS to conduct, either alone or within a multilateral agreement, but as part of its monitoring program, are viewed by NMFS as not being within the scope of requirements for monitoring under section 4(g) of the ESA. For example, one commenter's suggested research would require long-term monitoring of the coastal environment of the Bering Sea (feeding grounds), central and southern California (migratory route) and Baja California (calving grounds). Such research would be prohibitively expensive, taking away funds needed elsewhere and, without establishing a control, would not likely be successful. While baseline data might prove useful in the future, a direct cause-and-effect link between environmental conditions and the health of the marine mammal stocks would be difficult to prove. NMFS believes that monitoring the eastern Pacific gray whale stock in compliance with section 4(g) of the ESA can be accomplished through biennial shore-side surveys along the California coast, and a cooperative research program with Mexico to monitor trends and abundances in the lagoons in Baja California. Additional research would be funded if, during (or after) the mandated monitoring period, the stock indicates signs of environmental stress. Additional research proposed to be conducted on gray whales (i.e., photo-identification studies on isolated subpopulations, genetic diversity studies, analysis of tissue samples for contaminants from stranded animals, etc.) that is not considered part of the described monitoring program will be required to compete with other funding requirements for marine mammal research or could be funded by other sources (e.g., MMC, Minerals Management Service (MMS), or the National Science Foundation).

General Comments: Section 7 Consultations

Comment: One commenter recommended that NMFS provide a more complete review of those biological opinions which determined that the action could result in jeopardizing gray whales and an explanation on whether the findings of those biological opinions are no longer valid based upon new information or on a reevaluation of information originally considered in the opinions. Another commenter at the Silver Spring MD hearing recommended that NMFS reexamine the biological opinion(s) which contain(s) a jeopardy determination for gray whales and to remove that finding if the gray whale is delisted.

Response: NMFS has expanded the discussion on the impacts of oil and gas activities on gray whales. NMFS has also reexamined the findings in the earlier biological opinions, and concluded that, while the cumulative impacts from oil and gas activities may have the potential to affect adversely the eastern North Pacific gray whale stock, these impacts are not likely to jeopardize its continued existence. A copy of this reanalysis is available upon request (see ADDRESSES). See also the discussion of oil and gas development under Factor (A) below.

Comments on the Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range

Comment: Several commenters were concerned that should the gray whale be delisted, habitat protection will be lost. On a closely related issue, several commenters were concerned about increasing development throughout the gray whales' range but particularly over tourist facilities and oil and gas development, in the coastal breeding lagoons. Two were concerned about the potential loss of benthic food sources by development in these coastal lagoons. Another was concerned about the potential loss of food resources in the Bering Sea if an oil spill were to occur.

Response: The final determination has been modified and expanded to discuss, in greater detail, habitat concerns in the Bering Sea, along the Northwest Coast migration pathway and in the coastal lagoons in Baja California. However, as the benthic resources available to gray whales appear to be minimal in the coastal lagoons, and as the feeding which does occur (see Summary of Status Review) is probably opportunistic on pelagic organisms (Nerini 1984), coastal development does not appear to constitute a significant impact on gray whale food sources in the southern grounds at this time.

Comment: Several commenters expressed concern that the proposal did not adequately address the impact of general onshore development along the California coast, including the loss of wetlands, on the gray whales. One of these commenters was also concerned about the potential for intensive coastal development along the Washington/ Oregon coast, especially in the Gray's Harbor area, should offshore oil development commence.

Response: The issue of onshore coastal development is not discussed in any depth since, other than in the breeding/calving lagoons in Baja, a direct relationship between the two is largely speculative. However, as impacts from agricultural and industrial runoff and sewage may have some impacts on that portion of the stock that enters the enclosed embayments along the Pacific coasts, this impact was discussed in the proposed rule and is continued in this final determination.

Comment: Several commenters were concerned that bioaccumulation of toxic compounds in gray whales may pose jeopardy to the continued existence of the gray whale. One commenter was particularly concerned about increased strandings in Puget Sound and related them to their feeding in the "chemical soup" of the Sound.

Response: Although the November 22, 1991 proposal addressed this concern in some detail, the final determination has been updated with more recent analyses. These commenters did not dispute NMFS' findings cited in the proposed rule, and did not provide data or references, other than ancedotal, contrary to NMFS' cited research results (NMFS 1990) that chlorinated hydrocarbon and heavy metal contamination did not appear to be significant enough to cause deleterious effects to gray whales (see also Factor C: Disease or Predation). For that reason, a finding different from the one presented in the proposal is not warranted.

Comment: Some commenters were of the opinion that NMFS seriously underplayed the potential impacts from oil and gas activities, including the extent of activities along the Pacific coasts of Mexico, Canada and Russia.

Response: Although there is a possibility of joint-venture oil and gas operations between Russia and international oil companies, especially as recently reported for the Navarin Basin, no specific information is available to NMFS on scheduling of offshore oil activities off Russia, Mexico, or Canada at this time. As the commenters did not submit data supporting their contention, this issue cannot be addressed in any greater detail than was supplied in the proposal. Discussion of future oil and gas activities within U.S. waters, which was mentioned under the section 7 consultation portion of the proposal, has been moved and expanded in this part of the final determination (see the discussion under Factor (A) below). A description of present-day oil and gas activities and anticipated future events has been added to this section.

Comments on Overutilization for Commercial, Recreational, Scientific or Educational Purposes

Comment: One commenter expressed concern that delisting could lead to an increase in subsistence use of gray whales including use by the Makah Tribe for subsistence or ceremonial purposes.

Response: Native Americans in Washington, Oregon and California currently do not intentionally take gray whales. Should Native Americans in these States wish to begin taking gray whales, it would be necessary for them to gain access to the IWC's quota for subsistence takes. The IWC quota for the eastern gray whale stock is 169, which is taken by Russia for its Chukchi Natives. There is no indication from Russia that there is a need for a higher subsistence quota, although one could be authorized if documented as necessary, since the current subsistence quota is less than sustained yield (IWC 1990). More detailed information on both issues can be found elsewhere in the preamble.

Comment: One commenter was concerned that whale-watching activities might drive gray whales from critical habitat.

Response: While critical habitat has not been formally designated for gray whales, consideration of breeding, feeding, and migratory areas as important components for gray whale survival is appropriate. Whale-watching activities on the breeding grounds and along the migratory route, in addition to general recreational boating, are identified impacts on gray whales, which we readdressed in the November 22, 1991, proposal and in this action.

Comments on Disease or Predation

Comment: Two commenters were concerned that cumulative impacts from anthropogenic contaminants, biotoxins, noise, and disturbance could cause stress-induced immunosuppression resulting in non-natural mortality. One commenter was concerned that the proposed rule did not consider the potential future effects of biotoxins on gray whales.

Response: The proposed rule discussed these impacts in some detail. The conclusion was that individual and cumulative impacts, while they may have the potential to affect adversely the eastern North Pacific gray whale stock, are not likely to jeopardize its continued existence. Immunosuppression response in gray whales remains hypothetical at this time. There is no evidence outside of the captive environment that such a reaction occurs, although it is alleged to have occurred in certain odontocetes. Also, a link between biotoxins caused by phytoplankton and gray whales has not been shown to exist and at this time can be assumed to be unlikely (at least on primary feeding grounds) since gray whales, unlike previously identified impacted marine mammal species such as humpback whales and bottlenose dolphins on the U.S. East Coast, do not feed on those species of fish likely to contain the biotoxin. It bears watching whether that small portion of the population inhabiting Puget Sound becomes affected by the domoic acid outbreak in shellfish. A monk seal die-off in 1978/79 mentioned by the commenter was likely due to ciguatoxin and maitotoxin, both caused by ingesting reef fish, not a normal component of the gray whale diet.

Comments on Inadequacy of Existing Regulatory Mechanisms

Comment: Several commenters were concerned that changing the status of the gray whale could encourage other nations to request a change in the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) or for whaling nations or subsistence users to request the IWC to increase the quota. One commenter expressed concern that if the stock is delisted, other nations might ease their protective laws for gray whales and in this venue, NMFS should describe all applicable laws and assess their provisions.

Response: The issue of increasing the subsistence quota on gray whales has been discussed above and elsewhere in the preamble. Any actions taken under CITES or the IWC would be determined based upon the status of the gray whale stock, not by NMFS' delisting action. Under both international agreements, the status of the gray whale is subject to change depending upon a majority vote of their members independent of any action the United States takes under the ESA. The IWC, for example, establishes a gray whale quota based upon the status of the stock. The gray whale was changed from a "Protected Stock" to a "Sustained Management Stock" in 1978 on the basis that under a relatively constant harvest, the stock had apparently remained stable over a period of 11 years (IWC 1979). Recent exercises within the IWC to determine whether the stock should be reclassified as an "Initial Population Stock" (a step necessary in order for a commercial harvest quota to be established), have not been successful. The subsistence quota is set presently at 169 and there is no indication that a higher quota is warranted, although it is possible one could be authorized, since the current subsistence quota is less than sustained yield (IWC 1990). As mentioned later under the Factor, any increases in the subsistence take of the eastern stock of gray whales, by itself, is not likely to impact that stock significantly.

As stated in the proposed rule, existing national laws are considered adequate at this time and, under this Factor, it is existing regulatory measures that must be taken into account when determining impacts on a species.

While NMFS has determined that it is not necessary to publish a list of appropriate national laws and regulations and evaluate their effectiveness, the final determination has been expanded to more fully describe regulations pertaining to the protection of gray whales within their coastal lagoons.

Comment: Under this Factor, one commenter also wanted NMFS to "conduct and provide a more comprehensive assessment of present and foreseeable threats to the principal breeding lagoons, feeding grounds, and other areas of special biological importance to the species * * *" prior to making a determination that laws are adequate to protect gray whales.

Response: Although NMFS does not consider it appropriate to provide a comprehensive assessment of threats to gray whales under this Factor, such an assessment was provided under Factor A.

Comment: Several commenters were concerned that the regulatory mechanisms provided under CITES, IWC, and the MMPA could not prevent habitat degradation, or a resumption of whaling. In addition, concern was made by several reviewers over the loss of section 7 consultations if the stock was removed from the List.

Response: While section 7 consultations would cease for the gray whale if the eastern Pacific stock was removed from the List, other laws and activities would protect the coastal habitat. The final determination has been expanded to incorporate these concerns.

Comment: Several commenters recommended that if the species is delisted, NMFS establish an international conservation plan under the MMPA. One commenter recommended that this international research be conducted under multilateral treaties and agreements under the monitoring requirements of section 4 of the ESA. In addition, this commenter wanted NMFS to undertake, or cause to be undertaken, research recommended by the IWC in 1990.

Response: NMFS has included as part of its monitoring program a proposed cooperative research effort with the Government of Mexico. NMFS will also continue to conduct gray whale research under the aegis of the IWC. While cooperative research programs with other Pacific Rim nations would likely result in improved knowledge on the gray whale, implementation of an international conservation plan under the MMPA for a non-depleted species, independent of the IWC, is viewed as being neither likely to be successful, nor an efficient use of Agency resources, since other marine mammal species, including seriously depleted or endangered species, could benefit from this attention and funding. However, NMFS will continue, through participation in the IWC, to encourage other Pacific Rim nations to conduct research on gray whales, particularly the western Pacific gray whale stock, which will remain listed as endangered.

Comments on Other Natural or Man-made Factors Affecting Its Continued Existence

Comment: Several commenters were concerned that the species was reduced to such low levels early in the century that its genetic diversity is limited, which may impact the species' future viability, in particular making it more vulnerable to disease.

Response: There is no evidence that the eastern Pacific gray whale stock's genetic composition was compromised by its reduction to approximately 4–5,000 in the mid-19th century. While an analysis of skin biopsy samples from gray whales taken in harvests or strandings, for the degree of heterozygosity would be informative, and may provide some insight into the degree of severity of the harvest reduction, it is not clear that it would provide much help in determining whether the eastern North Pacific gray whale is either in danger of extinction throughout all or a significant portion of its range, or likely to again become endangered within the foreseeable future throughout all or a significant portion of its range.

Comment: One commenter expressed concern that the proposal did not adequately address the impact of commercial fisheries on gray whales, including the deterrence of high penalties under the ESA in comparison to the MMPA, the reluctance of fishermen to report "takes" of endangered and threatened species, the low observer coverage in fisheries and the relationship between the ESA and state fishery regulations.

Response: While NMFS considers the discussion on the relationship between commercial fisheries and the eastern North Pacific stock of gray whales in the proposal to be adequate, the final determination has been expanded to address these additional concerns.

Comment: One commenter recommended that the discussion of this Factor address other issues in addition to commercial fishing, including vessel traffic, whale-watching, pollution, coastal development, and other activities that may affect gray whales and their habitat.

Response: The activities mentioned by the commenter were all addressed under Factors 1 through 4 in the proposed rule and in this document as Factors A through D and need not be repeated under this Factor. NMFS recognizes that categorizing an impact within a specific Factor is not always clear. However, in order to reduce repetition of text, NMFS has chosen to discuss a specific impact in its entirety under the first Factor wherein the impact is mentioned, for example, under Factor A, discussion of the impacts of oil spills on gray whale habitat is appropriate, therefore discussion of oil impacts on the gray whale as a individual, is also discussed under this Factor rather than delaying discussion until Factor E. This also facilitates comprehension and understanding of the impact.

Status Review

The gray whale is confined to the North Pacific Ocean. Two stocks occur in the North Pacific: the eastern North Pacific or "California" stock, which breeds along the west coast of North America, and the western Pacific or "Korean" stock which apparently breeds off the coast of eastern Asia (Rice 1981). Because it uses coastal habitats extensively, the gray whale was especially vulnerable to shore-based whaling operations and both stocks were severely depleted by the early 1900s. Under legal protection since 1946, the eastern North Pacific stock has recovered to its estimated original, pre-commercial exploitation population size (Rice *et al.* 1984), but apparently remains below the ecosystem's carrying capacity for that stock (Reilly 1992).

The estimated stock size in 1987/88 (21,113±688; Breiwick *et al.* 1989) is above Henderson's (1972, 1984) estimated initial (1846) stock size of 15,000–20,000, but below Reilly's (1981) estimate for carrying capacity of 24,000 gray whales. Between 1967 and 1988, the stock increased at a rate of 3.2 percent (±0.5 percent) per year (IWC 1990; see Reilly *et al.* 1983 and Reilly 1987, for analysis of the 1967–1980 data; Rugh *et al.* 1990, for the 1985–1986 data; Breiwick *et al.* 1989, for the 1988 population estimate). Using Reilly's (1981) estimate with Breiwick *et al.*'s (1989) estimate of population size, it is likely that the gray whale population is within its optimum sustainable population (OSP) size or at about 88 percent of estimated historic carrying capacity (21,113/24,000 = 88 percent).

More recently however, Reilly (1992) stated that it is not entirely clear where the population is in relation to its current carrying capacity. He noted that if early aboriginal kills were 50 percent higher than documented, estimates of carrying capacity would range from 23,000 to about 35,000 and the population would be between 60 percent and about 90 percent of carrying capacity. However, Reilly (1992) noted also that the possible recent decline in pregnancy rates (see also IWC 1990) and possible signs of overexploitation of the benthic fauna upon which gray whales feed in the Bering and Chukchi Seas (see also Stoker 1990, IWC 1990), if verified, may be evidence that the stock is nearing the limits of its environment and therefore approaching carrying capacity. Another indication implying that the stock may be approaching carrying capacity is the increased observation of females with newborn calves in areas outside the calving lagoons, especially during the southbound migration (Jones and Swartz 1989, Swartz 1990). Alternatively, the fact that the calving lagoons do not appear to be saturated (Swartz 1990) may indicate that gray whales continue to reoccupy their former range. However, since early calving has been observed previously (for example off Mission Bay California in 1963/64 by Gilmore and McIntyre where the birth was observed (McIntyre, pers. comm. 1991) and off Monterey California in 1974 (Sund 1975)), this may be a normal event and the calving lagoons are neither a factor limiting the increasing size of the gray whale population, nor, considering their geologically transient nature, as critical a component of the gray whale's habitat as previously assumed (see for example, Rice *et al.* 1984 and 49 FR 44774, November 8, 1984). However, data on the mortality rate of newborn calves outside the calving lagoon environment in comparison to mortality within the lagoons (approximately 5 percent) are needed to verify this hypothesis.

The eastern Pacific stock has increased in spite of increased human use of the coastal habitat (i.e., nearshore migration route where mating and calving occur), and a subsistence catch of 167 (±3.5) whales per year by the former Soviet Union during the past 30 years (calculated from data in Ivashin in press).

Most of the eastern North Pacific stock spends the summer feeding in the northern Bering and southern Chukchi Seas (Rice and Wolman 1971, Rice *et al.* 1984). In the northwestern Bering Sea, they have been noted in recent years to be extending their range west of Cape Olyutorisky on the Chukchot Peninsula. Unless this is simply an artifact of increased observation effort, gray whales may be extending their range in search of additional food resources. In the Beaufort Sea, sightings have been made of individuals as far east as long. 130°W during August (Rugh and Fraker 1981) and in the East Siberian Sea, gray whales were found along the Siberian coast as far west as 174°08'E in late September (Marquette *et al.* 1982). Berzin (1984) believes these distributions are probably limited by pack ice in the summer. Although actual timing depends upon feeding conditions and patterns of ice formation, during October and November the stock begins leaving the Chukchi Sea (Braham 1984). Moving at about 125 km/day (Braham 1984), they exit the Bering Sea through Unimak Pass, Alaska, mainly in November and December (Rugh and Braham 1979, Braham 1984, Rugh 1984). The whales migrate near shore along the coast of North America from Alaska all the way to central California (92 percent pass within 1.6 km of Cape Sarichef, Unimak Pass (Rugh 1984), and 94 percent pass within 1.6 km of the Monterey-Point Sur area of central California (Sund and O'Connor 1974)). After passing Point Conception, California, Rice *et al.* (1984) believed the majority of the animals took a more direct offshore route across the southern California Bight to northern Baja California. This route passes Santa Rosa and San Nicolas islands, the Tanner and Cortes banks and into Mexican waters (MMS 1992). Other routes include the nearshore route which follows the mainland coast of California, and the inshore route which passes through the northern Channel Island chain to Santa Catalina or San Clemente Island and on into Mexico. Bursk (1988) contends that gray whales have moved further offshore recently and Graham (1989) estimates that 14, 15, and 25 percent of the estimated population size passed west of San Clemente Island during the southbound migration in 1986/87, 1987/88 and 1988/89, respectively. Off California, southbound migrating gray whales swim at about 5.5–7.7 km/hour, and thus travel about 132–185 km per day with day and night speeds not statistically different (Pike 1962, Jones and Swartz 1987, Swartz *et al.* 1987).

Migrating gray whales are temporally segregated according to sex, age, and reproductive status (Rice and Wolman 1971). During the southward migration, the sequence of passage off California is as follows: Females in late pregnancy, followed by females that have recently ovulated, adult males, immature females, and then immature males (Rice *et al.* 1984). The earliest southbound migrants (mostly late-pregnant females) usually travel singly, whereas later migrants usually are in pods of two or more. The mean pod size through Unimak Pass is about two (Rugh 1984).

The eastern Pacific stock winters mainly along the west coast of Baja California. The pregnant females assemble in certain shallow, nearly landlocked lagoons and bays where, after a 418-day gestation period (Rice *et al.* 1981), the calves are born from early January to mid-February. The majority of gray whales in Baja California (including some cows with calves) spend the winter outside the major breeding/calving lagoons along the outer coast apparently from Bahia de Sebastian Vizcaino to Boca de las Animas. Recent research indicates that females with calves do not necessarily restrict themselves to a single lagoon, but may move between and among lagoons and the outer coast during the winter (Jones and Swartz 1984). While calving was assumed to occur only rarely during the southbound migration north of Baja California (Rice and Wolman 1971), more recently, Swartz (IWC, 1990) noted that in the Channel Islands "calves of the season comprised 13.3% of all whales counted * * *." These observations suggest that calves may be born as far north as Washington State (Jones and Swartz 1987). A few calves are also born on the eastern side of the Gulf of California at Yavaros, Sonora, and Bahia Reforma, Sinaloa, Mexico (Gilmore 1960; Gilmore *et al.* 1967).

The northbound migration begins in mid-February and continues through May with the earliest northbound migrants passing San Diego before the last of the southbound migrants (Rice *et al.* 1981). By April, the early migrating whales begin showing up in the southern Bering Sea, which they enter through Unimak Pass. This migration is completely coastal, at least to the east of central Bering Sea (Nunivak Island). Most of the animals in Alaska travel within one km of the coast, avoiding embayments, especially in the southeastern Bering Sea, and at least some apparently feed during migration (Braham 1984). However, because suitable feeding habitat is relatively uncommon south of the Bering Sea, few gray whales remain south of Unimak Pass to spend the summer along the west coast of North America in apparently isolated locations as far south as Baja California, Mexico (Nerini 1984). During the northward migration, the sequence, in two phases, is as follows: Newly pregnant females, followed by other mature females, adult males, and immature males and females Cows with calves are the last animals to leave the lagoons, and most migrate after the other whales (Rice *et al.* 1984) with a more protracted period of migration (Swartz 1990). The cow/calf phase of the spring migration generally peaks 7 to 9 weeks after the peak of the first migration phase (Poole 1984). On the northern grounds, primary feeding locations appear to be in the Chirikov Basin, the north side of the Chukchi Peninsula, nearshore waters of the western Bering Sea, and the southern capes of St. Lawrence Island (Nerini 1984). These benthic foraging areas are all underlain by dense infaunal communities of crustaceans (Nerini 1984).

The western Pacific stock formerly occupied the northern Sea of Okhotsk in the summer, as far north as Penzhinskaya Bay, and south to Akademii and Sakhalinskiy Gulfs on the west and the Kikhchik River on the east

Southbound whales migrated along the coast of eastern Asia from Tatarskiy Strait to South Korea (Rice and Wolman 1971) to winter breeding/calving grounds, which probably lie along the coast of southern China in Gwangxi and Gwangdong provinces, and around Hainan Island (Wang 1984). Until the turn of this century, another migration route led down the eastern side of Japan to winter grounds in the Seto Inland Sea, Japan (Omura 1974). The status of the western Pacific stock of gray whales is uncertain (Brownell and Chun 1977). Sightings of 24 animals in the Okhotsk Sea and nine off the tip of Kamchatka in 1983 (Blokhin *et al.* 1985, Votrogov and Bogoslovskaya 1986), and 34 in 1989 in the Okhotsk Sea (Berzin in press) suggest that the stock is small. There is no evidence that it has reoccupied its entire former range (Omura 1984) and initial stock size may have been only a few thousand (Omura 1988). Although Rice *et al.* (1984) concluded that it is likely that the stock is below a critical population size sufficient for recovery and may be almost extinct, Berzin (in press) suggests that the stock is increasing slowly.

The gray whale formerly occurred in the North Atlantic, but has been extinct there for several centuries (Mead and Mitchell 1984).

Consideration as a Species Under the ESA

The ESA defines "species" to include any subspecies of fish, wildlife, or plants, and any distinct population segment of any species or vertebrate fish or wildlife which interbreeds when mature.

Two stocks of gray whales remain extant, both in the North Pacific Ocean: (1) The western stock, which migrates between feeding grounds in the Sea of Okhotsk and breeding/calving grounds along the South China Coast; and (2) the eastern stock, which migrates between breeding/calving grounds along the West Coast of Mexico and feeding grounds in the Bering and Chukchi Seas (Rice and Wolman 1971). These stocks appear to be significantly isolated both geographically and reproductively from each other. Recent strandings of gray whales on the Commander Islands are believed to be from the eastern stock, while gray whales reported along the Kamchatka coast are believed to be from the Okhotsk-South China population (IWC 1990). Alternatively, all strandings may be from the Korea stock (Rice 1981, IWC 1986). Since gray whales mate during their autumnal southward migration, rare vagrants would make interbreeding between the California and western Pacific population possible. However, that possibility would be greatly reduced if, as Rice (1981) believes likely, most vagrants are immature animals. The absence of sightings between the Okhotsk Sea and the Commander Islands suggests the stocks are separate (IWC 1990). Mitchell suggests that an absence of aboriginal whale hunting records along the Pacific coast of the Kamchatka Peninsula may indicate a lack of abundance of gray whales in the area and a hiatus in distribution between eastern and western stocks (IWC 1990). In addition, Yablokov and Bogoslovskaya (1984) after reanalyzing data collected by earlier investigators, found that, in addition to differences in cranial measurements indicating the Okhotsk-Korea stock to be statistically larger in size than the Chukotka-California stock, the latter stock had fewer throat grooves and a smaller number of baleen plates. These authors believe that these differences may indicate the existence of two distinct groups which may allow them to be designated as subspecies. After reviewing the data available to it, the IWC Scientific Committee on the Assessment of Gray Whales (IWC 1990) agreed that the eastern and western populations of gray whales probably represent geographically isolated stocks, although recognizing that the existing data are not conclusive.

Based on the above discussion, NMFS believes that the best scientific and commercial data available supports the determination that there are two separate stocks of gray whales in the North Pacific Ocean and that the eastern North Pacific gray whale stock can be considered a distinct population and hence a species under the ESA.

Summary of Factors Affecting the Species

Section 4(a)(1) of the ESA and the NMFS' listing regulations (50 CFR part 424) set forth procedures for listing, reclassifying or removing species. The Secretary of either the Interior or Commerce, depending upon the species involved, must determine if any species is endangered or threatened based upon any one or a combination of the following factors: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific or educational purposes; (C) disease or predation; (D) inadequacy of existing regulatory mechanisms; or (E) other natural or man-made factors affecting its continued existence. Under section 4(a)(2) of the ESA, if the Secretary of Commerce determines that a species under her jurisdiction should be removed from the List or changed in status from endangered to threatened, the Secretary then recommends such action to the Secretary of the Interior. If the Secretary of the Interior concurs with the action, he must implement the action by amending the List. However, if a species is removed from the List, the Secretary, under section 4(g) of the ESA, must implement a system in cooperation with the states to monitor effectively, for a period not less than 5 years, the status of the species and must use the emergency authority provisions under paragraph (b)(7) of section 4 to prevent a significant risk to the well-being of any recovered species. These factors and subsequent consultation with the Department of the Interior are discussed below.

Factor (A)—The Present or Threatened Destruction, Modification or Curtailment of Its Habitat or Range.

Two potential threats to the eastern North Pacific gray whale population are increasing vessel traffic (including whale watching activities), and industrial development (including oil and gas exploration and development), in the breeding/calving lagoons, feeding grounds, and along the migration route.

Commercial vessel traffic may result in the death of gray whales through collision or by harassment when both vessel and whale are confined to narrow passages. Heyning and Dahlheim (in press) documented 7 cases of gray whale/ship collisions; 5 in southern California, one each in Alaska and Washington. They surmised that gray whales may be unable to detect large ships in time to avoid collisions due to the size and speed of the vessels. However, because large vessels are restricted to certain travel lanes while in inshore waters (where gray whales are predominantly located) and the low period of vulnerability to large commercial vessels due to the whale's migratory nature, NMFS believes that few gray whales are killed annually by collisions with vessels.

Activities of commercial cruise boats and small pleasure craft may result in harassment of gray whales, especially in the breeding/calving lagoons in Baja California and along their migration route off California. As whale-watching activities increase rapidly in southern California and on the Baja Peninsula, harassment occurrences are increasing proportionally, particularly on weekends and holidays. Whale watching by recreational and commercial craft may negatively impact migrating gray whales by interrupting swimming patterns, altering migratory routes, and displacing cow/calf pairs from inshore waters, thereby increasing every consumption (CMC/NMFS 1988, IWC 1990). Bursk (1988) contends that gray whales have moved further offshore recently due to whale-watching activities in southern California. Graham (1989) has noted a similar decrease in nearshore gray whales but attributed it to sea surface temperature anomalies in late 1988/early 1989. Others, such as Rice (1965), and Gilmore (1978), noted this offshore migration route earlier and Rice and Wolman (1971) considered the offshore passage to be a normal migratory route.

Vessels in the breeding/calving lagoons may cause short-term flight reactions by gray whales when the vessel is moving at high speeds or erratically, but gray whales will show little response to slow moving or anchored vessels. Gray whales have been reported to avoid vessels at ranges of roughly 0.5 km and less, with no documented responses at further distances (IWC 1990). However, Jones and Swartz (1984), in a study of gray whales in Bahia San Ignacio, found that data suggest that gray whales possess sufficient resiliency to tolerate the physical presence and activities of whale-watching vessels and skiffs and the noise produced by this level of activity without major disruption. This finding was supported by a noted increase in usage of the lagoons by gray whales, especially females with calves. Jones and Swartz (1984) believe a key factor responsible for maintaining a stable population within their study lagoon (*i.e.*, San Ignacio) was: (1) The establishment of the gray whale refuge, which provided an area free of all vessel activity to which whales could retreat and (2) the behavior of commercial whale watch operators to minimize disturbance.

Under the MMPA, gray whale harassment is considered a "take" and is prohibited. NMFS has established guidelines for whale watching in order to avoid harassment of gray whales on their migration path in U.S. waters and may implement regulations to limit approaches to marine mammals in 1993. In this regard, a proposed rule was published on August 3, 1992 (57 FR 34101) with a comment period due to expire on December 31, 1992. These regulations, if implemented, would be effective within waters under U.S. jurisdiction and for U.S. citizens except when within waters under the jurisdiction of another nation (*e.g.* Canada and Mexico). These regulations would, if implemented as proposed, establish minimum approach distances for large cetaceans (100 yards) and will require procedures to avoid disrupting the normal movement or behavior of marine mammals. It is anticipated that these regulations would strengthen protective measures for gray whales principally during migratory periods. Enforcement of these regulations will be accomplished through onboard monitoring of activities, citizen complaints and aerial and shipboard reconnaissance.

The main gray whale calving grounds in Mexico are Laguna Ojo de Liebre (Scammon's Lagoon with 53 percent of calves), Estero Soledad (12 percent), Laguna San Ignacio (11 percent) and Laguna Guerrero Negro (9 percent) in Mexico (Rice *et al.* 1984). However, the number of whales present at any one time is subject to fluctuations due to the interchange of whales between the lagoons (Jones and Swartz 1984). Minor calving areas, each with less than 6 percent of the calves, are San Juanico Bight, Bahia Magdalena, Bahia Almejas, and Bahia Santa Marina (Rice *et al.* 1981, 1984). A few calves are also born on the eastern side of the Gulf of California at Yavaros, Sonora, and Bahia Reforma, Sinola, Mexico (Gilmore 1960, Rice *et al.* 1984). Between 1972 and 1979, the Mexican Government designated three (Laguna Ojo de Liebre, Laguna Guerrero Negro, and Laguna San Ignacio) of the four major calving lagoons in Baja California as gray whale refuges. These are the lagoons that most of the U.S. tour boats and private tourists visit. The number of vessels allowed in these lagoons at any one time is limited by the Mexican Government by permit, which all commercial vessels are required to obtain, and entry into certain areas, such as the upper lagoon in Laguna Ojo de Liebre and the middle and upper lagoons in Laguna San Ignacio (Jones and Swartz 1984), is forbidden. Apparently, because of Mexico's policy of revoking permits if there are any transgressions, this system is generally self-policed effectively (Stinson 1988). However, Jones and Swartz (1984) found that in Laguna San Ignacio, where regulations limit the number of vessels to two at any one time, 3 or 4 vessels may occupy the lower lagoon for about ½ day when departing vessels overlap with arriving vessels.

To provide additional protection of gray whales within Mexican waters, the Government of Mexico is in the process of implementing its own standards for governing whale watching activities.

A second potential threat to the eastern North Pacific gray whale stock and its habitat is oil and gas exploration and development and related activities along its migration route, in the breeding/calving lagoons in Baja and in or near its feeding grounds in the Bering and southern Chukchi Seas. Oil and gas exploration, which may result in a short-term loss of habitat for gray whales through displacement by seismic and other activities, is contemplated or under way on the outer continental shelf (OCS) from California to the Beaufort Sea, and west into Russian waters of the Bering Sea throughout the migration range of this species. (In addition, other types of mineral resource development (e.g., gold mining) are under consideration within possible gray whale feeding areas in the Bering Sea). Annually, the gray whale population migrates by or through at least eight oil lease areas within U.S. waters (Rice *et al.* 1984).

Between 1964 and January 1, 1990, over 358 exploration and 692 development wells, have been drilled on the Pacific Region OCS (MMS 1992). All of the development wells and all but 31 of the exploration wells were in the Southern California Bight. In Southern California, 21 platforms have been installed and approximately 135 miles of pipeline have been laid in Federal waters. There are no platforms or pipelines in the Central California, Northern California, and Washington-Oregon OCS.

Nominal exploration and development work will continue in southern California as the number of leases has dropped dramatically to only 116 as of July 1990 (MMS 1991). MMS (1992), for its baseline studies, anticipates that in southern California, approximately 3–4 exploratory and/or delineation wells could be drilled annually, for a total of 25 wells over an eight year period. Approximately 7 development platforms (and pipelines) would be built under this scenario. It appears that only two large and ongoing development projects, the Point Arguello Field and the Santa Ynez units will be placed into production within the next 5 years (MMS 1991). Oil and gas development activities will likely result in a long-term, but considering the small amount of ocean bottom utilized by platforms and pipelines an insignificant, loss of habitat for gray whales.

In Alaska, 87 wells have been drilled, including 2 ongoing wells in the Chukchi Sea and 14 test wells. Thirty-three wells were drilled in the Gulf of Alaska, 30 in the Bering Sea, and 24 in the Arctic. None of these wells resulted in the discovery of hydrocarbons in commercially producible amounts. However, while subeconomic, eight wells demonstrated the positive hydrocarbon bearing potential of the Beaufort Sea area (MMS 1991).

At this time there does not appear to be a high degree of industry interest in the Gulf of Alaska/Cook Inlet area and unless new leases are issued, there will be little operational activity in that area in the next 5- to 10-year period (MMS 1991). Past drilling activity in the St. George, Norton and Navarin Basins has not resulted in any announced discoveries of oil or gas and leases in the North Aleutian Basin have been suspended pending completion of congressionally mandated studies. Although there may be some scattered exploratory activity on existing leases in the St. George, Norton and Navarin Basins, any production is at least 10 to 15 years away, even if a major field were to be discovered (MMS 1991). If a major field is not discovered, little activity would be expected because of the high costs involved and the unproven geologic potential of the area.

In the Chukchi Sea, it is likely that 2 to 3 exploration wells will be drilled each year for the next 5- to 10-year period contingent on results of early wells. One or more major discoveries might accelerate activity while few or no discoveries will curtail activity. While there are some significant discoveries of oil and gas in the Beaufort Sea, whether or not they are developed further may well depend on new discoveries to support the enormous costs of infrastructure to produce and transport oil and gas from Alaska (MMS 1992).

No new lease sales are proposed for Washington, Oregon, or central and northern California before 1997. In southern California no lease sales are contemplated until at least 1996, when 86 blocks in the Santa Maria Basin and Santa Barbara Channel will be considered (MMS 1991). In Alaska, two lease sales in the Beaufort Sea (1993 and 1996), two for the Chukchi Sea (1994 and 1997), two in the Bering Sea (1995 and 1996) and one each in Cook Inlet (1994) and Gulf of Alaska (1995) are proposed, although several additional sales are possible (MMS 1991).

On the winter breeding/calving grounds, oil and gas exploratory areas include sites within and adjacent to present calving and nursery areas, such as the offshore waters of Sebastian Vizcaino Bay, where seismic exploration for gas deposits took place during 1981. To date, no development activities are known to be underway but may take place in the future.

Potential impacts from oil and gas exploration and development include noise disturbance, contact with spilled oil, habitat degradation and possible loss or destruction of benthic prey populations upon which gray whales depend.

Noise disturbance to gray whales has been studied during their migrations along the California coast (Malme *et al.* 1983 and 1984) and on their breeding/calving grounds in Baja California Sur, Mexico (Dahlheim 1983, 1984; Dahlheim *et al.* 1984). Reactions of gray whales to recordings of industrial noise and to a seismic airgun source during migration have shown that avoidance behavior occurs only at relatively close ranges at decibels greater than 120 dB for continuous noise and 160–170 dB for pulsed sounds such as from airguns (Tyack 1988). Malme *et al.* (1984) for example, found a 50 percent probability of an avoidance response of 2.5 km off central California for a seismic airgun array, 1.1 km for a drillship, and 400 m for a single airgun. However, because noise from oil and gas activities occurs at frequencies that overlap gray whale calling (and assumed hearing) frequencies, they may also influence other behavior causing, for example, interference with socialization, reproductive behavior and communication. For oil and gas activities subject to U.S. jurisdiction, NOAA requires companies under an MMPA 101(a)(5) Small Take Letter of Authorization to take specified precautions to avoid disturbing whales including grays.

Reactions to industrial noises by gray whales studied in their breeding/calving grounds were more pronounced than those found off central California, including vacating the study area during the projection of industrial noises (Jones *et al.* 1991), and changes in the acoustical and observed surface behavior and distribution (Dahlheim 1988). Dahlheim (1988) found that gray whales responded to vessels and to playbacks of vessel noise by: (1) An increase in calling rates; (2) an increase in received levels of sounds; (3) an increase in frequency modulation, number of pulses per series, and repetition rates; and (4) a distinct change in movement, both away from and toward the sound source. In response to a playback of oil drilling noise, calling rates were reduced, direct movements away from the sound source were documented, milling rates decreased, and major changes in distribution and a decrease in local whale abundance were documented. Dahlheim (1988) hypothesized that gray whales engaged in acoustical communication circumvented noise in the acoustical channel by the structure and timing of their calls.

Gray whales may also be sensitive to noise disturbance on their feeding grounds and might temporarily abandon productive feeding areas if excessively disturbed. MMS (1992) estimates that seismic exploration activities off Alaska would take place from June to September, the same time period gray whales occupy their northern feeding grounds. Reliance on less-productive areas could leave the animals with insufficient body reserves for their successful migration and reproduction. However, because of the gray whale's abundance and range, (and the apparent abundance and range (one million km^2) of its primary food source in the Bering Sea), the present gray whale population could likely tolerate without significant effects the short-term and non-recurring local impacts brought on by seismic exploration (NMFS Biological Opinion for Lease Sale 100, dated December 21, 1984).

Another potential threat is the possibility of a major oil spill that would affect a large portion of the gray whale population and/or its habitat; although the temporal and spatial segregation of the stock would tend to expose different segments of the population to oil at any given time. Assuming an oil spill, caused either by a tanker accident, pipeline break, or an oil well blowout, were to occur and contact gray whales, the worst adverse impacts to whales from contact would include death or illness caused by ingestion or inhalation of oil, irritation of skin and eyes, fouling of feeding mechanisms, and reduction of food supplies through contamination or losses of food organisms. Although no data exist at this time, likely direct adverse impacts include: (1) Conjunctivitis and corneal eye inflammation leading to reduced vision and possible blindness; (2) development of skin ulcerations from existing eroded areas on the skin surface with subsequent possibility of infection; (3) compromising of tactile hairs as sensory structures; and (4) development of bronchitis or pneumonia as a result of inhaled irritants (Albert 1981). In general, however, the results of Geraci and St. Aubin (1982, 1985) and Geraci (1990) indicate that whales are likely to suffer only minor impacts if they contact oil spills, and that they are likely to recover from these effects. It is recognized that natural oil seeps have long been a part of the ecosystem that gray whales inhabit. In southern California for example, there are 54 natural seeps, with an approximate discharge of 30,000 tons (7.03×10^6 gal.) released annually in the Santa Barbara Channel alone (Fischer 1978 as cited in Neff 1990a). Studies on gray whales in these seeps (Evans 1982), and on bottlenose dolphins in an experimental setting (Geraci 1990), although inconclusive, tend to indicate that cetaceans can detect oil on the surface. When entering oil-contaminated environs, gray whales tend to spend less time on the surface, blowing less frequently, but faster, which may be interpreted as an avoidance behavior, although more testing would be necessary to verify the observation (Geraci 1990). The inhalation of the hydrocarbon products at the water surface is believed unlikely because the breathing mechanism of the whale which prevents inhalation of water would likely also prevent inhalation of oil (Geraci and St. Aubin 1980). However, if the whales enter the immediate vicinity of a recent spill, toxic fumes could be inhaled (Dahlheim n.d.), although 50 percent of the aromatic hydrocarbons (*e.g.* toluene and benzene) evaporate within a few days of the discharge (Neff 1990a), greatly reducing the toxicity in the spill area.

Because the probable effects on whales from contacting oil include temporary fouling of baleen and toxic effects from ingestion of oil, oil spills may pose a greater problem for the gray whale on its feeding grounds than during its migration. In a laboratory study on bowhead whales (*Balaena mysticetus*), baleen plates fouled by oil had decreased filtering efficiency for at least 30 days, but 85 percent of the efficiency was restored within 8 hours (Braithwaite *et al.* 1983). Due to its coarser and shorter baleen, Geraci and St. Aubin (1982, 1985) demonstrated similar, but somewhat faster, recovery rates for gray whales. Although the toxic effects of ingesting oil remain generally unknown, Geraci and St. Aubin (1990) believe that marine mammals have the liver enzymes required to metabolize and excrete hydrocarbon compounds. This ability limits the accumulation of residues in body tissues and minimizes the probability of residual harm following a spill.

A recent computer model simulating an oil spill projected that gray whales would not contact oil in the Navarin Basin, but would contact oil in the Beaufort Sea (<=0.2% of the population), the St. George Basin (<=1.5%) and Chukchi Sea (<=0.8%). In the St. George Basin, gray whales would contact oil while navigating to and from their feeding grounds in the spring and fall, while in the Chukchi Sea, they would contact oil during summer feeding months. No more than 1.5 percent of the whales passing through Unimak Pass would contact oil. In general there was a 6.3 percent chance that at least one gray whale would encounter oil in the Bering Sea during the 30- to 40-year lifespan of an individual oil field (Neff 1990b). MMS (1992) projects the probability of one or more oil spills of 10,000 barrels or greater occurring in the gray whale areas to range from 14 percent in southern California, 21–27 percent in the Bering Sea, 18–34 percent in the Gulf of Alaska to 96 percent in the Chukchi Sea, provided commercially producible amounts of hydrocarbons are discovered and developed.

MMS (1992) gives the probabilities of one or more pipeline or platform spills of 1,000 bbl and greater, and 10,000 bbl and greater as a result of activity in the Chukchi Sea as 92 and 57 percent respectively. In addition, because Chukchi Sea oil will be transported by tanker, there is a 93 and 81 percent probability of one or more spills of 1,000 bbl or greater and one or more spills of 10,000 bbls or greater respectively occurring; although tanker spills would occur outside the Chukchi Sea area since all transport within the area will be by pipeline (MMS 1992). In areas such as the Norton, Navarin and St. George Basins, oil will be transported by tanker to shore facilities in Alaska or other West Coast states. For its base case projections, MMS (1992) predicts one tanker spill for each of these areas developed (over the 30- to 40-year life span of an oil field) but no platform or pipeline spills.

In southern California, MMS (1992) projects a single pipeline spill of 7,000 bbl will result from exploration and development activities in the Santa Maria Basin or the Santa Barbara Channel. In addition, as a result of oil and gas activities in Alaska, 3 tanker oil spills of 30,000 bbl each are projected to occur along the tanker route on the Pacific coast over the 30- to 40-year life span of an oil field: One off Washington, one off northern California and one off southern California. A northern California spill is projected by MMS to occur 80 km or more from the coast with no shore contact.

MMS (1992) anticipates that an oil spill of 10,000 bbl or greater could result in the death of a few individuals and the displacement of gray whales from areas of up to 1,500 km^2 in the Chukchi and Bering Sea feeding grounds for all or part of a season. (For comparison purposes, the Chirikov Basin is approximately 3.7×10^4 km^2).

MMS (1991) reports that out of a total of 6.2 billion barrels of OCS oil produced from 1971 through 1988, only 900 barrels were spilled from blowouts. However, this statistic excludes the Union Oil spill in Santa Barbara in January 1969. That spill resulted in a loss of about 3 million gal of oil which eventually covered 800 mi^2. Surveys conducted as a result of that spill discovered 6 gray whales stranded between January 28 and March 31, 1969. Although these counts were higher than normal, it is unclear whether this was due to the spill or to the increased survey effort (Brownell 1971).

Based upon data resulting from the exploratory wells drilled in recent years in the Bering Sea, MMS (1992) has reevaluated and lowered its estimate of the potential for discovering an exploitable field in the Bering Sea. Based upon MMS' reanalysis, NMFS has determined that the expectation of an oil well blowout occurring and impacting gray whales is low. Essentially, in order for gray whales to be seriously impacted by an oil spill due to oil and gas exploration and development activities, the following events need to occur: (1) A lease sale takes place; (2) exploratory activities determine that economically exploitable quantities of oil can be recovered; (3) development occurs which (4) results in a blowout with a significant loss of oil and (5) the spilled oil intercepts a significant portion of the gray whale population or its food source.

Oil spills, the chemicals used to break up and sink surface oil, and other anthropogenic materials from either oil platforms, (such as drilling muds, discharged materials and produced water), or shore-side discharges from industrial, residential or agricultural point and non-point sources, could also harm gray whales by reducing or contaminating their food resources. Gray whales are opportunistic feeders on a wide variety of benthic ampeliscid amphipods and other bottom dwelling organisms (Nerini 1984). Most feeding takes place between May and September in the northern waters of the Bering and Chukchi seas, especially in the Chirikov Basin. Some food consumption also occurs during migration and a small portion of the population remains south of Unimak Pass, Alaska, to exploit that resource. Little is believed consumed on the calving grounds (Nerini 1984).

The feeding strategy of gray whales could lead to ingestion of oil from oil-contaminated food, if the prey organisms accumulate petroleum hydrocarbons in their tissue, or from contaminated sediments associated with food sources. The effect of pollutants on the benthic organisms on which these whales feed is relatively unknown, but may result in either direct mortality or sublethal effects that inhibit growth, longevity and reproduction. Benthic organisms could ingest either heavy metals or hydrocarbons which could bioaccumulate up through the food web. According to sources cited in Neff (1990a), benthic crustaceans have a well-developed mixed-function oxidase (MFO) system to eliminate petroleum hydrocarbons. If amphipods have the ability to detoxify hydrocarbons, these hydrocarbons are less likely to persist and biomagnify in the gray whale food web. Another factor inhibiting bioaccumulation may be the short life span of the amphipods (i.e. <2 years). Therefore, while gray whales probably have a low risk of ingesting petroleum hydrocarbons from their source (see also the earlier discussion on baleen fouling from sediment contamination), benthic amphipods have proven to be quite sensitive to spilled oil and are among the first animals killed after an oil spill (Neff 1990a), which could in turn affect that portion of the gray whale stock feeding in the contaminated area. If they are unable to locate alternative areas with sufficient food resources, they may have insufficient reserves to make the 8,000 km migration to southern grounds, overwintering there and returning the following spring. These animals likely would either remain in waters north of Baja California or succumb from the effects.

Because discharges of drilling muds from offshore platforms may contain heavy metals and other contaminants, all discharges from platforms are regulated by EPA under section 402 of the Clean Water Act. EPA's proposed regulations recommend zero discharges of drilling muds and cuttings and filtration of produced waters. Drilling muds, however, are relatively non-toxic and the metals associated with drilling muds are virtually unavailable for bioaccumulation by marine organisms (Neff 1987). The National Research Council (1985) concluded that the risks to most OCS benthic communities from exploratory drilling discharges are small and result primarily from physical benthic effects. Since ampeliscid amphipods predominate in disturbed bottoms (Nerini and Oliver 1983, Nerini 1984, Oliver *et al.* 1985), are highly motile, and good colonizers, and amphipod recovery is likely to take place within 1 year (Oliver *et al.* 1985), NMFS believes that the gray whale's food source is unlikely to be impacted seriously by the establishment of platforms and pipelines in the OCS.

Preliminary results from the study by NMFS (1990) on contaminants found in gray whales stranded near Puget Sound indicated that heavy metal levels appear to be too low to cause any deleterious effects. In addition, the concentrations of PCBs and DDT were very low compared to levels in other whales and are below levels known to cause impairment (NMFS 1990). More recent analyses (Varanasi *et al.* in prep.) of 22 gray whales stranded at various locations along the U.S. West Coast, which included those mentioned above, showed no apparent significant differences, between stranding sites, for chlorinated hydrocarbons in the blubber and liver. Analyses of 16 elements in liver, kidney and stomach contents of gray whales were generally low. However, high concentrations of aluminum (1,700 ±450 ppm), iron (320 ±250 ppm), manganese (23 ± 15 ppm), and chromium (3.4 ±1.3 ppm), were discovered in stomachs, although no significant differences were observed between whales stranded in Puget Sound compared to whales stranded at more pristine sites. Varanasi *et al.* (in prep.) noted that the relative proportions of these 4 elements in stranded whales were similar to the relative proportions in sediments, which is consistent with a geological source of these elements from the ingestion of sediment during feeding. The results of their study suggest that the concentrations of anthropogenic chemicals in stranded gray whales show little relation to the level of pollution at the stranding site, and further, showed that the concentrations of potentially toxic chemicals were relatively low when compared to the concentrations in marine mammals feeding on higher trophic level species, such as fish. They noted, however, the lack of data from apparently healthy gray whales limits the understanding of the susceptibility or hardiness of this species with respect to levels of anthropogenic contaminants found in tissues.

According to Brownell and O'Shea (in press), levels of organochlorine pollutants that may cause reproductive problems in other mammals are higher than those reported in baleen whales. In addition, the vast majority of the eastern Pacific gray whale stock feeds mostly in colder waters that have been less exposed to organochlorine pollutants (IWC 1990).

Coastal development and coastal and offshore industrial activities may also result in some impacts to the gray whale and its habitat. For example, in the calving lagoon of Guerrero Negro, daily dredging and vessel traffic between 1957 and 1967 for a salt extraction plant reportedly caused the whales to abandon the area. In 1967, the plant was closed and moved to Laguna Ojo de Liebre (Bryant *et al.* 1984). Six years after the dredging and barge activity in Guerrero Negro ceased, gray whales began to return to the lagoon (Gard 1974, Bryant and Lafferty 1980). Since the salt works at Laguna Ojo de Liebre appear to be an environmentally clean industry, with no adverse impacts on the biota of the lagoon (Rice *et al.* 1981), and since the whales appear to tolerate the daily salt-barge traffic and have not abandoned Laguna Ojo de Liebre, daily dredging in the confined Guerrero Negro is more likely the cause of abandonment than the vessel traffic. In addition, exploitation of phosphorus (Cordoba 1981) and the development of a large resort in and near the minor calving lagoons of Bahia Almejas and Bahia Magdalena, if constructed, may be cause for concern. Because of the scarcity of suitable isolated calving and nursery areas for gray whales and the whales' specialized feeding habits, gray whales need to be monitored to determine the effects of future coastal or shallow-water development on any critical stages of the gray whale's life cycle.

The recovery of the gray whale population has occurred concurrent with extensive OCS geophysical exploration off the California coast and other activities throughout its range, and these levels of activity are unlikely to increase significantly in the near future. NMFS, therefore, concludes that current and anticipated levels of human activities do not pose a danger of extinction to this species now or in the foreseeable future. NMFS does not rule out the possibility that parts or all of this stock and certain components of its habitat have been and/or are being stressed or that the effects will not be manifested over time as changes in productivity, mortality or distribution.

Factor (B)—Overutilization for Commercial, Recreational, Scientific or Educational Purposes

As a result of commercial whaling operations, the gray whale was severely depleted by the early 1900's. After 1946, commercial harvesting of gray whales was banned by the International Convention for the Regulation of Whaling. Between 1959 and 1969, a total of 316 gray whales were killed under Special Scientific Permits off California. (A significant amount of gray whale life history data came from these animals (see for example, Rice and Wolman 1971).)

Eskimos living on the shores of the northern Bering Sea and the Chukchi Sea have hunted whales for perhaps several thousand years. Estimated aboriginal takes of the eastern Pacific stock prior to depletion of gray whales ranged from about 156 per year (years 1600–1750) to 186 per year (years 1850–1860) with a period high of 263 per year (years 1751–1850). Subsequent declines after 1850 were due to reductions in native populations, loss of traditional native cultures under the influence of Western society and reduction of the gray whale stock due to commercial whaling (Mitchell and Reeves 1990, IWC 1990).

In Alaska recently, the catch consists mostly of bowhead whales, with few gray whales being intentionally taken (Marquette and Braham 1992). However, on the Chukotka coast of Russia, the catch has consisted almost entirely of gray whales. Since 1969, when the aboriginal hunt ceased as a result of a large number of "struck-and-lost" whales (Yablokov *et al.* 1984), gray whales have been taken by the Russian Government for the Chukchi Eskimos using one modern catcher boat. The total aboriginal catch in Russia has averaged about 165 gray whales per year since 1967. The current catch limit set by the IWC is 179 per year, 10 of which the United States informed the IWC at the 1991 plenary session that ". . . it is not requesting and will not in future years request an allocation or use of 10 gray whales" (IWC 1992). In 1990, the Soviet Union requested a three year extension of their quota indicating that this level would satisfy local needs (IWC 1992). This authorized subsistence catch of gray whales is believed to be well below the sustainable yield estimated to be approximately 670 (95 percent confidence: 490–850; IWC 1990) and therefore is not likely to be significantly impacting the stock.

The question has arisen whether non-Alaskan natives would, in the near future, pursue traditional whaling and sealing activities. To date, only the Makah Tribe has expressed such an interest, but it is unclear at this time whether they would be interested in pursuing open-boat whaling or could satisfy subsistence and/or cultural needs by other means. For any Native American group to begin harvesting large whales, they would need to demonstrate a subsistence need and request (through the Bureau of Indian Affairs) the U.S. Commissioner to the IWC to petition that body for a portion of the subsistence quota for gray whales. Such a scenario is considered unlikely at this time.

The question of whether commercial whaling on gray whales would resume in the near future has also been raised. In order for commercial whaling to resume, the IWC would need to reclassify the gray whale as an "initial population stock" (see discussion elsewhere in the preamble), and terminate its whaling moratorium. NMFS concludes that current and anticipated uses for commercial, recreational, scientific or educational purposes do not pose a danger of extinction to this species now or in the foreseeable future.

Factor (C)—Disease or Predation

The natural mortality rate of the gray whale is low, approximately 0.056 for adults and 0.132 for juveniles (Reilly 1981). There is no information indicating that disease or predation constitutes a threat to the continued welfare of the species.

The killer whale (*Orcinus orca*) appears to be the only non-human predator on gray whales. Evidence from the necropsy of 39 gray whales that stranded on St. Lawrence Island indicated that 16 had been killed by killer whales (Fay *et al.* 1978). The mortality rate from killer whale attacks is unknown. However, the frequency of tooth scars on gray whale carcasses indicates that killer whale attacks are often not fatal.

Moderate numbers of gray whale calves strand in and near the nursery lagoons and along the southern California coast (Swartz and Jones 1983). In addition, a few adults strand every year throughout their range, but the numbers appear low compared with the size of the population (Rice *et al.* 1984). While mortality rates due to stranding cannot be calculated (Rice *et al.* 1984) stranding data may provide insights whether strandings are due to natural or anthropogenic factors.

In 1989, 29 (three possible recounts) gray whales were reported stranded in Alaska from the area from Prince William Sound to the Alaskan Peninsula and into Bristol Bay around the time of the Exxon Valdez oil spill; nine (two possible recounts) of those animals were reported stranded near the southern end of Kodiak Island, southwest and down-current of the oil spill area. While this number was significantly greater than earlier years when only six were documented between Kayak Island and Unimak Pass (Zimmerman 1989), this may be attributed to the timing of the search effort coinciding with the northern migration of gray whales augmented by the increased search effort in the oil spill area (Loughlin, in prep.). In 1990, 26 gray whales were counted off the southern end of Kodiak Island. Surveys of the other areas were not conducted that year. Although some gray whales were reported in 1989 to have oil on their baleen, apparently none had oil in the digestive tract (Moore and Clark as reported in IWC 1990). This is not unexpected considering that dead whales at sea generally float with the ventral surface up and the mouth open. The relationship between these strandings to the oil spill remains conjectural at this time.

Recent strandings reported along the Washington/Oregon coast have also been higher than the mean for the past 2 years, but as indicated in Table 1 below, not higher than historic records (AFSC stranding data). The majority of the animals stranding in Washington waters in 1990 and 1991 apparently died outside Puget Sound and were carried by currents to the outer coast of Washington and the Straits of Juan de Fuca.

NMFS concludes that disease or predation do not pose a danger of extinction to this species now or in the foreseeable future.

TABLE 1. RECENT STRANDING ALONG THE WASHINGTON/OREGON COAST

Year	Number	Year	Number	Year	Number
1983	8	1984	15	1985	2
1986	2	1987	9	1988	10
1989	4	1990	15	1991	12
1992	*3				

*To date.

Factor (D)—Inadequacy of Existing Regulatory Mechanisms

Existing laws and regulations are considered adequate for the conservation of the gray whale. Under the protection of the IWC, the MMPA and the ESA, the eastern North Pacific gray whale stock has recovered to near or above its estimated pre-commercial exploitation population size. Most of the protective measures for the gray whale would remain even without listing under the ESA. The gray whale would remain protected in the United States under the MMPA and the Whaling Convention Act, internationally under the International Convention for the Regulation of Whaling, as well as under national legislation in Canada, Mexico, and Russia, although the effectiveness of this legislation is not fully known.

Mexico has particularly detailed legislation protecting the calving lagoons from disturbance (Klinowska 1991). In 1972, 1975, and 1979 respectively, the Mexican Government designated the major calving lagoons of Laguna Ojo de Liebre, Laguna Guerrero Negro, and Laguna San Ignacio in Baja California as gray whale refuges. These refuges account for approximately 73 percent of calf productivity and are the lagoons that most of the U.S. tour boats and private tourists visit. The number of vessels allowed in these lagoons at any one time is limited by permit to two vessels at a time, and entry into the middle and upper (Ojo de Liebre and

San Ignacio) and upper (Guerrero Negro) lagoon areas is forbidden from December 15 to March 15, although as documented by Jones and Swartz (1984) at Laguna San Ignacio, compliance is not absolute. Mexico issues individual permits to each vessel which specify the number of days a vessel may remain within the lagoon, the number of passengers it may carry, the number of skiffs it may launch and the kinds of activities permitted, such as whale watching, shore exploration, etc. (Jones and Swartz 1984). Violation of the permit requirements leads to a revocation of the permit. In order to provide additional protection for gray whales within Mexico waters, the Government of Mexico is in the process of implementing its own standards for governing whale watching activities. However, the level of enforcement in the Mexican lagoons is not fully known at this time.

Although unclassified in the "Red Book" (i.e. not listed as threatened) by the International Union for the Conservation of Nature (see Klinowska 1991), additional protection is afforded internationally under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). CITES was created to prevent species from becoming threatened through international trade (Wells and Barzdo, 1991) and prohibits commercial trade in seriously threatened species, which are listed in CITES Appendix I. Trade in Appendix I species, such as the gray whale, may be authorized only in exceptional circumstances (*e.g.*, scientific research), and provided the import is not for commercial purposes. All international shipments must be covered by an export permit from the country of origin and an import permit from the country of destination. There is no indication that any change in the gray whale's status under CITES is contemplated by any of its members and any change in status would require a majority vote of the member nations.

In the United States, irrespective of the outcome of this action, activities that take marine mammals are prohibited unless authorized or exempted under the MMPA. The incidental take of marine mammals may be authorized in limited circumstances under an MMPA small take exemption. Oil and gas exploration activities, for example, are eligible to apply for a small take exemption under section 101(a)(5) of the MMPA. Under a Small Take Exemption, NMFS requires the oil and gas industry to take appropriate measures to minimize impacts to gray whales and to conduct exploration activities in such a way as to reduce the likelihood of adversely affecting the gray whale. The Letters of Authorization also include requirements for monitoring and reporting. For the 1991/92 exploration season, NMFS issued five Letters of Authorization (50 FR 47742, Sept. 20, 1991) but only one for the 1992/93 season. NMFS annually reviews the conditions under which these Letters are issued to ensure that gray whales, other marine mammals and their habitats remain adequately protected.

While section 7 consultations under the ESA would cease for the gray whale once the eastern stock is delisted, coastal habitat critical for the continued well-being of the gray whale would be protected within waters under the jurisdiction of the United States through other laws such as the National Environmental Policy Act, the Clean Water Act, MARPOL (the Anti-Dumping Act), the Marine Protection, Research and Sanctuaries Act, (ocean dumping), sections 10 and 404 of the Rivers and Harbors Act of 1899 and the Oil Pollution Act of 1990 which will require, among other things, double-hulled tankers within U.S. waters by 2015. Consultations will also continue under the Outer Continental Shelf Lands Act Amendments.

NFMS concludes that the anticipated regulatory mechanisms are adequate for the conservation of this species.

Factor (E)—Other Natural or Man-made Factors Affecting its Continued Existence

In addition to those man-made factors affecting the gray whale's continued existence which were discussed under Factors A and C above, gray whales are also impacted by incidental take in commercial fishing operations.

The fact that gray whales migrate in a narrow, nearshore corridor where commercial fishing activities are concentrated leads to encounters and entanglement in gear from several commercial fisheries. Norris and Prescott (1961) document entanglement in gillnets since the late 1950s. Data from the NMFS-administered stranding networks document that commercial gillnet fisheries take gray whales incidental to fishing. NMFS' Southwest Region has maintained records of reported gray whale entanglements in California gillnet fisheries since the 1984/85 migration. The number of entanglements has varied from a low of seven entanglements and no mortality during the 1985/86 migration to a high of 15 entanglements and three mortalities during the 1986/87 migration. The number of entanglements and deaths declined during the 1987/88 migration to seven entanglements and one mortality. This reduction in entanglements may have been due to regulations implemented by the State of California in the fall of 1987 that require fishermen to construct their nets so that whales can break through them and that prohibit fishing near major whale concentrations. However, no study was conducted to quantify the effectiveness of these regulations and the decline in entanglement could be due to natural variation. In 1990 and 1991, no gray whales were reported entangled in gillnet fisheries in California (Perkins and Barlow 1992).

It should be recognized that under the MMPA, the incidental taking of endangered, threatened or depleted species was illegal until 1989, making the fisherman subject to penalty. It is presumed that the potential for prosecution may lead to underreporting of incidental takings. In 1988, amendments to the MMPA authorized the incidental (but not intentional) taking of depleted species during commercial fishing operations under section 114 of the MMPA until October 1, 1993. However, under the ESA, takings of endangered species incidental to commercial fishing operations cannot be authorized under section 7 of the ESA, leaving the issue unresolved. The NMFS legislative proposal to Congress to govern fisheries after October 1, 1993 (see 56 FR 23958, May 24, 1991) proposes to authorize a limited incidental take of depleted, threatened or endangered species and to amend the MMPA to authorize takes incidental to commercial fishing activities under section 101(a)(5). Under that proposal, all provisions of the ESA would apply as well. That proposal, if implemented by law, however, would not likely result in an increase in gray whale mortality, since commercial fisheries would be regulated through seasonal, area or gear restrictions to reduce marine mammal mortality to insignificant levels approaching a zero rate. In addition, observers could be placed onboard vessels operating in any fishery that takes marine mammals and quotas would be enforced through fishery restrictions based upon observer reports.

The California Department of Fish and Game (CDF&G) observed one entangled balaenopterid (probably a minke whale) during 177 observer days spent monitoring the shark and swordfish drift net fishery in 1980. CDF&G's southern California set-net monitoring program monitored about 5 percent of the fishing effort from 1983 through 1986 and observed no gray whale entanglements (Collins *et al.* 1984, 1985, 1986; Vojkovich *et al.* 1987).

Likewise, CDF&G set-net observers in northern California reported no gray whale entanglements during monitoring of about 1 percent of the fishing effort from 1984 through 1987 (Wild 1985, 1986).

In the Pacific Northwest, gray whales have been observed entangled in salmon set-nets off northern Washington and in crab pot lines off Oregon. These entanglements are infrequent, occurring once every 1 to 3 years in the set-net fishery and once every 3 to 5 years in the crab fishery (NMFS 1991).

Heyning and Dahlheim (in press) reported on strandings and incidental takes of gray whales from Alaska to Mexico for the years 1975–1988. Gray whale strandings were examined carefully to document whether the animal had been entangled in fishing gear. Some known fishery kills of gray whales bore no evidence of entanglement after stranding, despite thorough examination (Heyning and Lewis 1990). Data from the Heyning and Lewis study suggested that (1) sexually immature animals represented 90 percent of all strandings; and (2) gray whale mortality related to fisheries interactions is likely insignificant relative to the present population size.

Minimal estimates of fisheries-related mortality for stranded gray whales ranged from 8.7 to 25.8 percent (Heyning and Dahlheim in press). None of the 20 animals documented in that report from Alaskan feeding grounds had indications of entanglement in fishing gear. In the Gulf of Alaska and Alaskan Peninsula area, four animals out of 29 (13.8 percent) that stranded were involved in fishing gear. Baird *et al.* (1990) reviewed the available information for British Columbia and found four animals out of 39 strandings (11.1 percent) were involved in fishing gear. They noted that if they included only the 15 strandings that were carefully examined, then 26.7 percent of mortalities were fisheries related.

The fisheries related mortality for Washington, Oregon and northern California are eight out of 50 (16 percent), two out of 23 (8.7 percent), and six out of 47 (12.8 percent), respectively. In southern California, more carcasses have been examined thoroughly and 25 out of 92 (25.8 percent) were mortalities related to fishing operations. Heyning and Lewis (1990) have reviewed baleen whale entanglements in this region and found that the majority of gray whale entanglements involved immature animals but not calves. Almost two-thirds of these entanglements occurred during the northbound migration.

Based upon the information acquired to date, but recognizing the scarcity of that information, NMFS concludes that gray whale mortality related to fisheries interactions is likely insignificant relative to the present population size.

NMFS concludes that there are no known or anticipated other natural or man-made factors that pose a danger of extinction to this species either now or in the foreseeable future.

Consultations under Section 7 of the ESA

A chronology of consultations with MMS on oil and gas activities and NMFS' assessed impacts on gray whales was published in the proposed rule (56 FR 58869, November 22, 1991). Please refer to that document for further information on this subject. A copy of the reanalysis of the biological opinions on the impacts of oil and gas activities, which was based on information and data described in this final determination, is available upon request (see ADDRESSES). See also the discussion under Factor (A) above.

Discussion

An endangered species is any species that is in danger of extinction throughout all or a signficiant portion of its range; a threatened species is any species that is likely to become an endangered species within the foreseeable future. The ESA requires that any determination that a species is endangered or threatened be made solely on the basis of the best available scientific and commercial information concerning that species relative to the five factors discussed above.

The eastern North Pacific stock of the gray whale has recovered to near or above its estimated pre-commercial exploitation population size. It is estimated to be between 60 and 90 percent of its carrying capacity and will probably continue to increase until density dependent factors slow the rate of growth. NMFS therefore believes that this stock is not currently in danger of extinction throughout all or a significant portion of its range. Moreover, even though the eastern Pacific gray whale stock inhabits coastal waters that are increasingly impacted by human activities, the stock continues to increase and, therefore, is not likely to become an endangered species again within the foreseeable future throughout all or a significant portion of its range. Based upon the assessments discussed above, NMFS believes that individual and cumulative impacts, while they may have the potential to affect adversely the eastern North Pacific gray whale stock, are not likely to jeopardize its continued existence. Therefore, NMFS believes the eastern North Pacific stock of the gray whale should be removed from the List of Endangered and Threatened Species under the ESA.

Some commenters contend that although the stock is not currently threatened, human activities have the potential to threaten the stock in the future. For the most part, they fear that the IWC may allow the resumption of commercial whaling; that oil and gas exploration either planned or under way along the continental shelf could seriously harm whales that use these coastal areas; and that potential cumulative impacts may, in the future, threaten the gray whale's survival. However, potential future threats, as opposed to actual, present-day threats, are neither sufficient to justify listing a species nor sufficient for retaining a recovered species on the List according to the factors that must be considered under the ESA. If they were, then, as noted by Brownell *et al.* (1989), "* * * the majority of the world's animals would have to be included on the List, as large numbers of species are potentially threatened by the growth of human populations, current rates of habitat destruction, and other harmful activities." NMFS believes that the increasing abundance of this stock, in close proximity to human coastal development, industrial activity and vessel traffic, suggests that this stock has the resiliency to adjust to human activities with few apparent adverse effects.

However, because the gray whale is exposed frequently to human activities, and cumulative impacts may result in some indirect effects, long-term monitoring of the status of the gray whale stock will be conducted (see Monitoring below).

Removing the eastern North Pacific gray whale stock from the List will not result in a major reduction in protection. While the protections and prohibitions of the ESA, including the consultation requirements of section 7, will cease to apply, the gray whale will remain subject to prohibitions against taking under the MMPA. Habitat concerns will continue to be addressed under several other laws. In addition, because the species also remains protected under the U.S. Whaling Convention Act and the International Convention for the Regulation of Whaling, the number of gray whales authorized to be taken for subsistence purposes will continue to be limited by the IWC.

NMFS also believes that the western Pacific gray whale stock, which is geographically isolated from the eastern stock, has not recovered and should remain listed as endangered.

Coordination

In accordance with section 4(a)(2) of the ESA, NMFS requested the concurrence of the Department of the Interior on this proposal when it was published on November 22, 1991. Concurrence on the proposal was received in a letter dated March 4, 1992. As the FWS maintains and publishes the List in 50 CFR part 17 for all species determined by NMFS or FWS to be endangered or threatened, the FWS is encouraged to promulgate a rule amending the List by removing the "gray whale" and replacing it with the "Western Pacific (Korean) gray whale." Upon completion, NMFS will implement a rule to remove the gray whale from the list of species found in 50 CFR 222.23. NMFS encourages the FWS to take timely action on this request and will assist the FWS to the greatest extent possible.

Monitoring

Section 4(g) of the ESA requires that whenever a species is removed from the List, the Secretary must implement a system, in cooperation with the states, to monitor effectively the status of any species that has recovered to the point where the protective measures provided under the ESA are no longer necessary. This monitoring program will continue for at least 5 years and, if at any time during that period the Secretary finds that the species' well-being is at significant risk, the ESA (section 4(b)(7)) provides that emergency protective regulations must be issued to ensure the conservation of any recovered species.

As part of its monitoring program, NMFS intends to create an internal Task Group responsible for monitoring activities potentially impacting gray whales. This Task Group will consist of NMFS marine mammal scientists familiar with either gray whale biology or related subject matter and will be expected to coordinate internal research on gray whales, encourage independent research in areas not currently funded or investigated by NMFS, and serve as a quick response advisory team in the event of any catastrophic event impacting gray whales. The Task Group will also recommend to the Assistant Administrator for Fisheries, NOAA (Assistant Administrator) appropriate steps, necessary to mitigate any catastrophic event, including the reimposition of emergency protective measures. Finally, within 6 months following the conclusion of the first 5-year monitoring program, the Task Group will conduct a comprehensive "status review" of the gray whale that will be forwarded to the Assistant Administrator for approval and release to the general public for review and comment. The Task Group will review and address the comments in drafting a final report. Included in that report will be a recommendation on whether (1) to continue the monitoring program for an additional 5 years; (2) terminate the monitoring program; or (3) reconsider the status of the gray whale under the ESA. In the intervening year between the conclusion of the first 5-year monitoring program and release of the final report, NMFS will continue with its monitoring program.

Although recognizing current budgetary restraints, NMFS encourages the MMS and other Federal agencies to continue studies on gray whale distribution, abundance, and habitat use in the Bering, Chukchi, and Beaufort Seas and on the impacts of seismic exploration, offshore drilling activities, oil spills, and vessel traffic. In addition to research on gray whales conducted in the United States through independently funded sources and in Mexico by the Government of Mexico, NMFS plans to conduct the following as part of its monitoring program:

(1) Monitor the status of the gray whale and habitats essential to its survival;

(a) Conduct a biennial population assessment to include:

(i) A census of the southbound migration for comparison with historical research;

(ii) Carry out research as needed to determine any potential biases in the estimation of procedures (e.g., offshore distribution, tails of the migration, night-time migration rates);

(iii) Estimate population productivity using data obtained from (i) and (ii) above, and from life history studies, as may be appropriate, such as calf production; and

(iv) A determination of the shape of the production curve of the population—that is, the "point" or series of estimates that suggest that the population has reached its carrying capacity.

(2) Continue monitoring the level and frequency of gray whale mortality through small take and commercial fishery exemptions, stranding programs and other activities.

(3) As part of the stranding network, monitor trends in the levels of contaminants, including hydrocarbons, organochlorines, heavy metals and DDT, in gray whales by conducting bioassays of all available stranded animals.

In addition to its required monitoring program, NMFS anticipates taking the following actions to ensure the continued well-being of gray whales:

(1) Implement whale watching regulations for U.S. citizens and others within the U.S. EEZ and promote with Mexico and Canada the use of similar standards for whale watching within their waters.

(2) To the extent possible, encourage MMS to continue studies to determine the impacts of oil spills; vessel traffic, including noise; seismic exploration; and offshore drilling activities on gray whales and their benthic food resources.

(3) To the extent possible, continue and promote increased cooperative studies with Mexico to monitor habitat use and the impacts of whale watching on the Mexican breeding/calving grounds; encourage the enforcement of gray whale sanctuary regulations in Mexico; and encourage operators of U.S. whale watch vessels to observe Mexican sanctuary regulations.

(4) Continue participation in the IWC and its Subcommittee on Protected Species and Aboriginal Subsistence Whaling, in order (among other things), to coordinate research on gray whales by member nations, in particular surveys of western Pacific areas for estimating abundance of the Okhotsk stock, photo-identification studies, and DNA/carbon isotope work.

References

A copy of the references used in this document is available upon request (see ADDRESSES).

Determination

Based upon the assessments discussed above, NMFS has determined that the eastern North Pacific gray whale stock has recovered to near its estimated original population size and, while individual and cumulative impacts may have the potential to affect adversely the eastern stock, that stock is neither in danger of extinction throughout all or a significant portion of its range, nor likely to again become endangered within the foreseeable future throughout all or a significant portion of its range. Therefore, NMFS has determined that the eastern North Pacific stock of the gray whale should be removed from the List of Endangered and Threatened Species under the ESA. NMFS has also determined that the western Pacific gray whale stock, which is geographically isolated from the eastern stock, has not recovered and should remain listed as endangered.

Dated: December 30, 1992.

William W. Fox, Jr.,

Assistant Administrator for Fisheries.

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BILLING CODE 3510-22-M

[Docket No. 920544–2324]

Listing Endangered and Threatened Species; Northern Offshore Spotted Dolphin

AGENCY: National Marine Fisheries Service (NMFS), NOAA, Commerce.

ACTION: Notice of Determination; Status Review.

SUMMARY: NMFS determines that a proposal to list the northern offshore spotted dolphin, *Stenella attenuata*, as "threatened" under the Endangered Species Act (ESA) is not warranted at this time. This determination follows an NMFS announcement indicating that the geographic boundaries which have delineated the stock structure for spotted dolphins in the eastern Tropical Pacific (ETP) should be revised. The petition received by NMFS to list the northern offshore spotted dolphin as threatened addressed the status (abundance and fishery-induced mortality) of this stock using previously accepted geographic boundaries, and not the currently accepted boundaries for stock structure in the ETP. Changes in the stock structure indicate that the northern offshore stock of spotted dolphin as identified in the petition is no longer a valid biological or management unit. Based on the best available information, NMFS believes that the northern offshore spotted dolphin does not fall within the definition of "species" under the ESA and, therefore, is not eligible for listing under the Act.

DATES: Comments and information concerning the status of the northeastern stock and the western/southern stock of offshore spotted dolphins must be received by NMFS by February 17, 1993.

ADDRESSES: Comments can be forwarded to Dr. Michael F. Tillman, Acting Director, Office of Protected Resources, 1335 East-West Highway, Silver Spring, MD 20910.

FOR FURTHER INFORMATION CONTACT: Michael Payne, NOAA/NMFS, Office of Protected Resources, 1335 East-West Highway, Silver Spring, MD 20910 (301/713–2322).

SUPPLEMENTARY INFORMATION:

Background

On October 31, 1991, the Center for Marine Conservation (CMC) petitioned NMFS to add the northern offshore spotted dolphin (*S. attenuata*) to the U.S. List of Endangered and Threatened Wildlife as a threatened species. Under section 4(b)(3)(A) of the ESA, a determination must be made whether the petition presents substantial scientific or commercial information indicating that the petitioned action may be warranted. If a petition is found to present such information, a review of the status of the species concerned is mandated. NMFS determined that the petition presented substantial information, and that the petitioned action may be warranted (56 FR 65724, Dec. 18, 1991). To ensure a comprehensive review, NMFS solicited information and comments concerning the petition. Comments and further information on this petition were accepted by NMFS until January 17, 1992.

NMFS was also petitioned by the Defenders of Wildlife and Environmental Solutions International to designate the northern offshore spotted dolphin as threatened under the ESA on January 23, 1992. However, this petition, received by NMFS on January 29, 1992, was formally denied for the following reasons: (1) NMFS had already received the petition from CMC to designate the northern offshore spotted dolphin as threatened under the ESA, and had determined that this petition presented information indicating that listing may be warranted, and (2) the latter petition essentially duplicated the previously accepted petition. NMFS considered the information provided in the denied petition during the review and evaluation of the original petition.

At the time the original petition was received on October 31, 1991, NMFS was in the process of reviewing new scientific information regarding this species. On November 13–14, 1991, NMFS conducted a workshop on the status of ETP dolphin stocks (referred to as the Status of Porpoise Stocks (SOPS) Workshop) to review these data (DeMaster *et al.*, 1992). Two reports presented at the SOPS workshop, Dizon, Perrin and Akin (1992) (referred to by the commenters and workshop participants as SOPS–9), and Perrin *et al.* (1991) (referred to as SOPS–15), presented new information on the stock structure of ETP dolphins and are the basis for this determination.

Comments and Responses

NMFS received comments in response to the petition to list the northern offshore spotted dolphin as threatened under the ESA that addressed the following issues: Abundance and trends of the northern offshore spotted dolphin, quality of assessment data, overutilization and fishery-induced mortality, stock boundaries between the offshore populations of spotted dolphin, quality of the habitat, and regulations governing the take of dolphins in the purse-seine fishery. This notice focuses only on those comments addressing stock structure, and the definition of stock boundaries for offshore spotted dolphins, as they relate to the status of the northern offshore spotted dolphin.

Comments: The data indicating geographical separation of the northern and southern offshore spotted stocks were questioned by several commenters. One commenter cited SOPS–15 as follows: "present management units are inconsistent with patterns of cranial variation; spotted dolphin west of 120 degrees W. probably should not be pooled with those to the east as they show closer affinity with the southern offshore unit. In addition, the boundary between the northern and southern units should probably be moved north to about 5 degrees N." The commenter continued, "Perrin noted that managing both southern and western offshore spotted dolphins as one stock was consistent. He concluded that combining the southern and western areas into a single management unit should be considered provisional."

Several commenters noted that the participants of the SOPS workshop recommended that the distribution plots for each stock be updated from those prepared for the 1984 status review.

Regarding the status of ETP spotted dolphin stocks, and the question of where to draw the lines delineating the boundaries for the northern and southern offshore stocks, one of the commenters cited S.T. Buckland, a workshop participant, as follows: "Buckland commented that (1) the geographically defined management units (previous stock boundaries) are not necessarily biologically meaningful; (2) That abundance can be estimated for a management unit, but trends in abundance must often be determined by pooling stocks that are thought to mix or overlap in distribution; and (3) where quota management is considered appropriate, quotas should be established for each management unit." The commenter continued that until such time as NMFS can determine the correct boundary lines to separate the northern and southern offshore spotted dolphin stocks, no estimate of the relative abundance of either stock can be made. Further, no reliable estimates of the ratio of the current population size to historical size can be made.