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March 28, 2001

Mr. Scott Gudes, Acting Administrator
National Oceanic & Atmospheric Assoc.
Department of Commerce
Herbert C. Hoover Bldg., Room 5128
14th and Constitution Ave., NW
Washington, DC 20230

Mr. William Hogarth, Acting Asst. Admin.
National Marine Fisheries Service
1315 East-West Highway
Silver Spring, MD 20910

Ms. Gale Norton, Secretary
U.S. Department of the Interior
1849 C Street, NW
Washington, DC 20240

Re: Petition for the Listing of the eastern North Pacific population of the gray whale (Eschrichtius robustus) as a threatened or endangered species under the Endangered Species Act.

Dear Mr. Gudes, Mr. Hogarth, and Ms. Norton:

On behalf of Australians for Animals, The Fund for Animals, and several other organizations, I submit the enclosed petition for the listing of the eastern North Pacific population of the gray whale (Eschrichtius robustus) as a threatened or endangered species under the Endangered Species Act.

The petition provides compelling evidence supporting the listing of the gray whale. The listing is essential to provide the protections afforded by the Endangered Species Act to the gray whale and its habitat, both of which are subject to substantial threats. These threats include, but are not limited to: a significant decline in benthic amphipods – the gray whale's primary food supply – due to the direct, indirect, and cumulative impact of global warming and El-nino events; the destruction of benthic amphipods and their habitat by bottom trawling; contaminant impacts to amphipod survival and production; and a lack of adequate regulatory mechanisms to protect the gray whale and it habitat. Given the cumulative impact of these threats, the current aboriginal slaughter of gray whales also threatens the population's survival and viability. Indeed, the excessive killing of immature whales by aborginal groups will have long-term

impacts on population production since age and sex specific cohorts of young whales are being eliminated or substantially reduced.

The impact of a decline in the quantity, quality, and availability of benthic amphipods is clearly reflected in the substantial increase in gray whale mortality, decline in gray whale condition, and reduction in gray whale calf production documented since 1999. Because the massive changes to the Bering and Chukchi Sea ecosystems primarily attributable to global warming, the gray whale population will continue to decline. Indeed, the current Potential Biological Removal level calculated for the gray whale is not sustainable and will lead to population extirpation.

Despite years of study, the government's knowledge of gray whales, their population size and characteristics, and their habitat is deficient and incomplete. It population estimates and predictions of the annual rate of population increase are highly questionable while its understanding of the potential impacts of natural and anthropogenic threats to the population is woefully inadequate. Though the government is well aware of many of these threats, it has largely ignored these threats and failed to implement or fund appropriate research to understand the implications of such threats. Despite documented declines in benthic amphipods, the status and health of amphipod populations have not been subject to regular monitoring since 1988. Even less information is available for the condition of benthic amphipod stocks in Russian waters. The impact of bottom trawling and increased oil and gas exploration and extraction activities on amphipods and gray whales has also been ignored.

The petition provides compelling evidence support a listing of the gray whale under the ESA. The petition also provides new information, particularly in regard to the impact of global warming and bottom trawling on benthic amphipods, which must trigger a new analysis of the environmental impacts of Makah whaling. The most recent Environmental Assessment on Makah whaling was woefully inadequate. Regulations implementing the National Environmental Policy Act require the preparation of supplemental environmental documents when there is "significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts." 40 C.F.R. §1502.9(c)(1)(ii).

Based on the evidence presented in the petition, the petitioners request that you protect the gray whale and its habitat by listing the population under the Endangered Species Act and that, in the interim, you prepare a new environmental analysis on Makah whaling in order to consider and evaluate the full gamut of threats to the gray whale and its habitat.

Sincerely,

D.J. Schubert
Wildlife Biologist

PETITION
FOR THE LISTING OF THE GRAY WHALE (ESCHRICHTIUS ROBUSTUS) UNDER THE ENDANGERED SPECIES ACT

Submitted on behalf of:

Australians for Animals
The Fund for Animals

With the support of:

The Great Whales Foundation
Cetacean Society International
Sea Sanctuary, Inc.
Humane Society of Canada

Prepared by:

D.J. Schubert, Schubert & Associates
Sue Arnold, Australians for Animals

Submitted on:

March 28, 2001

EXECUTIVE SUMMARY

This petition requests that the National Oceanic and Atmospheric Association/National Marine Fisheries Service list the eastern North Pacific population of gray whales (Eschrichtius robustus) as an endangered or threatened species under the Endangered Species Act. The listing is warranted based on adverse and continuing threats to the gray whale and its habitat. The primary threats fall into three of the five listing criteria contained in the Endangered Species Act.

Criteria A: **The present or threatened destruction, modification, or curtailment of its habitat or range.**

Criteria E: **Other natural or manmade factors affecting its continued existence.**

Gray whales and their habitat are subject to significant threats. Gray whales are threatened by the direct, indirect, and cumulative adverse impacts caused by aboriginal kills, documented and undocumented mortality, oil and gas exploration and extractions activities, and noise impacts. Gray whales and their habitat are under increasing threats from global warming, El-nino events, bottom trawling, and contaminants. These factors have caused a drastic change in the Bering and Chukchi Sea ecosystem and/or have adversely affected the abundance and composition of benthic amphipods – the primary food supply of the gray whale. As specialist bottom feeders, changes in benthic amphipod abundance, composition, and availability can have significant impacts on gray whale survival. While several of these factors have individually significant impacts, cumulatively the extent and severity of the impacts indisputably support a listing of this population.

- The historic and recent bias toward the killing of female and immature gray whales by aboriginal groups has resulted in a male bias in the population and the reduction or elimination of younger age-specific cohorts. These impacts will reduce population productivity for years to come. Though the number of whales killed by aboriginal groups has historically been considered sustainable, the cumulative impacts of all current natural and anthropogenic threats increase the effect of each kill to the well being of the overall population.
- Documented gray whale mortalities caused by ship strikes, entanglements with fishing gear, disease, predation, and strandings are minimum estimates. Gray whale mortality reporting requirements and stranding networks are either non-existent or incomplete. The number of undocumented mortalities has not been estimated and is not considered in gray whale management.
- An increase in sea surface temperature attributable to global warming and the increased frequency of El-Nino events have caused, among other things, a reduction in primary production resulting in a decline in carbon flux to the benthos and a subsequent decrease in benthic amphipods. Benthic amphipod stock collapse of 30 and 50 percent have been documented in the Chirikov Basin in 1986-87, 1990-94, and 1998-99 with the total decline likely exceeding 50 percent in some areas. Despite the importance of benthic amphipods to gray

whales and other marine mammals, amphipod stocks have not been subject to monitoring since 1988.

- Amphipod population recovery to a pre-disturbance condition takes tens to hundreds of years assuming the habitat is still suitable to facilitate recovery. Successional processes result in the recolonization of the site with smaller sized and less preferred amphipod species. Increasing sea temperatures also favor the smaller, less preferred species to the detriment of the gray whale.
- Changes in storm frequency and intensity and the decrease in the extent and duration of sea ice (9 percent decline per decade since the 1960s) has also reduced carbon flux to the benthic amphipods by reducing the frequency of sediment resuspension and reducing primary production.
- Changes in ocean currents caused by rising temperatures result in changes in sediment size which directly affects the suitability of habitat for amphipods, thereby exacerbating amphipod decline.
- Excessive and extensive bottom trawling has destroyed benthic amphipods, altered nutrient cycles, and destroyed or degraded amphipod habitat.
- Increased oil and gas exploration and extraction activities and toxic contaminants from multiple sources (i.e., industrial, agricultural) threaten the health and viability of benthic amphipod populations. Such toxins can kill amphipods, reduce their productivity, or destroy their habitat. The ingestion of contaminated amphipods and inhalation of oil vapors can also harm gray whales.

The decline in benthic amphipods had direct and immediate impacts on the survival and viability of the gray whale population. These impacts include a significant increase in mortality, evidence of starvation, substantial increase in stranding, and a severe reduction in production since 1999.

Criteria D: The inadequacy of existing regulatory mechanisms.

The removal of the gray whale from the list of threatened and endangered species under the Endangered Species Act in 1994 was premature and motivated more by politics than by science. As a result of that action, the gray whale and its habitat have been left largely without protection. This is both a function of inadequate laws and the deliberate misinterpretation of certain laws by the U.S. government.

- The protective provisions of the Marine Mammal Protection Act are not effective as they permit the incidental take of gray whales associated with industrial activities, have failed to prevent the resumption of whaling by the Makah, and provide absolutely no protection to gray whale habitat. Moreover, the Potential Biological Removal level calculated for the gray whale as required by the Marine Mammal Protection Act is not sustainable, is not based on valid population growth dynamics, and will cause the extirpation of the population.
- The International Convention for the Regulation of Whaling and the International Whaling Commission failed, due to the U.S. government's misinterpretation of international policies, to prevent Makah whaling and do not provide any protection to gray whale habitat.

- The National Environmental Policy Act has failed to provide a mechanism for the protection of the gray whale and its habitat. Furthermore, the U.S. government has entirely ignored the Washington State Endangered Species Act thereby rendering it ineffective in protecting the gray whale.
- The provision of the Endangered Species Act that requires the development of a plan to monitor the gray whale population post-delisting has not protected the gray whale or its habitat. Not only did the government fail to design a comprehensive monitoring plan, but also failed to fully fund or implement the plan that it did develop. As a result, stock monitoring strategies are inadequate to determine population size; population estimates are uncertain and unreliable; the viability and abundance of benthic amphipods in the Bering and Chukchi Seas and the spatial and temporal variability in ecosystem processes are unknown; and, Russian data (if any exists) on amphipod abundance are unavailable. As a consequence, the government's 1999 determination that the population was stable and secure based on the results of the plan was unfounded.

The evidence provided in the petition to support the listing request is comprehensive and indisputable. The documented decline in benthic amphipods is sufficient reason alone to list the gray whale under the Endangered Species Act. Combined with the multitude of other threats to the gray whale and its habitats, the lack of any adequate regulatory mechanisms to protect the population or its habitat, and a failed monitoring program, there can be no question that this population should again be afforded the protection provided by a listing under the Endangered Species Act.

INTRODUCTION:

On behalf of Australians for Animals (AFA), The Fund for Animals (The Fund), and with the support of The Great Whales Foundation, Cetacean Society International, Sea Sanctuary, Inc., and the Humane Society of Canada (hereafter referred to as the petitioners), we submit the following petition to list the eastern North Pacific population of the gray whale (Eschrichtius robustus) (hereafter referred to as the gray whale), as a threatened or endangered species pursuant to Section 4 of the Endangered Species Act (16 U.S.C. §1533).[1] The information contained in this petition will provide compelling evidence that the decision to delist the gray whale in 1994 was premature and that relisting of the gray whale is essential to protect this stock from multiple existing and expanding threats to its survival including significant threats to its habitat.

The recently documented reduction in calf production and increase in gray whale mortality is indicative of the declining status of the gray whale. This decline is the result of a reduction in the primary food supply of gray whales – benthic amphipods -- due to both natural and human-caused perturbations to the Arctic ecosystem. These impacts warrant the listing of this population under the ESA independent of other threats to the gray whale or its habitat. The cumulative impact of all existing threats to the population and its habitat and the lack of adequate regulatory mechanisms to protect the gray whale, however, provide even more compelling evidence of the need for the listing of this population. The requested listing would eliminate any intentional killing of gray whales authorized by the U.S. government and would increase protection to gray whale habitat.

BACKGROUND:

STATUS:

The eastern North Pacific population of gray whales migrates is currently estimated to consist of 26,635 (Rugh et al. 1999); although the validity of that estimate is subject to question. The primary threats to this population include:

1) Intentional killing by native peoples in the United States and Russia;
2) A collapse of the benthic amphipods (the primary prey species of the gray whale) leading to decreased calf production and increased mortality;
3) The destruction of benthic amphipod habitat by trawling activities; oil and gas exploration and extraction activities; and due to exposure to toxins and other contaminants;
4) Disturbance resulting from human activities in gray whale habitat.

[1] This petition does not pertain to the western Pacific or "Korean" stock of gray whales which is currently classified as an endangered species.

BIOLOGY AND ECOLOGY:

Description:

The adult eastern North Pacific gray whale grows to a length of 36 to 50 feet and weighs between 16 and 45 tons (U.S. Dept. of Commerce, 2001). The gray whale, a baleen whale, is generally medium to dark gray in color and has a mottled appearance. Gray whales also are identified by the lack of a dorsal fin and by the white, yellow, and orange patches of barnacles and associated parasites which tend to concentrate on the top of the head, around the blowhole, and on the anterior part of the back. The gray whale is a bottom feeder ingesting food by suction (Ray and Scherill 1974; Nerini 1984).

Migration:

The eastern North Pacific gray whale population engages in the longest annual migration of any mammal species.[2] This approximately 8,000 km (one-way) migration route extends from its summer feeding grounds in the Bering/Chukchi/Beaufort Seas in the arctic to its subtropical winter breeding and birthing lagoons in Baja California, Mexico (Rugh et al. 1999a). The southward migration usually extends from Late October to early January, though in recent years the start of the migration may have been delayed by one week (Rugh et al. 1999a). The northward migration extends from mid-February to May (Rice et al. 1981).

Population Characteristics:

Based on the published literature,[3] it is estimated that the gray whale population is comprised of approximately 56 percent adults and 44 percent immatures (Rice and Wolman 1971). While it is assumed that there is a equal sex ratio among all age classes, the historical and current composition of the Soviet aboriginal kill and recent gray whale stranding data suggest a bias toward female and immature whales. Thus, the adult female:male ratio and the proportion of calves and yearlings in the gray whale population has been reduced and entire age-specific cohorts may be under represented, if not largely eliminated, from the population.[4] The sex ratio of newborn calves is expected to be approximately equal (Swartz and Jones 1983).

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[2] A relatively small proportion of gray whales do not migrate to Mexico. These whales, known as "resident whales," "summer residents," or the "Pacific Coast Feeding Aggregation," are seasonal or year round residents of areas extending from California to southeast Alaska (Darling 1984, Calambokidis et al. 2000, Calambokidis and Quan 1999; Gosho et al. 1999, 1999a, U.S. Dept. of Comm. 2001).

[3] One of the fundamental problems in describing the biology and ecology of the gray whale is the differences in the published biological characteristics of the gray whale. Thus, the data summarized in this document has been taken from the literature but may not reflect the full range of estimates described in the literature. The reality is that, despite the years of gray whale research, virtually nothing is known about age-specific gray whale mortality rates, reproductive rates, and the population age structure and sex ratio. Without a reasonable understanding of such critical biological characteristics of the population, responsible management of the population is impossible.

[4] Gray whale age categories are defined by gray whale lengths. Gray whales measuring less than 7 meters are calves; 7-8.5 meters are yearlings; 8.6-11 meters are juveniles; and whales greater than 11meters in length are adults (Heyning and Dahlheim 1994).

Reproduction:

Both male and female gray whales reach sexual maturity when they are between five and eleven years old, with the average being eight years (Rice and Wolman 1971). Breeding normally occurs from late November to January. Approximately 46 percent of adult females are pregnant each year (Rice and Wolman 1971; Rice et al. 1984; Blohkin 1984) which, given the estimated population age structure (56% adults, 44% immatures), results in an overall population birth rate of approximately 0.13 or 13 percent (Rice and Wolman 1971). After a gestation period of approximately 14 months (Rice and Wolman 1971, Rice 1983) gray whale calves are born from late December to March (Swartz and Jones 1983). Gray whales typically, but do not always, give birth in one of several calving-breeding lagoons along the western coast of Baja California. As with other mammals, it is anticipated that there is some level of fetal loss in gray whales but this rate has never been estimated.

Most cows with calves utilize the lagoons at some time during the winter months while single whales may or may not use the lagoons. According to Urban et al. (1997, 1998, 1998a), the annual maximum count of all whales in San Ignacio Lagoon during the winters of 1976-85 averaged 348.7 adults. In 1996 and 1997 there were 207 and 253 whales counted in the lagoon, respectively. The 1996 count was 40 percent lower than the average count for 1978-1982, Urban et al. (1997), while the 1997 count was 36 percent less than the highest count recorded in 1985 (Urban et al., 1998a). LeBouef et al. (2000) reported that the 1999 count was 30% lower than in 1998, 36% lower than in 1997, and 22% lower than in 1996. Recent data suggest that the 2001 count was only approximately 100 whales as of late February (pers.comm. with Dr. B. LeBouef); a significant reduction from all previous counts.

A decline in calf counts has also been documented during the southbound and northbound migrations. Schulman-Janiger (1999), for example, reported that the percentages of calves in the southbound migration decreased from an average of 4.6% from 1993/94 to 1998/99 to only 2.2% in 1998/99 based on shore-based counts conducted from Point Vicente in Southern California. For the 2001 counting season, at least through late February, only 11 calves have been recorded (ACS-LA data obtained from www.acs-la.org). During the northbound migration, the percentage of calves documented in 1999 was only 1.6% compared to 2.6% to 6.5% in the previous five years (Perryman et al. 1999). This decline is reflected in the estimated number of calves migrating northward past Piedras Blanca, California which ranged from a high of 1520 in 1997 to only 428 and 282 calves in 1999 and 2000, respectively (Perryman et al. 2000; U.S. Dept. of Comm. 2001). The decline in calf counts and gray whale observations in the lagoons is cause for serious concern and demonstrates that the gray whale population is declining.

Mortality:

Gray whale mortality rate estimates are highly variable and inconsistent. Rice and Wolman (1971) estimated overall annual adult mortality as approximately 0.08 (8%) for males and slightly less than 0.10 (10%) for females (See also, Rice et al. 1984). Reilly (1981, 1984), however, estimated annual mortality rates ranging from 0.103 (10.3%) to 0.132 (13.2%) for juvenile gray whales years old to 0.055 (5.5%) for adults animals (older than 11 years).

Subsequently, while Reilly (1987) estimated an annual adult mortality rate for gray whales to be 5.4 percent in females and 8 percent in males.

Swartz and Jones (1983) estimated calf mortality rates to be 0.054 of 5.4 percent in winter calving lagoons and 0.310 or 31% during the first three months of life (Swartz and Jones 1983). Sumich and Harvey (1986) also estimated that 36 percent during the first year and 16.2 percent in the second year but found that the majority of calf mortality (31 percent) occurred in the winter calving lagoons.

In 1999 and 2000 the gray whale mortality rates were significantly increased, particularly among immature and adult gray whales as an inordinate number of whale carcasses from these age classes were found stranded from Mexico to Alaska (LeBouef et al., 2000). While gray whale calves historically comprised the largest proportion of stranded animals (Swartz and Jones 1983; Jones and Swartz 1984), in 1999 and 2000 adult female gray whales comprised the largest proportion of stranded animals. Because of ongoing and increasing threats to the gray whale prey base, it is expected that such high documented mortality rates will continue.

The documented mortalities, however, only represent a fraction of the actual mortalities in the population. Undocumented mortalities occur as a result of ship strikes, entanglements, starvation, predation, fetal loss, disease, and other factors. The number of undocumented mortalities in the gray whale population is unknown but is likely significantly higher than the number of reported mortalities. Heyning and Dahlheim (1994), for example, reported that only approximately 5 percent of stranded whales are found and examined by biologists each year.

Population Size:

While there is much to be learned about many biological characteristics of the gray whale population, the estimated size of the population has been the subject of intense analysis for decades. Gray whale population estimates are based primarily on shore-based counts of migrating whales. The majority of these counts have been conducted in California. A review of the population estimates reveal a large number of wide-ranging estimates. For instance, in 1992 the U.S. government estimated there to be 21,000 gray whales while the scientists in Mexico estimated that the population only consisted of 15,000 whales (January 21, 1992 letter from G. Petriciolo, Ambassador, Embassy of Mexico to Dr. Fox, NMFS). The government currently estimates that there are 26,635 (95% CI = 21,878 to 32,427) gray whales in this population. (Hobbs and Rugh 1999).

None of the gray whale population estimates reflect actual counts of gray whales. Rather, the estimates are calculated from count data using various statistical techniques and correction factors that may or may not be accurate. Not only has the primary gray whale counting location in California changed several times (i.e., Point Loma, La Jolla, Point Lobos, Yankee Point, Granite Canyon) from 1952 to the present (Reilly 1984), but the methods used to estimate population sizes have also changed (i.e., gamma distribution, Hermite polynomial, Bayesian analysis). The change in shore-based counting sites make it difficult to compare count data from different sites due to differences in the characteristics of the sites and their influence on observing whales. Similarly, the use of various statistical methodologies to estimate the number

of gray whales introduces variable errors into the calculation. For example, the use of Bayesian analysis to estimate population size is controversial and has been criticized by the IWC.[5]

Furthermore, numerous correction factors have been developed to account for 1) number of pods or whales passing outside of count periods; 2) rate of night travel; 3) pods missed within the viewing range of observers while on watch; and 4) mean pod size. (Breiwick and Hobbs 1996). Whether these correction factors have improved the accuracy of gray whale population estimates or simply increased the error associated with such estimates is unknown. Of particular concern is whether one or more correction factors are repeatedly used in estimating the gray whale population size. If such factors are considered static and are used repeatedly over time, this introduces significant potential error into the calculation because the parameters on which the correction factors are based are dynamic.

Specifically, considering the proportion of reproductively active female gray whales in the population, reproductive characteristics of gray whales, and gray whale mortality rates, many of the alleged increases in the gray whale population since the 1950s are not biologically possible. For instance, Rice and Wolman (1971) questioned the alleged 12 percent annual increase in the gray whale population between 1952/53 and 1959/60 according to counts from Point Loma. Based on their estimates of the gray whale age structure and birth rate, they stated that gray whale mortality would have to have been nearly zero, a highly unlikely mortality rate, to produce the observed age structure.

Furthermore, Buckland and Breiwick (in press) estimate that the gray whale population is growing at an annual rate of 2.5 percent based on shore-based population counts conducted between 1967/68 and 1995/96. They caution, however, that that the population growth rate is slowing. This estimate, given the questionable population estimates that form the basis of this calculation, is also of dubious accuracy. A more critical review of population estimates from 1967 through 1996 suggests a different conclusion. If the population estimates are broken down into related subgroups -- 1967-1972, 1973-1980, 1985-1996 (there is no population estimates from 1981-1984) -- the data suggest a declining population trend between 1967-1972 and a statistically stable trend in the other two segments. See, Attachment 1. The major jumps in population size, particularly between 1980 and 1985, are not consistent with the apparent stability of the population prior to 1980.[6] Moreover, in a heuristic model developed by Dr. Milani Chaloupka, a Visiting Fellow and Research Consultant at the Department of Zoology,

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[5] Specifically, in the 1995 report of the IWC's scientific committee it was stated that: "An attempt to apply the Bayesian synthesis method used for bowhead whales to the eastern Pacific gray whale stock has been made in SC/46/AS18. The majority of the population trajectories obtained, however, gave a declining population during the period 1967-1980. Therefore, very little weight was given to these trajectories. It seems that either the population dynamics model used does not adequately capture the population's recent and past dynamics, or some of the data inputs are incorrectly specified, e.g., the historic catches and the sex ratio. The Scientific Committee agreed that the method could not be applied as it depends on the availability of catch information from the onset of exploitation of the stock."

[6] Butterworth et al. (in press) state, citing to a personal communication with Breiwick, that the 1987/88 census provided the most reliable estimate of absolute abundance. The 1987/88 population estimate was 21,000 compared to an estimated population in 1999 of 22,571. This increase is far less than what would be expected if there were a 2.5 percent annual rate of increase.

University of Queensland in St. Lucia, Australia, the 2.5 percent rate of increase in the gray whale population could not be modeled.[7]

The petitioners do not dispute that the gray whale population has increased since the cessation of commercial whaling. However, based on deficiencies in population estimation models, gray whale population estimates and the estimated annual rate of population increase are, at best, unreliable and likely overestimate the actual population size and annual rate of increase. Considering the lack of information on the reproductive characteristics of the population and age-specific mortality and pregnancy rates, the gray whale population estimates should not be considered an indicator of the number of whales present in the population. Rather, these estimates should only be used an indicator of the trend in the population; a trend that has been downward since 1999. Indeed, "the combination of increases in the number of stranded animals reported in 1999 and 2000, which may indicate an increase in the per capita mortality rate, and decreases in calf production in 1999 and 2000, could have caused an overall decrease in the abundance of this population" (IWC 2000).

Feeding Characteristics:

The Bering, Chukchi, and Beaufort Seas represent the principal and critical feeding grounds for the majority of gray whales.[8] The Bering and Chukchi Seas encompass the 40,000 square kilometer Chirikov Basis which is considered to possess one of the most productive benthic communities in the world (Highsmith & Coyle 1990).

The primary food supply of gray whales is benthic amphipods (Nerini 1984, Oliver et al. 1983; Oliver and Slattery 1985; Highsmith & Coyle 1990, 1992; Coyle and Highsmith 1994). Benthic amphipods are small tube-dwelling species occurring on sandy substrates in shallow coastal water. The dominant benthic amphipods in the northern Bering Sea are Ampelisca macrocephala, Ampelisca birulai, and Byblis gaimardi. The gray whale's primary amphipod prey species in the Bering Sea is Ampelisca macrocephala which is also the most dominant amphipod accounting for as much as 80 percent of the amphipod biomass (Highsmith and Coyle, 1992, 1990). The habitat of amphipod species is largely limited by food supplies, ocean depth, space, sea temperature, oxygen availability, disturbance, predation rates, reproductive potential, and sediment size (Coyle and Highsmith 1994; Grebmeier and Cooper 1994, Stoker 1978; Grebmeier et al. 1989).

Benthic amphipods are critically important to the gray whale. Since gray whales are specialist feeders and generally don't eat during their six-month migration period, the whales have to consume enough food while on their summering grounds to survive the entire year. Thus, any natural or human-caused perturbation to the gray whales principal prey – benthic amphipods – will lead to a degradation in the physical condition of the gray whale. This, in turn,

[7] Lankester and Beddington (1986) also could not, based on the known catch records, model the estimated gray whale population increase from 1967 to 1980 using a deterministic population trajectory model with built-in density dependence. Specifically, they found that "due to the present and past catch regime the model consistently results in a population decrease during recent years."

[8] There is evidence that some gray whales may feed in breeding lagoons (Mate and Harvey 1984; Norris et al. 1983; Swartz and Jones 1980) and along their migratory corridor (Darling 1984; Oliver et al. 1984), though the importance of these areas to the nutritional needs of the population is unclear (Nerini 1984).

will result in an increased risk of starvation, decreased ability to ward off disease due to a depressed immune system, increased risk of other forms of mortality, and a reduction in calf production and calf survival. Threats to benthic amphipods and their habitat include global waming, El-Nino events, bottom trawling activities, contamination, and no regular monitoring since 1988 to assess the status of amphipod stocks. A decline in the abundance of benthic amphipod communities has been documented (Highsmith and Coyle 1992; Grebmeier and Dunton 2000). This decline, given the amphipod recovery time of tens to hundreds of years (Coyle and Highsmith 1994; Grebmeier and Cooper 1994), has contributed to an increase in gray whale mortality and a decrease in production. As the quantity and quality of amphipods continue to decline, a substantial decline in the gray whale population is anticipated.

HISTORY OF GRAY WHALE EXPLOITATION AND PROTECTION:

The estimate of the gray whale population size prior to the initiation of commercial whaling in the mid-1800's range from 10,000 to 40,000 (Lankester and Beddington 1986, Henderson 1972, Ohsumi 1976, Wade and DeMaster 1996, Breiwick 1999, Scammon 1874). Because there is no valid historical data, however, it is impossible to accurately determine the historical size of the North Pacific gray whale population.

The commercial killing of gray whales occurred at two times. The first, from 1845 to about 1900 (Scammon 1874, Henderson 1984) resulted in the killing of thousands of whales driving the gray whale population down to a level of approximately 4,400 (Ohsumi 1976) or fewer. The second phase of commercial whaling, referred to as modern whaling due to the advances in technology which made whaling more efficient, began around 1914 and was pursued by the United States, Japan, Norway, and the Soviet Union (Reeves 1984). From 1914-1946, an estimated 940 gray whales were taken by factory ships and/or fleet whalers working from the North Pacific to Baja California (Reeves 1984).

In 1937, the promulgation of the International Agreement for the Regulation of Whaling provided the first protection to the gray whale (Reeves and Mitchell 1988, U.S. Dept. of Comm. 2001). After 1937, the commercial killing of gray whales largely ceased but aboriginal groups in the United States and Russia continued to kill gray whales. Approximately 7,024 gray whales were killed by aboriginal groups from 1948 to 2000 (Lankester and Beddington 1986; IWC 2000, U.S. Dept. of Comm. 2001).

The International Convention on the Regulation of Whaling (ICRW) was promulgated in 1946 (62 Stat. 1716). The convention established the International Whaling Commission as the primary international body that is responsible for the management and regulation of whaling and the protection of whale stocks. In 1946, the IWC prohibited the killing of gray whales except by aboriginal groups. This current quota is 140 per year with a cap of 620 for 1997 through 2002.

The eastern North Pacific gray whale population was listed as an endangered species under the U.S. Endangered Species Act in 1970. The NMFS, in response to a status review of the gray whale population and a 1991 petition filed by the Northwest Indian Fisheries Commission, proposed that the gray whale be removed from the list of endangered and threatened species in 1991 (56 FR 58869). After providing for public comment, the NMFS

published its final delisting rule in January 1993 (58 FR 3121) followed by the official removal of the eastern North Pacific gray whale from the list by the U.S. Fish and Wildlife Service in June 1994 (59 FR 31094). At the time of delisting, the gray whale stock had allegedly increased to 23,109 animals (MMC 1999).

At the time the gray whale was delisted, NMFS developed a 5-year monitoring plan as required by the ESA. The purpose of the monitoring plan is to determine if the delisting decision was premature or appropriate and, if necessary, to take action to relist the species. Nearing the conclusion of the 5-year monitoring plan, NMFS developed an updated status review for the gray whale in 1999 (Rugh et al. 1999). In the status review, the NMFS concluded that the eastern North Pacific gray whale population should continue to be classified as non-threatened. Status Review at iii. The Status Review also concluded that "this stock's annual migrations along the highly populated coastline of the western United States and their concentration in limited winter and summer areas may make them particularly vulnerable to impacts from commercial or industrial development or local catastrophic events." Status Review at iii.

In 1995, the Makah Tribe from northwest Washington sent a letter to the NMFS expressing an interest in resuming whaling in its traditional and accustomed grounds as authorized in the Treaty of Neah Bay.[9] In response, the government initiated efforts on many levels to accommodate the Makah's request. In 1996 the government entered into a management agreement with the Makah in which it agreed to seek IWC approval for a gray whale quota for the Makah, revise its regulations to permit the Makah to whale, and otherwise facilitate the Makah's resumption of whaling. Though it attempted to gain IWC approval for an aboriginal subsistence whaling quota for the Makah in 1996, this request was rescinded due to a lack of support among IWC countries.

In June 1997, an attorney representing AFA and other groups submitted a letter to the NMFS warning the government that it must comply with the National Environmental Policy Act (NEPA) and other federal laws before it continues to facilitate the Makah's resumption of whaling. In response, on July 25, 1997, the government agreed to comply with NEPA and to prepare an environmental assessment (EA). The Draft EA was published on August 22, 1997 and was grossly inadequate. Despite the inadequacies and overwhelming public opposition to the proposed hunt, the government published its Finding of No Significant Impact on October 17, 1997; only one day before the start of the 1997 IWC meeting. The government also entered into a new management agreement with the Makah on October 13, 1997 that was nearly identical to the previous agreement.

On October 17, 1997, Meyer & Glitzenstein, a public interest law firm in Washington, DC, filed a lawsuit against the government claiming that it had violated multiple federal laws, including NEPA, in its efforts to facilitate the resumption of whaling by the Makah. The 9th Circuit Court of Appeals reversed the District Court's ruling and ordered the government to rescind its management agreement with the Makah and to prepare a new environmental document as required by NEPA. In response to this ruling, the government issued a revised EA

[9] Article 4 of the Treaty of Neah Bay states that the Makah have "The right of taking fish and of whaling or sealing at usual and accustomed grounds and stations is further secured to said Indians in common with all citizens of the United States."

in early 2001which contained a number of substantial inadequacies. The comment period closed on the revised Draft EA on February 16, 2001 and no final action has been taken by the government on the EA to date.

LISTING CRITERIA:

The ESA identifies five criteria which must be considered in determining if a species warrants listing. See, 16 U.S.C. §1531 et seq. Only one of these criteria has to be met in order for a species to qualify for listing as either a threatened or endangered species. In this case, the evidence demonstrates that three criteria (A, D, and E) warrant the listing of the gray whale as either a threatened or endangered species under the ESA. For the purpose of the following discussion, criteria A and E will be combined and discussed after the evidence supporting criteria D is presented.

Criteria B (overutilization for commercial, recreational, scientific, or educational purposes) and Criteria C (disease or predation) are largely inapplicable to the gray whale. There is, at present, no known commercial utilization of North Pacific gray whales.[10] While there is recreational, scientific, and educational use of gray whales, these uses are not, at present, contributing to the imperilment of this population. Also, while orcas or killer whales and large sharks are known to prey on gray whales (Rice and Wolman 1971; Baldridge 1972; Poole 1982), the impact of these predators on gray whales is unknown but is likely small compared to other human-caused or influenced threats.

The listing of this population under the ESA would provide immediate and long-term protection to gray whales and their habitat. Such a listing would:

1) Prohibit government authorized and intentional killing of gray whales;
2) Reduce and regulate the incidental killing of gray whales;
3) Require consultation on government authorized activities (i.e., oil and gas exploration and drilling, fishing activities) which may adversely impact gray whales and their habitat;
4) Provide for increased U.S. involvement in gray whale conservation issues in Russia, Canada, and Mexico;
5) Compel the designation of critical habitat for the gray whale;
6) Be consistent with the gray whale's Appendix I listing under the Convention on the International Trade in Endangered Species;[11]

[10] Though recent agreements between the Makah and the U.S. government pertaining to whaling specify that the Makah will not engage in commercial whaling, the Makah have consistently held that they have this authority under the Treaty of Neah Bay. In a May 5, 1995 letter to NOAA, Makah Tribal Council Chairman Hubert Markishtum states that the Makah "continue to strongly believe that we have a right under the Treaty of Neah Bay to harvest whales not only for ceremonial and subsistence but also for commercial purposes." The Makah also testified in support of its interest in commercial whaling at a March 6 hearing before the House Resources Committee, Subcommittee on Fisheries, Wildlife, and Oceans. This claims has also been repeated in numerous newspaper articles (See, for example, Seattle Times, May 25, 1995; Seattle Post-Intelligencer, June 6, 1995; Los Angeles Times, August 2, 1996).

[11] The gray whale is listed on Appendix I of the Convention on the International Trade in Endangered Species. This classification prohibits the trade in gray whales or their products. The U.S. government's efforts to facilitate Makah whaling is inconsistent with its support for the continued classification of the gray whale on Appendix I.

7) Increase federal funding for gray whale and gray whale habitat research activities.

CRITERIA D: THE INADEQUACY OF EXISTING REGULATORY MECHANISMS:

There are five principal regulatory mechanisms that are intended to protect the gray whale in the United States.[12] These are:

1) Endangered Species Act;
2) Marine Mammal Protection Act;
3) International Convention on the Regulation of Whaling, the International Whaling Commission, and national statutes and regulations implementing the convention;
4) National Environmental Policy Act;
5) Washington State Endangered Species Act.

The fundamental problem with these regulatory mechanisms is that none provide sufficient protection to the gray whale or to gray whale habitat. The lack of any relevant agreement, statute, regulation, or policy that protects the habitat of the gray whale, including their summer feeding grounds, is of significant concern given the multiple impacts to that ecosystem and the declining status of the benthic amphipod communities. Other inadequacies stem from the government's decision to ignore or misinterpret international conventions and domestic laws in a manner that has resulted in adverse impacts to the gray whale.

The NMFS claims that 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, the Oil Pollution Act of 1990, and the Outer Continental Shelf Lands Act Amendments provide sufficient protection for the coastal habitat critical to the gray whale (NMFS 1993). A review of these laws, however, reveals that none provide sufficient protection to benthic amphipods or their habitat from the multiple threats (i.e., global warming, El Nino events, bottom trawling, oil and gas exploration and extraction activities) that have adversely impacted amphipod communities in the Bering and Chukchi Seas.[13]

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[12] Since the gray whale range encompasses areas under the jurisdiction of the United States, Mexico, Canada, and Russia, the gray whale and its habitat is subject to laws beyond those promulgated in the United States. In Mexico, presidential decrees were used to establish whale sanctuary in Laguna Ojo de Liebre (Diario Oficial 1972a), Laguna San Ignacio (Diario Oficial 1972b; 1979), and Laguna Guerrero Negro and Laguna Manuela (Diario Oficial 1980). In 1988, the Vizcaino Biosphere Reserve was created to encompass Laguna Ojo de Liebre and Laguna San Ignacio (Diario Oficial 1988). In 1993, the whale sanctuary of El Vizcaino was designated as a World Heritage Site. In addition, legislation was promulgated in 1983 and 1991 prohibiting the harassment, capture, physical harm or killing of gray whales (Diario Oficial 1983, 1991). Except for these laws in Mexico, the petitioners are not aware of specific laws in Canada or Russia that provide meaningful protection to gray whales or gray whale habitat.

[13] Section 20 of the 1978 Outer Continental Shelf Lands Act Amendments, for example, require the Secretary of the Interior to conduct environmental monitoring studies "to establish information needed for assessment and management of environmental impacts on the human, marine, and coastal environmental of the Outer Continental Shelf and the coastal areas which may be affected." This information must be collected "in a manner designed to provide time-series and data trend information which can be used for comparison with any previously collected data for the purpose of identifying any significant changes in the quality and productivity of such environments , for establishing trends in the areas studied and monitored ..." Swartz and Hofman (1991) report that this mandate includes site-specific monitoring/reporting requirements to maintain a careful record of activities that may, by themselves or in conjunction with other activities, have direct or indirect effects (e.g., food chain effects) on the

Endangered Species Act:

From 1970 to 1994, the eastern North Pacific gray whale was listed as an endangered species. As a result of the protections afforded by the ESA, both the gray whale and its habitat received protection from adverse impacts associated with human activities that could jeopardize the existence of the population.

In particular, the ESA prohibited: the intentional killing or take of gray whales; the possession, selling, or transporting of gray whales or gray whale products within the U.S., 16 U.S.C. §1538(a)(1)(B,D), and the incidental killing or taking of gray whales unless the requisite permit was issued pursuant to Section 10 of the ESA. Id. at §1539(a)(2)(B)(I). "Take" as defined under the ESA means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Id. at 1532(19). "Harm" is further defined to include "significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering." 50 C.F.R. §17.3. The ESA also required federal agencies to consult with the U.S. Fish and Wildlife Service to insure that "any action authorized funded, or carried out by such agency is not likely to jeopardize the continued existence" of the gray whale. 16 U.S.C. §1536(a)(2). Such consultation requirement apply to oil and gas exploration and extraction activities, contaminant discharge, fishing activities, and other threats to the gray whale throughout the population's range, including the Bering and Chukchi Seas and along the western coast of the United States.

The ESA, though not perfect, would provide protection to the gray whale and its habitat if the gray whale was listed. The government's decision to delist the gray whale in 1994 has adversely affected the gray whale and its habitat by:

1) Removing protection afforded to the gray whale;
2) Removing protection afforded to gray whale habitat;
3) Failing to develop or implement an adequate monitoring plan for the gray whale.

The government's decision to delist the gray whale was controversial. Not only did the majority of persons and interest groups commenting on the proposal reject the proposed delisting, but the Marine Mammal Commission (MMC), a government commission established to advise the government on the management of marine mammals, also derided the proposal and advocated that the gray whale be downlisted to threatened instead of removed from the list (May 15, 1992 letter from John Twiss, Executive Director, MMC to Dr. W. Fox, NMFS). Specifically, the MMC opposed the proposed rule to delist the gray whale for the following reasons:

- There is no conclusive evidence that the western and eastern gray whale stocks are reproductively isolated. If these stocks are not isolated then the eastern stock must be protected in order to aid the recovery of the western stock.
- Despite little supporting evidence, the NMFS concludes that the major gray whale calving lagoons in Baja California are sufficiently protected under Mexican law and fails

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distribution, abundance or productivity of the affected species and populations. There is no evidence, however, that this mandate has been met by the Secretary of the Interior, MMS, or any other federal agency.

to assess the impact of delisting on existing protections afforded to gray whales and their habitat in Mexico. Potential threats, including onshore development and oil and gas exploration, are particularly acute in the gray whale's winter breeding and calving grounds and the summer feeding grounds, the areas of greatest importance to the continued survival of the species;

- A failure to consider the implications of delisting on the impact of oil and gas exploration and extraction activities and other activities on the gray whales feeding habitat in the Bering and Chukchi Seas;
- A failure to adequately discuss and consider the adequacy of all regulatory mechanisms protecting gray whales and their habitat in the United States, Mexico, Canada, and Russia and the potential impact of delisting on the enforcement and existence of foreign laws. The loss of the ESA's Section 7 consultation procedures to protect gray whale habitat and the potential for critical habitat designation were also not sufficiently analyzed. The mere fact that gray whales continued to recovery under existing regulations does not necessarily mean the regulations are adequate but, rather, could indicate that certain activities with adverse impacts to the gray whale have yet to occur.
- A failure to properly and comprehensively review and analyze five jeopardy biological opinions issued for oil and gas lease sales in the Bering and Chukchi Seas as to the potential impact on gray whales and gray whale habitats. Instead of adequately considering these opinions, the MMC criticized NMFS for attempting to undermine, misinterpret, and invalidate the opinions.

In its conclusion, the MMC recommended that the gray whale be downlisted to threatened unless and until the NMFS can provide support for the conclusions that: 1) habitat degradation and destruction is not a significant threat to the species; 2) western and eastern stocks constitute discrete and reproductively isolated stocks; 3) jeopardy biological opinions are no longer valid; 4) programs to assess and monitor habitat and population status and trends have been identified and implemented; and, 5) arrangements have been made with other nations to guarantee the protection of gray whales and essential gray whale habitat. Alternatively, if any of these conclusions, as is the case, cannot be supported, then the MMC believes the gray whale should be protected under the ESA.[14]

Despite the concerns of the MMC and others, the government elected to delist the species.[15] As a result of the delisting, the gray whale and its habitat were stripped of protection

[14] Similarly, Reeves and Mitchell (1988) assert that "a decision against listing the east Pacific stock as threatened or endangered presupposes that 1) there will be no increase in the direct harvest by the USSR, by North American aborigines or by others; 2) there will be no further deleterious modifications by man of the population's critical winter and summer habitats; 3) regulation of tourism will continue in the present manner, or if anything become, more strict; and 4) incidental mortality caused by fishing gear will not increase. If, at any future time, any of these conditions is no longer met, the stock's conservation status should be reconsidered.

[15] Many speculate that this decision was politically motivated instead of being based on sound scientific evidence and the requisite caution needed when dealing with imperiled species. Opponents of the delisting argued that the gray whale was being used as a "sacrificial lamb" to prove the benefits of the ESA at the time of its reauthorization (Watters and Duggar (1997) citing Stripling, S., Back on Course – Have We Saved the Whales?, The Seattle Times, April 25, 1993). Commercial fishing interests, however, had good reason to support the delisting to avoid the large fines levied for the incidental catch of a listed species in their nets (Watters and Duggar 1997 citing Stipling). Indeed, in its petition to delist the gray whale, the Northwest Indian Fisheries Commission, representing fourteen commercial fishing groups and nineteen tribes, relied on this threat as a basis for its delisting request.

under the ESA. Since the delisting in 1994, the threats to the gray whale and its habitat in the U.S. have substantially increased. These threats include a decline in benthic amphipods caused by natural and anthropogenic factors, the destruction of benthic amphipods and their habitat by bottom trawling, oil and gas exploration and extraction, and toxic contamination. Because gray whales and their habitat are no longer protected by the ESA, these activities were never subject to analysis or mitigation pursuant to the consultation requirements of the ESA.

Prior to delisting the gray whale, the government, as required by the ESA, developed a monitoring plan for the population in 1993 (NMFS 1993). The purpose of a monitoring plan is to evaluate the validity of the status determination used in the delisting process and to determine whether the status of the population has deteriorated within a 5-year period subsequent to delisting (NMFS 1993). The 5-year plan, prepared by 11 NMFS scientists in 1993, was designed to result in a status review of the gray whale which was to include a recommendation on whether to (1) continue the monitoring program for an additional 5 year period; (2) terminate the monitoring program; or (3) consider changing the status of the gray whale under the ESA. NMFS 1993. To accomplish this, the monitoring plan provided the framework and guidelines for research, monitoring, and management over the past 5 years. Specific research priorities contained in the monitoring plan include:

1) Estimate abundance from biennial surveys during the southbound migration;
2) Estimation of calf production during the northbound migration;
3) Research to determine potential biases in methods used to estimate abundance and calf production;
4) Research to determine trends in pregnancy rates from animals taken in the subsistence harvest;
5) Estimation of number of animals killed for subsistence purposes;
6) Use Bayesian synthesis to evaluate current status of the population;
7) Research to determine the degree to which anthropogenic effects may compromise the viability of this population (including its habitat); Monitoring Plan at v and vi.

The monitoring plan identifies other recommended actions. These actions include efforts to encourage the Minerals Management Service or other appropriate agencies to continue studies to determine the impacts of oil spills, vessel traffic, noise, seismic exploration, and offshore drilling activities on gray whales and their benthic food resources (NMFS 1993). In addition, the NMFS was expected to continue and promote increased cooperative studies with Mexico to monitor habitat use and the impacts of whale watching on the Mexican breeding/calving grounds (NMFS 1993).

In addition to the research priorities, the objectives of the monitoring plan include monitoring: the status of gray whales and habitats essential to their survival and the concentrations of chemical contaminants in gray whales, including organochlorines (e.g., PCBs, chlorinated pesticides) and heavy metals (NMFS 1993). Furthermore, the monitoring plan provided additional details to achieve the plan's objectives. Such details include: research to determine any potential biases in the (population) estimation procedures; determine the importance to breeding success of optimum habitat within the calving lagoons in Mexico; determine the status of benthic amphipod standing stock within the population's summer feeding

range in the Bering and Chukchi Seas; and collect tissue samples from stranded animals along the west coast and from the Russian subsistence harvest and analyze for contaminant levels (NMFS 1993).

Though the monitoring plan was intended to determine whether the gray whale delisting decision was accurate, many of the key research objectives and needs developed to make this determination were either not adequate to achieve this objective or plan and/or have not been properly funded or implemented. The NMFS has attempted to deflect this criticism by claiming that the monitoring plan was never finalized or officially approved. This claim is baseless since the plan was required to be implemented by the ESA.

Again, the MMC provided substantive comments in response to the monitoring plan identifying the following deficiencies:

- The plan does not provide a clear, unambiguous description of what would be done in the next five years to ensure that removing the eastern North Pacific gray whale population from protection afforded by the ESA was consistent with the intents and provisions of the ESA;
- The plan does not consider or include means for assessing, monitoring, avoiding, or mitigating human activities that may pose threats to habitats essential to the welfare of the gray whale population;
- The plan fails to identify the magnitude of change in the population size that can be detected through biennial counts conducted during the 5-year duration of the plan;
- The research priorities, monitoring objectives, and detailed tasks are not consistent or clear and some research needs are not identified as priorities;
- The plan does not provide a complete description of ongoing, planned, and proposed human activities that could affect utilization of key calving/breeding lagoons;
- The plan does not properly assess or establish research priorities to assess the potential impact of oil spills on the gray whale and its habitat.

Of particular concern is the failure of the government to monitor gray whale habitat essential to the species survival, monitor contaminant levels in gray whales, and to conduct or fund necessary research on the status of the benthic amphipod standing stock in the Bering and Chukchi Seas. The government has yet to engage in any regular comprehensive monitoring of these benthic amphipod stocks, has failed to commit a sustained sum of funding for such research, and has not developed any coordinated research efforts with the Russians.

Instead of responding to these criticisms by amending the monitoring plan, the government ignored the MMC's concerns and, presumably, any other substantive concerns expressed about Monitoring Plan. Since the monitoring plan was neither adequate in content nor fully implemented or funded, the government had no legitimate way to evaluate the status of the population during or after the monitoring period. Any decision regarding the population based on the results of the monitoring plan, therefore, is not valid

Because of the deficiencies in the monitoring plan and in its implementation, it came as no surprise that the status review of the Eastern North Pacific stock of gray whales prepared by Rugh et al. (1999) painted a very optimistic picture of the status of the gray whale population.

Thus, Rugh et al. (1999) recommended that the gray whale continue to be classified as non-threatened, that abundance monitoring should continue, and that, ideally, research should continue on human impacts to critical habitats.[16] The status review did caution, however, that because of "this stock's annual migrations along the highly populated coastline of the western United States and their concentration in limited winter and summer areas may make them particularly vulnerable to impacts from commercial or industrial development or local catastrophic events" (Rugh et al. 1999).

As this evidence indicates, the premature decision to delist the gray whale has: 1) harmed, not benefited the population by removing the protections afforded by the ESA to the gray whales and their habitat; and, 2) adversely impacted gray whales and their habitat resulting in long-term adverse impacts to the survival and viability of gray whales and their habitat. Furthermore, the regulatory provisions of the ESA that are intended to ensure that a delisting decision was not ill-advised or premature, failed in this case. As a consequence, the gray whale continues to be adversely affected by multiple threats to individual whales and to gray whale habitat, some of which could be reduced, prevented, or eliminated by the requested ESA listing.

Marine Mammal Protection Act:

The Marine Mammal Protection Act (MMPA) represents Congress' most expansive explication of the nation's commitment to the "protection and conservation" of whales and other marine mammals. 16 U.S.C. §1361(5). Among other things, the MMPA imposes a moratorium on the taking and importation of marine mammals and marine mammal products. Id. at §1371(a). The Act defines the term "moratorium" as "a complete cessation of the taking of marine mammals... excepts as provided in this chapter." Id. at §1362(7).

The MMPA does not provide adequate protection for the gray whale because:

1) It provides no meaningful protection to gray whale habitat;
2) The Potential Biological Removal level for the gray whale is not sustainable;
3) The government has misinterpreted the MMPA's prohibition on whaling by the Makah tribe.

The MMPA Does Not Provide Protection for Gray Whale Habitat:

The MMPA defines "take" to include "harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal." Id. at §1362(13). Unlike the ESA, none of the terms contained in the MMPA's definition of "take" are further defined to include habitat destruction or modification. According to Swartz and Hofman (1991), the term "harass" has been interpreted through practice to include any action that results in an observable change in the behavior of a marine mammal – e.g., abrupt termination of breeding or feeding, avoidance behavior, and changes in swimming speed, dive frequency, dive duration, or direction of

[16] The results of the Status Review are also not surprising considering that 24 of the 37 individuals who participated in the status review workshop were employees of NMFS and that the public, despite promises by the agency, was never provided an opportunity to consider or comment on the status review.

movement. This interpretation does not, however, address adverse impacts to gray whale feeding, calving, or breeding habitat.

Indeed, far from protecting the gray whale, the section 101(a)(5) of the MMPA permits the incidental take of marine mammals under limited circumstances under its small take exemption. Though this provision is not applicable to commercial fishing activities, it does permit the incidental take of gray whales by oil and gas exploration activities. Under this provision, the Secretary of Commerce can authorize the incidental but unintentional taking of small number of depleted and non-depleted species and stocks when the take would have a negligible impact on the affected species or stock and when it would not have an unmitigable adverse effect on subsistence taking (Swartz and Hofman 1991). To provide such authorization, the Secretary must find that the total take would have a negligible impact on affected species or stock, determine that regulations are established to define the permissible methods of taking, and determine if requirements are established for the monitoring and reporting of such taking. Regulations implementing the small take exemption as applied to pre and post-lease oil and gas exploration activities require those authorized to take marine mammals to: 1) monitor the impacts of oil and gas exploration on marine mammals; 2) observe and record the effects of exploration activities on marine mammals; and, 3) submit a site-specific plan to monitor the effects on populations of marine mammals that are present during exploratory activities when applying for take authorization. 50 C.F.R. §228.37(a)(b)(c). The regulations, however, do not include any provisions which require any consideration of the impact of oil and gas exploration or extraction activities on marine habitats.

Therefore, the minimal protection that continues to be afforded to the gray whale by the MMPA does not provide any meaningful protection to gray whale habitat.

The Potential Biological Removal Level is Not Sustainable:

The MMPA mandates the preparation of a Potential Biological Removal (PBR) level for all marine mammal species. The PBR is intended to be a conservative estimate of the number of animals from a particular species that can safely be removed without jeopardizing the population. For gray whales, as demonstrated below, the current PBR is not sustainable and would ultimately result in the extinction of the population.

The term "potential biological removal level" means the "maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population." 16 U.S.C. §1362(20). Thus all whales that die in a year due to entanglements with fishing gear, ship strikes, slaughter, or for any other reported human-caused reason would all be encompassed by the PBR. The fact that "natural mortalities" such as fetal loss, starvation , strandings, whether documented or undocumented, are not considered part of the PBR raises serious concerns about the legitimacy or sustainability of this estimate.[17] Theoretically, if the number of dead whales exceeds the PBR, that level of mortality would not be considered sustainable.

[17] It may be the case that the NMFS does consider documented "natural mortalities" such as strandings in determining the number of gray whales removed from the population. Whether this is done, however, is not clear from the definition of PBR provided in the MMPA. Even if this is the case, it does not alter the fact that the PBR

A PBR is defined as the product of the minimum population estimate of the stock, one-half the maximum theoretical or estimated net productivity rate of the stock at a small population size, and a recovery factor between 0.1 and 1.0. It is expressed in mathematical terms as PBR = Nmin x 0.5Rmax x Fr. Thus, the PBR estimate is only as good as the population estimates used to calculate it.

The PBR for the gray whale fluctuates based on estimated population size. Thus, the gray whale PBR for the 1995/96 population estimate (22,571) is calculated as 432 based on a minimum population estimate of 21,597 and a maximum theoretical net productivity rate of .04 (Hill and DeMaster, 1999). Within two short years, the population estimate had increased by 4,064 whales to a level of 26,635 (U.S. Dept. of Comm. 2001). Despite the fact that such an increase is biologically impossible, the estimated PBR for the current gray whale population is 649 based on a minimum population estimate of 24,477. The annual removal of 649 gray whales from the current population, however, is not sustainable.[18]

Not only is this alleged safe level of mortality not sustainable, but the current gray whale PBR (649) is based on a maximum theoretical net productivity rate (5.3 percent) which is more than double the current estimated observed rate of increase. The 0.053 rate cited in Wade (1994) is also higher than the 4 percent net productivity rate recommended for gray whales by Hill and DeMaster (1999) in the1999 Alaska Marine Mammal stock assessments.

The danger represented by the grossly overinflated PBR of 649 is evidenced by the results of the gray whale heuristic model. When the population is modeled under a scenario that removes 649 whales per year, the population, as graphically indicated in Attachment 2, declines precipitously suggesting that the current PBR is more a prescription for extinction rather than a safe biological removal level for the gray whale.

The Government has Misinterpreted the MMPA Moratorium on the Killing of Marine Mammals in Order to Accommodate Makah Whaling:

In 1997, as previously explained, the government authorized the Makah to resume whaling. This was done in violation of the International Convention for the Regulation of Whaling (ICRW), the laws promulgated to implement the Convention, and in violation of the moratorium on taking contained in the MMPA. The MMPA provides only a limited number of exceptions to the moratorium which include a waiver procedure and a conditional exemption for native Alaskan subsistence taking. 16 U.S.C. §1371. Neither the exceptions to the moratorium or the waiver process apply or have been used by the NMFS to justify the Makah's proposed hunt.

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formula does not provide sufficient consideration of undocumented mortalities which, in gray whales, may represent the vast majority of the mortalities (See, Heyning and Dahlheim 1994).

[18] In its 2000 gray whale stock assessment, NMFS now believes the Rmax is .047 or 4.7 percent resulting in a newly revised PBR level of 575. This new PBR level remains unsustainable based on the results of the heuristic model (See, Attachment 2). Remarkably, NMFS actually claims, based on Wade (in press), that the actual Rmax is .072 or 7.2 percent. Not only did NMFS fail to provide a citation for Wade (in press), but given the lack of population demographic information, the use of highly questionable demographic information, and other flaws raise concerns about the legitimacy of this new Rmax estimate which is, at best, excessive and entirely inconsistent with the observed rate of production.

The native Alaskan exemption is inapplicable to the proposed Makah hunt because this provision only covers taking by "any Indian, Aleut, or Eskimo who resides in Alaska and who dwells on the coast of the Northern Pacific Ocean or the Arctic Ocean." Id. at §1371(b).[19]

Recognizing the obvious conflict between NMFS's whaling proposal and the MMPA, NMFS maintains that the MMPA is simply inapplicable to both the Makah hunt and the Secretary's decision to seek a gray whale quota from the IWC. The apparent authority for NMFS's position is the 1855 Treaty of Neah Bay and a provision of Public Law 103-238 which included, among other things, the 1994 MMPA Amendments.

The relevant provision of Public Law 103-238 provides:

> "Sec. 14. Indian Treaty Rights: Alaska Native Subsistence. Nothing in this Act, including any amendments to the Marine Mammal Protection Act of 1972 made by this Act – (1) alters or is intended to alter any treaty between the United States and one or more Indian tribes; or (2) affects or otherwise modifies the provisions of section 101(b) of the Marine Mammal Protection Act . . ." Pub. L. No. 103-238. 103rd Cong. 2nd Sess., 108 Stat. 532, 559 (1994).

NMFS apparently reads this provision as a general amendment to the MMPA, providing that nothing in the 1972 Act abrogates Native American treaty rights. However, it is clear from even a cursory reading of this provision that the "Act" referenced is Public Law 103-238 and not the MMPA in its entirety. The fallacy of NMFS's position is that the agency has interpreted section 14 substituting the phrase "the MMPA of 1972" for "this Act." Moreover, each of the amendatory provisions of Public Law 103-238 provides that a particular section of the MMPA "is amended" by the language provided in Public Law 103-238. No such language appears in section 14.

Moreover, NMFS's efforts to facilitate Makah whaling are inconsistent with section 1378 of the MMPA which provides "The Secretary ... shall ... initiate the amendment of any existing international treaty for the protection and conservation of any species of marine mammal to which the United States is a party in order to make such treaty consistent with the purposes and policies of the chapter." 16 U.S.C. §1378(a)(4). Congress has specifically identified the Whaling Convention as an example of a deficient international agreement that the Secretary must renegotiate under MMPA section 1378.[20] Instead of fulfilling this mandate, NMFS is actually moving in the opposite direction by pursuing the Makah quota. Indeed, the efforts by NMFS to facilitate Makah whaling is inconsistent with the Secretary's obligations under section 1378 of the MMPA by seeking a quota under an international convention that Congress has explicitly identified as inconsistent with the purposes and policies of the MMPA.

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[19] Similarly, the revised regulation implementing the Whaling Convention Act, 36 C.F.R. §230 et seq., is illegal under the MMPA because the regulations extend the authority for the aboriginal killing of whales to indians living outside of Alaska.

[20] See, H.R. Rep. No. 92-707, 92nd Cong., 1st Sess. (1971), providing that "an obvious case in point [of a convention the Secretary must renegotiate pursuant to section 1378] is the International Whaling treaty which was entered into not for the benefit of the whales, but for the benefit of the companies exploiting them. This inadequate measure should clearly be strengthened.

The failure of the MMPA to provide any meaningful protection to gray whales and absolutely no protection to gray whale habitat has facilitated the decline in the population. The inadequacy of the MMPA is also caused by the government's blatant misinterpretation of the Act to favor the whaling interests of the Makah.

International Convention on the Regulation of Whaling:

The ICRW, adopted in 1946, established the International Whaling Commission as the preeminent authority for the worldwide regulation and management of whaling and whales.[21] The IWC prohibited the commercial slaughter of gray whales in 1946 but has consistently authorized the killing of gray whales by aboriginal groups. In the early 1980s the IWC created policies regarding aboriginal subsistence whaling. These policies were intended to standardize decisions made by the IWC as to which groups qualify to conduct aboriginal subsistence whaling. In 1997, despite no recognition of the Makah's subsistence needs by the IWC, the U.S. delegation failed to comply with these policies and U.S. law when it announced that the IWC approved a joint gray whale quota for the Russians and the Makah.[22]

The ICRW is an inadequate regulatory mechanism for the protection of gray whales because:

1) The U.S. government purposefully misinterpreted the IWC aboriginal subsistence whaling policies in order to facilitate the Makah's resumption of whaling;[23]
2) No IWC member country has attempted to address this blatant violation of IWC policies by the U.S. delegation since 1997;
3) The U.S. delegation's actions in recognizing the aboriginal subsistence whaling needs of the Makah, in defiance of accepted IWC policies, establishes a dangerous precedent that may cause an increase of aboriginal subsistence whaling of gray whales.

The U.S. Government Purposefully Misinterpreted the IWC Aboriginal Subsistence Whaling Policies in Order to Facilitate the Makah's Resumption of Whaling:

"Aboriginal subsistence whaling" means "whaling, for purposes of local aboriginal consumption carried out by or on behalf of aboriginal, indigenous or native peoples who share strong community, familial, social and cultural ties related to a continuing traditional dependence on whaling and on the use of whales." Rep. Int. Whal. Comm., Special Issue 4, 83 (1982). The

[21] During its early history, the IWC was a greater advocate for whaling than for the protection and responsible management of whales. While many IWC member countries no longer advocate commercial whaling, the IWC remains restrained in its ability to protect whales since it has no enforcement authority. The U.S. was instrumental in preventing the IWC from having such authority by claiming that its domestic legislation was sufficient to provide the enforcement of IWC directives (Hankins 1990).

[22] The quota authorized the Makah to kill/strike up to 41 gray whales from 1997 to 2002.

[23] As previously indicated, it is the cumulative impact of all threats to the Eastern North Pacific gray whale population that justifies its listing under the ESA. Therefore, though some may claim that Makah quota consists of a small proportion of the estimated total number of gray whales, given the status of benthic amphipods and the adverse impact of the decline on gray whale survival and productivity requires that all intentional forms of human caused gray whale mortality be prevented or eliminated.

phrase, "local aboriginal consumption," is further defined under the IWC regulations to mean "the traditional uses of whale products by local aboriginal, indigenous or native communities in meeting their nutritional, subsistence and cultural requirements." Rep. Int. Whal. Comm., Special Issue 4, 83 (1982). The relevant U.S. laws refer to the same definition of aboriginal subsistence whaling.

Therefore, in addition to satisfying U.S. legal standards, the Makah's alleged subsistence needs have to be recognized by the IWC before a whaling quota can be granted.[24] At the 1997 IWC meeting the U.S. and Russian delegations submitted a joint request for a gray whale quota to be shared by Russian aboriginal groups and the Makah. The record of the 1997 IWC meeting clearly demonstrates that the IWC did not make this determination. Indeed, France, the Netherlands, China, Oman, Australia, United Kingdom, New Zealand, Mexico, Argentina, Brazil, and other IWC member countries expressed opposition to Makah whaling because of the failure of the Makah to meet the IWC's aboriginal subsistence need standards.[25] See, Attachment 3 at 10-15.

As the foregoing evidence conclusively demonstrates, the IWC has never recognized the aboriginal subsistence needs of the Makah tribe and, therefore, the quota did not authorize the U.S. to permit the Makah to whale. Though the ICRW remained intact during this episode, the U.S. delegations misinterpretation of the Convention's standards and policies revealed the inadequacy in this international agreement to protect gray whales.

No IWC member country has attempted to address this blatant violation of IWC policies by the U.S. delegation since 1997:

Despite the U.S. delegation's misinterpretation or misapplication of the IWC policies on aboriginal subsistence whaling at the IWC meeting in 1997, the Makah issue has not been revisited by the IWC. Allowing this violation of IWC policies to continue without any challenge is particularly disturbing given the number of countries who expressed serious reservations about the Makah proposal and the Makah's inability to meet the IWC aboriginal subsistence need standards. It is expected that this reluctance may be associated with U.S. government influence on IWC member countries to avoid a renewed debate on the Makah proposal.[26] As a result, the ICRW, the IWC, and the domestic legislation implementing the ICRW have failed to provide adequate protection to the gray whale.

The U.S. delegation's actions in recognizing the aboriginal subsistence whaling needs of the Makah, in defiance of accepted IWC policies, establishes a dangerous precedent that may cause an increase of aboriginal subsistence whaling of gray whales:

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[24] The U.S. has consistently recognized the IWC as the preeminent authority for the regulation of whaling. See, Attachment 3 at 15-16.

[25] Eventually the schedule amendment relevant to the joint quota was revised to include a statement indicating that the Makah's subsistence needs have to be recognized before the tribe can engage in whaling. Despite this clear requirement, after the quota was approved, the U.S. proclaimed that the IWC had approved Makah whaling. This drew an immediate response from the Australian delegation who made it clear that the approved quota did not constitute an acceptance or recognition by the IWC of the validity of the Makah claims.

[26] If the U.S. elects to authorize Makah whaling at the conclusion of the current NEPA process, the ruling in Metcalf v. Daley requires the U.S. to gain IWC recognition of the alleged subsistence needs of the Makah.

This misinterpretation of IWC policies on aboriginal subsistence needs reduces the credibility of the U.S. on the international whaling stage. In addition, in creating a precedent for nation states to make their own recognition of aboriginal subsistence whaling, U.S. actions have usurped the powers of the IWC. The U.S. has also established a precedent which will increase the potential for subsistence and commercial indigenous whaling throughout the world.[27] This may increase the number of gray whales killed by aboriginal groups, particularly in Canada a non-member of the IWC, to the detriment of the gray whale population. In addition, this type of unilateral action severely undermines the authority and responsibility of the IWC to protect the world's whales.

National Environmental Policy Act:

NEPA requires federal agencies to evaluate the environmental impacts of their actions before implementing the actions. As previously explained, the original environmental assessment was ultimately determined to be invalid by the Court in Metcalf v. Daley. As a result, the government prepared a revised draft environmental assessment on the Makah gray whale hunt. This new document was also deficient as it, among other things, failed to disclose and evaluate critical information (e.g., decline in benthic amphipods, trawling impact to amphipods and their habitat), neglected to consider a reasonable range of alternatives, and failed to evaluate the cumulative impacts of the action. See, Attachment 3. To date the government has not issued either a Finding of No Significant Impact (FONSI) or a decision to prepare an environmental impact statement. If the government issues a FONSI, then NEPA would qualify as an inadequate regulatory mechanism because of the deficiencies in the environmental assessment and the government's continued inability to subject the Makah whale hunt to adequate NEPA review.

Washington State Endangered Species Act:

The gray whale has been protected under the Washington State Endangered Species Act since 1981. Initially it was listed as "endangered" but, in 1997, the gray whale was upgraded to "state sensitive" largely based on the concern that the summer resident whales that inhabit inland waterways are especially vulnerable to harvest by Washington tribes. The hunting of species classified as "sensitive" is specifically prohibited by Washington State law. WAC §232-12-011.

The Constitution and Bylaws of the Makah require the tribe to comply with state law. Specifically, it states that, "the Makah Indian Tribe, in order to establish a more perfect tribal organization ... secure to ourselves and our posterity the power to exercise certain rights of home rule, not inconsistent with the Federal, State, and local laws..." Therefore, the prohibitions imposed by the Washington State Endangered Species Act on the killing of species listed as "sensitive" apply to the Makah. The failure of the Makah and the U.S. government to comply with state law and the failure of the State of Washington to enforce its law renders the

[27] O'Leary (1984) identifies eight aboriginal group who engaged in whaling from the Aleutian Islands to Washington State. The MMC identified the Quilute, Hoh, Quinault, and S'Klallam as tribes that all actively hunted whales on the Pacific Coast (October 8, 1997 letter from J. Twiss, MMC, to H. Diaz-Soltero, NMFS). Since the Makah resumed whaling, at least one group, the Nuu-chah-nulth from Canada has expressed its interest in hunting gray whales. Indeed, the Nuu-chah-nulth have indicated its interest in killing up to 1000 gray whales per year.

protections intended to be afforded to the gray whale by the state endangered species act meaningless and, therefore, inadequate.

As a result of the inadequate regulatory mechanisms and the government's failure to properly implement mandatory provisions of the ESA and to comply with the standards and policies of the IWC, the gray whale and its habitat have been harmed. Specifically, these deficiencies have resulted in: 1) no meaningful protection for gray whale habitat; 2) no protection for the gray whale from killing that is in violation of international, U.S., and state laws or policies; 3) no legitimate means to determine the size or trend in the gray whale population; 4) no reliable or consistent mechanism to monitor the status of gray whale habitat, particularly its feeding habitat; 5) no comprehensive mechanism to assess the extent and severity of gray whale mortality; 6) the use of a PBR which is unsustainable and will drive the population to extinction; and, 7) no agreement or other mechanism to guarantee the protection of gray whales and their habitat throughout gray whale range.

CRITERIA A: THE PRESENT OR THREATENED DESTRUCTION, MODIFICATION, OR CURTAILMENT OF ITS HABITAT OR RANGE;

CRITERIA E: OTHER NATURAL OR MANMADE FACTORS AFFECTING ITS CONTINUED EXISTENCE:

For the purpose of this discussion, Criteria A and E will be combined. This is largely due to the fact that the majority of natural or manmade factors affecting the continued existence of the gray whale impact both gray whales and their habitat. The destruction, degradation, and/or loss in the quality and quantity of gray whale habitat directly and adversely impact the viability, health, and survival of individual gray whales and the gray whale population.

As the Marine Mammal Commission has repeatedly stated in its annual report to Congress (See, e.g., MMC 1999):

> Gray whales typically migrate, calve, and rear their young within a few miles of shore, and feed over the continental shelf. As a result, they are exposed to the effects of various human activities that tend to be concentrated near shore. Some whales are killed or injured as a result of entanglement in coastal gillnets or collisions with ships. Their behavior, habitat use patterns, and health also may be affected by noise, contaminants, or other human activities and development, including offshore oil and gas development, coastal development, whale watching, military exercises, and industrial facilities.[28]

Threats to the gray whale include the number and composition of gray whales killed by aboriginal groups and various mortality factors. While such impacts are of serious concern to the gray whales, other activities pose a considerable and immediate threat to gray whale habitat. The

[28] See also, Swartz (1986), "Because of their coastal habits gray whales may be regularly observed from shore, and their lengthy annual migration is one of the world's most outstanding wildlife spectacles. Yet it is this affinity with coastal waters that poses a very real threat to the species. They cannot easily avoid exposure to marine pollution, vessel traffic, industrial noise, and activities associated with the development of outer continental shelf resources over virtually their entire range."

warming of sea temperatures caused by natural and human-influenced global warming, the destruction of benthic habitat by bottom trawlers, and the contamination of the gray whale's primary food supply – benthic amphipods – have impacted and will substantially impact gray whales. This section will evaluate those activities that are having the greatest adverse impact on gray whales and their habitat.

As previously indicated, a heuristic model has been developed for the gray whale.[29] The value of a heuristic model is that it is a learning tool that is intended to be highly adaptive in order to easily accommodate new data or information about the model parameters. The model is designed to be both age and sex structured with time-varying, density-dependent and stochastic demographic processes that were parameterized using the best available information on gray whale demography, catch and stranding history and the productivity of the benthic amphipod food stock subject to environmental fluctuations (Chaloupka 2000). The results of the model, which is subject to ongoing development and validation, demonstrate that the gray whale population is seriously threatened by recent trends in the population and by current management actions. For example, as previously stated, the current PBR for the gray whale population is unsustainable (See, Attachment 2). Similarly, the number of undocumented gray whale mortalities and/or reduction in gray whale production, can drastically impact the survival and viability of the gray whale population. The impact of these factors on population viability will become more severe as benthic amphipod communities decline in quantity and quality.

MORTALITY FACTORS:

Gray whales are subject to a number of mortality factors including aboriginal kills, strandings, ship strikes, entanglements, starvation, and predators.

Past and current aboriginal kill rates:

Since 1948 a total of approximately 7,024 gray whales have been killed by aboriginal groups in Russia and the United States (Lankester and Beddington 1986; IWC 2000, U.S. Dept. of Comm. 2001).[30] While the reliability of these estimates remains questionable, it is known that the vast majority of these whales have been killed by aboriginal groups in Russia. The number of whales killed per decade has varied with 768, 1982, 1746, 1656, and 827 killed between 1950-59, 1960-69, 1970-79, 1980-89, and 1990-99, respectively. According to population estimates, this level of removal has not caused an obvious decline in the population. The recent increase in gray whale mortalities and decrease in gray whale production, however, increases the significance and impact of the current aboriginal kill rate on the population.

Historically, the Russian aboriginal kill included a high proportion of adult female whales. According to Butterworth et al. (in press) of the 5,980 whales killed by aboriginals between 1948 and 1998, 3,928 or 66 percent were females. Wade (1994) reported that from

[29] The petitioners and Dr. Chaloupka are prepared to meet with U.S. government representatives to explain and review the features of the heuristic model, document how the model is constructed, and to demonstrate the decline in the gray whale population based on current threats to the gray whale and its habitat.

[30] In 1997, the IWC reduced the aboriginal subsistence gray whale quota to 620 whales from 1998 to 2002 with an annual cap of 140 (135 for the Russian and 5 illegally provided to the Makah) (Dept. of Comm. 2001).

1966 to 1993, 2,989 females (65 percent) and 1,626 males (35 percent) were killed (Wade 1994). From 1994 to 1996 the percentage of females in the aboriginal kill was 66.1, 70.6, and 65.4, respectively, compared to an average of 67.9 percent of female in the aboriginal kill from 1980-1992 (Blohkin 1997). These data reveal, as previously indicated, that there may be a male bias in the current gray whale population.

After 1994, when Russian aboriginal groups were compelled to resume the use of more traditional killing techniques, the number of immature whales in the kill increased substantially. From 1994 to 1996, for example, 87.2 percent of the whales killed were 1.4 to 2.3 year old females while 100 percent of the males killed were 1.4 to 2.3 years old (Blohkin 1997). This is substantially higher than the average percentage of immature female (30.5 percent) and male (36.5 percent) gray whales killed between 1980 and 1992 In 1998, 95.5 percent of whales killed in 1998 were 0.5 to 2.5 years old (Blohkin 1999). These data clearly demonstrate that younger-aged whale cohorts may be substantially reduced.

From a population perspective, the bias toward female and immature gray whales in the Soviet aboriginal kill has had, and will continue to have, a greater impact on population survival and viability than the actual number of gray whales killed. This bias toward adult female whales in the aboriginal kill has altered the adult male:female sex ratio in favor of males, reducing the proportion of reproductively mature females in the population and, thereby, reducing the population's productivity and ability to respond to natural or human-caused declines in the population. The more recent aboriginal kill bias toward immature gray whales will exacerbate the reduction in population productivity by reducing and possibly eliminating age-specific cohorts of young whales. As a consequence, in the future, gray whale population productivity will decline as the proportion of reproductively active whales in the population declines. Thus, the current decline in the population caused by increased mortalities and decreased production will continue in the future as the proportion of females and immature whales in the population declines.

The lack of consideration of both the historical and modern-day composition of the aboriginal gray whale kill in developing management schemes avoids recognition of the adverse implications of the bias in such kills, thereby threatening the long-term survival and viability of the population.

Fishing impacts:

The number of gray whales estimated to be killed as a result of ship strikes and fishing entanglements is low (U.S. Dept. of Comm. 2001 citing Ferrerro in prep.) but many of these mortalities are not reported. Heyning and Dahlheim (1994) estimated that the percentage of stranded gray whales who died as a result of entanglements with fishing gear ranged from 8.7 to 25.8 percent.

It is indisputable that reported gray whale kills associated with the fishing industry represent minimum estimates. Not only is NMFS unable to place observers on all vessels using fishing strategies that may threaten the gray whale but, based on data contained in the 2000 Gray

Whale stock assessment[31], it appears that the limited observer effort that was undertaken was ended in 1998. NMFS also concedes that no observers have been assigned to most Alaska gillnet fisheries "making the estimated mortality from U.S. fisheries unreliable" (NMFS 2000), and that there is no reliable data on gray whale kills as a result of fishing activities in Canada since Canada does not have an observer program (NMFS 2000). Commercial fisher logbook records also provide only minimum estimates of gray whale mortality (Credle et al. 1994; NMFS 2000). In 1994 logbooks were no longer required, replaced by self-reports provided by fishers. This resulted in a dramatic drop in reporting (NMFS 2000). Similarly, mortality from ship strikes also goes unreported making it impossible to quantify the actual mortality of gray whales from this source (NMFS 2000). Therefore, the annual estimated mortality rate of 1 gray whale per year due to ship strikes represents a minimum estimate from this source of mortality (NMFS 2000).

Gray whales are also subject to predation by orcas and large sharks but the number of gray whales that are killed annually by predators is not known.

Strandings and undocumented mortality:

The majority of documented gray whale deaths are from strandings. Stranded gray whales generally consist of whales who have died as a result of other mortality factors, although the cause of death is not always readily apparent or ascertained. From 1990 to 1998 there were an estimated 250 gray whale strandings reported along the coasts of Alaska, Washington, Oregon, and California (Hill 1999). An additional 45 stranded whales were reported from Mexico. In 1999 and 2000 the number of stranded whales increased significantly with approximately 274 reported in 1999 and at least 291 reported in 2000 (LeBouef et al. 2000), an increase of 5-13 times higher than the annual counts from 1995-1998 (IWC 2000). Indeed, the total number of stranded gray whales reported from 1990 to 1999 (603) was nearly double the total number of stranded gray whale reported from 1980 to 1989 (321).

Furthermore, most of the gray whales stranded in 1999 were adults (72 percent) and immatures (instead of the usual concentration of calves and yearlings), female (78 percent), and most were undernourished with thin blubber and low levels of oil (LeBouef et al. 2000). Considering that adult gray whale deaths are considered rare (Swartz and Jones 1983; Jones and Swartz 1984; Heyning and Dahlheim 1994; Sanchez-Pacheco 1998), the implications of the documented mortalities, particularly adult mortalities in 1999 and 2000, are of considerable concern and are likely linked to recent El-Nino events (Urban-Ramirez 2000) and the impact of such events on benthic amphipods. The shift in the age-structure of stranded whales further skews the adult male:female sex ratio.

Despite the significant increase in documented gray whale strandings in 1999 and 2000, this remains an underestimate of the total number of stranded whales. While the reporting

[31] This 2000 assessment, which was made available on March 16, 2001, fails to provide a proper assessment of the gray whale stock as of the year 2000. No data for 1999 or 2000 is provided in the assessment on gray whale strandings or other mortality factors. This is a critical and, perhaps, purposeful oversight given the substantial increase in gray whale strandings and decrease in gray whale production documented in 1999 and 2000. In addition, two different PBR levels (575 and 649), both of which are unsustainable, are cited in the assessment.

process for stranded whales has likely improved, it remains incomplete. While the stranding network in the United States is deficient as it doesn't provide comprehensive coverage of the shoreline in Alaska and the mainland United States, documentation of stranded whales in Mexico, Canada, and Russia is rare except in and adjacent to the calving/breeding lagoons. Thus, documented mortalities only represent a fraction of the actual mortalities. Indeed, the number of annual undocumented gray whale mortalities is unknown and no ratio between documented and undocumented mortalities has ever been estimated. Given the propensity of dead gray whales to sink, the number of undocumented gray whale mortalities is likely high. Heyning and Dahlheim (1994), for example, reported that only approximately 5 percent of stranded whales are found and examined by biologists each year. The potential significance of the number of undocumented gray whale mortalities is reflected in Attachment 2.

The government's failure to consider undocumented gray whale mortalities and the impact of such mortalities on population structure, survival, and viability is a direct threat to the survival and viability of the gray whale population.

Decline in benthic amphipods:

The decline of benthic amphipods in the Bering and Chukchi Seas poses a significant threat to gray whales. Current threats to the benthic ecosystem include global warming, ENSO events, contaminants deposited in or transported to the Bering and Chukchi Seas, trawling activities that destroy or damage amphipods and their habitat, and predation. These threats, acting independently or cumulatively, pose a substantial danger to gray whales.

As previously indicated, the dominant benthic amphipods in the northern Bering Sea are Ampelisca macrocephala, Ampelisca birulai, and Byblis gaimardi. Studies have shown that the gray whale's principal amphipod prey species is Ampelisca macrocephala (Rice and Wolman 1971), which is also the most dominant amphipod in the Bering Sea accounting for as much as 80 percent of the amphipod biomass (Highsmith and Coyle 1992,1990). The habitat of amphipod species is largely limited by food supplies, ocean depth, space, disturbance, predation rates, reproductive potential, and sediment size (Coyle and Highsmith 1994; Grebmeier and Cooper 1994; Stoker 1978; Grebmeier et al. 1989)

A. macrocephala is the largest of the amphipod species. Because of its size and the conditions (high latitude, cold temperatures) of the environment in which it lives, A. macrocephala is a long-lived, slow growing, and slow maturing species. A. macrocephala exceeds 30 mm in length and can reach concentrations above 10,000 individuals per square meter (Feder 1981). A. macrocephala produces approximately 50 eggs per year with only 2-3 young surviving to adulthood. Since larger, long-lived amphipods are responsible for the majority of secondary production, a substantial reduction in density of large individuals in the population caused by natural variability or human-caused perturbations to the ecosystem will result in a significant, long-term reduction in both biomass and secondary production (Highsmith and Coyle 1992, 1991).

According to Highsmith and Coyle (1991), amphipods typically grow until they reach sexual maturity and then die after mating (males) or releasing their brood (females) (Boudivas

and Carey 1988; Leonardsson et al. 1988). Because of its relatively long life span and late-age of sexual maturation, A. macrocephala is very susceptible to excessive mortality and very slow to recover from environmental perturbations or other natural or human-caused population declines. Dauvin (1989), for example, reports that A. sarsi had recovered only 39 percent of its original maximum densities ten years after the Amoco Cadiz oil spill. Highsmith and Coyle (1992) report that given their longer generation times and lower growth rates relative to maturation time, ampeliscid population in the Chirikov Basin would probably take considerably longer to recover from major population disruptions. Indeed, based on modeling results, such recovery may take tens to hundreds of years (Coyle and Highsmith 1994; Grebmeier and Cooper 1994; Watling and Norse 1998 and Attachment 4). In some cases, recovery may not occur due to changes in the benthic ecosystem (i.e., carbon production, currents, sediments) which may make the area unsuitable for amphipods. Smaller amphipod species (A. birulai, B. gaimardi) are shorter-lived, faster growing and maturing animals, thereby having a competitive advantage in recolonising disturbed sites (Coyle and Highsmith 1994). The substantial time required for amphipod recovery to a pre-disturbance condition, in combination with the multiple threats to benthic amphipod communities, represents a substantial threat to the gray whale population.

Benthic production is a crucial feature of the northern Bering and Chukchi Seas, with high organic carbon deposition occurring over the shallow shelves, resulting in an enhanced benthic standing stock that supports key higher trophic animals, including gray whales, seals, walruses and sea ducks (Fay et al. 1977; Grebmeier and Barry 1991; Grebmeier and Harrison 1992; Highsmith and Coyle 1992; Oliver and Slattery 1985; Oliver et al. 1983; Hunt 1991) Gray whales, therefore, are heavily dependent on ecological conditions favoring high densities of large benthic amphipods (Coyle and Highsmith 1994). These conditions include high local primary production leading to high carbon flux to the benthos, the transport of additional food into the system via ocean currents and upwellings, and the presence of the appropriate sediment size (Coyle and Highsmith 1994).

As Grebmeier (1992) explained, the supply of organic matter to the benthos is a major factor influencing benthic community structure, biomass, and metabolism (Mills 1975; Graf et al. 1982; Grebmeier et al. 1988, 1989; Grebmeier and McRoy 1989).[32] A reduction in benthic amphipods would lead to a decrease in physical condition of gray whales, decrease in survival due to an increased likelihood of starvation, increased susceptibility to disease, and, in females, a reduction in productivity (Highsmith and Coyle 1992). The consequences of this decline are represented by the increase in gray whale mortality, poor condition of dead whales, and the decrease in gray whale productivity documented in 1999 and 2000. Furthermore, considering the natural fluctuations or variability in both the benthic amphipod and gray whale populations, the implications of the intentional killing of gray whales will be even more adverse when either amphipod or whale population trends, or both, are downward.

[32] The relationship between gray whales and benthic amphipods benefits both organisms. While gray whales clearly benefit from consuming benthic amphipods, gray whales benefit benthic amphipods by lifting nutrients upward in the water column through their swimming actions (Kanwisher and Ridgway 1983). Furthermore, by disturbing the sediment through its feeding actions, gray whales may increase production of several species of amphipod crustacean, which in turn decrease the recruitment of young bivalves (See, Oliver and Slattery 1985).

Substantial declines in amphipod biomass have been documented. In an area north of the Bering Sea, a change in the dominant benthic fauna has occurred and is likely an indicator of changing hydrographic conditions (Grebmeier et al. 1995). Highsmith and Coyle (1992) documented a 30 percent decline in the A. macrocephala biomass in the central Chirikov basin between 1986-87 which undoubtedly had a major impact on subsequent amphipod production in 1987, 1988 and probably beyond. This was the same year of a significant El Nino Southern Oscillation (ENSO) event that resulted in high water temperatures in the area. Grebmeier and Dunton (2000) also report a declining trend in benthic biomass from 1990 to 1994 with one study site experiencing a decline of approximately 50 percent. This biomass decline coincides with indications since the later 1980s that benthic community structure has also been changing in the region (Sirenkot and Koltun 1992) and recent studies indicate that this trend has continued in 1998 and 1999.[33] In fact, another ENSO event in 1997-98 resulted in unusually high sea surface temperatures in the Bering and Chukchi Seas in summer 1998 causing a similar, if not greater, decrease in amphipod biomass as that documented by Highsmith and Coyle (1992) from 1986 to 1988 (LeBouef et al. 2000).[34] In some areas the decline in amphipod biomass may exceed 50 percent due to declines documented in the 1980s and 1990s.

Global Warming and ENSO Events:

The cumulative increases in water and atmospheric temperatures caused by global warming, the acute temperature increases associated with ENSO events, and other perturbations to the ecosystem have caused, and will continue to cause, substantial changes to amphipod populations, community dynamics, habitat, and community structure and function (McGowan et al. 1998; Grebmeier and Cooper 1994; Grebmeier and Dunton 2000).[35] Climate change at decadal time scales, frequently referred to as "regime shifts" have significant effects on both the nutrient-phytoplankton-zooplankton sequence (bottom up effect) and on higher trophic levels (top down effect) (NMFS 1998). Global warming occurs on longer time scales and, therefore, imposes even greater impacts on an ecosystem. The impact of increasing temperatures on amphipods is summarized as follows:

> Water temperature affects the food filtering to amphipods at the ocean bottom, competition between species, predation rates and overall production. Long term increases in sea surface and upper water column temperatures bring about a reduced

[33] NMFS (1998) reveals that the Bering Sea system underwent a major change in 1977 from a cold regime to a warm regime which has persisted through 1998.

[34] The impact was not limited to amphipods. According to one report, many rarely observed conditions occurred in the Bering Sea during the summers of 1997 and 1998, including extensive die-offs of seabirds, rare algal blooms (Emiliania huxleyi), unanticipated low salmon runs, warmer than usual ocean temperatures, and altered ocean currents and atmospheric conditions (NMFS 1998, Saar 2000).

[35] Admittedly, the adverse short and long-term impacts of global warming and El Nino events on the abundance, composition, density, and viability of benthic amphipod communities require national and international solutions largely beyond the authority of the NMFS. The lack of direct authority or ability to control these impacts does not, however, justify continuing to allow the eastern North Pacific gray whale population to decline without protection from U.S. law. Even under the best, albeit unlikely, potential political and scientific scenario where the emissions contributing to global warming are reduced, global warming may be slowed but it cannot be stopped. Therefore, a listing is particularly important to reduce, prevent, or eliminate those types of gray whale mortality that are directly under human control. Such a listing is also consistent with the Biodiversity Convention which requires a precautionary approach in the management of the world's ecosystems in order to protect biodiversity.

nutrient supply to the euphotic zone that is associated with a decline in primary production, accompanied by decreases in zooplankton, seabirds and kelp production (McGowan et al. 1998). Thus the structure and dynamics of deep sea communities is influenced by long term trends in sea surface temperatures and its effect on particulate organic carbon export from the surface waters to the deep ocean (Smith and Kaufman 1999).

Increased atmospheric temperatures have reduced the number of storms, altered current patterns, reduced the supply of nutrients to the benthos, and reduced sea ice extent and thickness, while increasing sea surface temperature (Weller et al. 1997; Schumacher and Alexander 1999).

A reduction in storm numbers reduces the frequency with which detritus – a critical food source for benthic amphipods -- are resuspended in the marine environment. A reduction in storms also causes changes in ocean currents, overlying flows, vertical mixing, water mass exchange with adjacent oceans, nutrient concentration, and physical transportation mechanisms, directly influencing productivity and composition of lower trophic levels, carbon (food) deposition, and sediment composition which affects benthic community structure. (NMFS 1998; Grebmeier and Dunton 2000; Grebmeier et al. 1988, 1989).

The strength of the water current directly influences sediment size which, in turn, affects the suitability of a site for amphipods. Individual species of benthic infauna require specific sediment regimes within which to feed and grow (Grebmeier 2000; Grebmeier and Dunton 2000). According to Grebmeier (2000), sediments in the Chirikov Basin have become coarser, suggesting a changing hydrographic regime. Coincident with the changing sediment patterns documented in the mid-late 1990s, ampeliscid (amphipod) populations have declined to nearly half of their abundance and biomass observed during the mid-1980s. Since amphipods require a certain-sized sediment, alterations in sediment size, regardless of cause, can drastically alter the composition, abundance, or even existence of an amphipod community. A reduction in amphipod numbers could increase erodibility of sediments possibly changing the suitability of sediments for demersal young (Grebmeier 2000).

A reduction in the extent and thickness of sea ice would affect both lower and higher trophic levels (Schumacher 2000). In addition to reducing the amount of primary production (Schumacher 2000), changes in timing and spatial patterns of sea ice could influence the timing of the spring bloom, (Niebauer et al. 1995), resulting in a direct impact on habitat and the phasing of biological events (Schumacher 2000). Recent analyses show trends of decreasing arctic sea ice extent (Maslanik et al. 1996; Chapman & Walsh, 1993) coincident with warming trends (Martin et al. 1997). An ice loss rate of 9 percent per decade since 1961 with the greatest decrease occurring in the 1990s (Chapman and Walsh 1993, Johannessen et al. 1999).

Sea ice is critically important for benthic amphipod survival. As reported by Grebmeier (2000), sea ice production, extent, and duration are critical for annual carbon production (both sea ice algae and open water phytoplankton), water mass formation, and hydrographic flow that influences subsequent carbon transport through the system. During the spring ice melt, ice algae from the ice algal mats are sloughed off into the water column and serve to initiate a seasonal bloom in phytoplankton (Tynan and DeMaster 1997; Gosselin et al. 1985). The phytoplankton

bloom associated with sea ice accounts for 10 to 65 percent of total annual primary production (NMFS 1998). Subsequently, both the phytoplankton and ungrazed ice algae sediment to the bottom of the ocean providing a flux of carbon to the benthic community (Tynan and DeMaster 1997). Climate-induced negative changes in the flux of carbon from ice or the water column to the benthos could affect the distribution and reproductive success of gray whales, walruses, and bearded seals (Tynan and DeMaster 1997). Indeed, in warmer years, when sea ice does not extend as far south, nutrient supply is reduced and spring production on the ocean shelf is diminished (Tynan and DeMaster, 1997).

Increased atmospheric warming from global warming or ENSO events result in warming water temperatures in Arctic waters (Schlesinger and Mitchell 1987; Sarimiento et al. 1988) causing dramatic impacts on the arctic ecosystem. In addition to physical changes to the ecosystem due to a reduction in storms and changes in ocean currents, the biological rates and behavior of the nutrient-phytoplankton-zooplankton sequence would also be directly affected (Schumacher 2000). This may lead to significant shifts in the biota causing an alteration in the abundance and composition of benthic amphipods, a reduction in favored amphipod prey species of the gray whale, a direct and indirect reduction in food supplies for the benthic species, and increased inter-specific competition for benthic amphipods. The cumulative impact of global warming and other threats to benthic amphipods demonstrate the urgency with which gray whale habitat must be protected through a listing under the ESA.

Long term increases in sea surface and upper water column temperatures result in a reduced nutrient supply to the euphotic zone that is associated with a decline in primary productivity, accompanied by decreases in zooplankton, seabirds, and kelp production (LeBouef et al. 2000, McGowan et al. 1998). NMFS (1998) reports that, based on evidence from carbon isotope data, the productivity of the Bering Sea has been declining since the mid-1960's. Schumacher et al. (in press) speculate that under warming conditions there would be a decline in annual primary production and a lower magnitude yet longer duration bloom in spring phytoplankton favoring planktonic versus benthic production. In the event that warming increased primary production in any species, amphipods would not necessarily benefit if the rising sea temperatures made the area more suitable to marine fish species who would compete with the amphipods for prey thereby affecting amphipod abundance and composition (Coyle and Highsmith 1994; Grebmeier and Cooper 1994).

Warming may also cause changes in the nutrient supply and a shift from diatoms to the much smaller coccolithophores (Pers. comm. with J. Oliver). The coccolithophores have much lower sinking rates and are probably too small for the amphipods to harvest (Pers. comm. with J. Oliver). Thus, sea water warming may not only adversely affect the primary food supply of the gray whale but it also can affect the primary food supply of the benthic amphipods. Furthermore, an increase in sea surface temperature results in less mixing and thus a reduction in the introduction of deeper, nutrient rich water to the upper levels of the water column resulting in a reduction in phytoplankton and zooplankton production (Pers. comm. with Dr. Peter Ross; IPCC no date).

Since amphipods rely on carbon flow from the ocean surface to survive, high water temperatures, a reduction in organic matter flux to the benthos, a change in the composition of

organic matter (i.e., coccolithophores instead of diatoms), and high predation rates would alter amphipod abundance and composition and may eliminate amphipods altogether. Such conditions would favor higher densities of smaller species like A. birulai over larger species like A. macrocephala, thereby lowering total biomass (Coyle and Highsmith 1994; Weisshappel and Svavarsson 1998; LeBouef et al. 2000). This change would likely necessitate a change in gray whale feeding behavior increasing the frequency of feeding activities and energy expenditure to compensate for the reduction in size and caloric content of the benthic amphipods. If gray whales could not secure a sufficient amount of food to meet their energy needs, their physical condition would decline leading to an increased likelihood of starvation as evidenced by the significant increase in strandings and death since 1999.[36]

The threats posed by global warming to the benthos and other important ecological features of the Arctic will increase and expand over time.[37] The arctic, according to a recent report by the Intergovernmental Panel on Climate Change, "is likely to respond to climate change rapidly and more severely than any other area on earth" (IPCC no date; IPCC 2001). According to the report, the most pronounced changes to the Arctic will include changes in temperature (an increase of sea surface temperature by about 3 degrees celcius in the North Pacific in 50 years) and precipitation, with subsequent effects on sea ice and permafrost (IPCC 1997; IPCC no date; IPCC 2001). Warming is also likely to impact ocean circulation patterns (IPCC 2001) potentially reducing the transport of nutrient rich waters to the North Pacific. Furthermore, according to the Third Assessment Report of Working Group I of the Intergovernmental Panel on Climate Change, "warm episodes of the El Nino-Southern Oscillation phenomenon ... have been more frequent, persistent and intense since the mid 1970s, compared with the previous 100 years. See also, McGowan et al. 1998. An increase in warming will also bring with it increased oil exploration and transport and shipping activities which, given the massive environmental problems in the Bering Sea, will cause further harm to the gray whale population.

Impact of contaminants on benthic amphipods:

In addition to the potential impact of toxins and other contaminants directly on gray whales which is discussed below, these materials can also indirectly impact gray whales by destroying or reducing food supplies and through the ingestion of contaminated food.

Oil spills, chemicals used to disperse or break up surface oil, anthropogenic materials discharged from oil platforms (i.e., drilling muds, produced water), and shore-side discharges from industrial, residential, or agriculture point and non-point sources contain toxic materials

[36] Other species that rely on benthic amphipods in the Arctic including Stellar sea lions, walrus, and bearded seals, have also undergone population declines over the past few decades and years due to a reduction in food supplies due to the direct, indirect, and cumulative impacts of global warming (Tynan and DeMaster 1997). The decline in walruses should be of particular concern to NMFS because walruses are considered a sensitive species indicator of climate change (Tynan and DeMaster 1997).

[37] In its 1996 assessment of the current scientific understanding of the Bering Sea, the National Research Council's Committee on the Bering Sea Ecosystem concluded that "climate-driven variability in the Bering Sea ecosystem is significant, occurs at many different time scales, and appears to affect many ecosystem components." Furthermore, the Committee added that "it appears that climate has caused relatively rapid shifts in the organization of this marine ecosystem, and that changes over periods of decades may have larger effects than those over yearly periods."

which can directly impact benthic communities. These impacts are variable and depend on the type of substance or substances released into the environment. Such impacts can include eutrophic effects resulting in the rapid growth of phytoplankton and disturbances to the balance, structure, and functions of the water ecosystems and saprogenic effects which cause oxygen deficiency followed by mass mortality of water organisms (Patin 1999). Toxic substances can directly kill or reduce the productivity of benthic organisms.

Because of the gray whales bottom feeding behavior, it is particularly susceptible to lethal and sublethal impacts associated with the ingestion of contaminated amphipods (MMS 2000). Benthic organisms do accumulate aromatic hydrocarbons and heavy metals (Landrum and Robbins 1990) and these substances could be transferred through the food web (NMFS 1993). The feeding strategy of gray whales, for example, 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 (Geraci and St. Aubin 1990; NMFS 1993). This may result in direct mortality or sublethal effects that inhibit growth, longevity, and reproduction.

The impacts of contaminants are not limited to the gray whales themselves as such contaminants can also adversely impact the abundance and existence of benthic amphipods (NMFS 1998; Neff 1990). A decline in benthic amphipods as a result of contamination will lead to decline in gray whale food supplies leading to reduced condition, increased mortality, and decreased production. Neff (1990), for example, documented that benthic amphipods are quite sensitive to spilled oil and are among the first animals killed after an oil spill.[38] In jeopardy biological opinions issued on five oil and gas lease sales in the Bering and Chukchi Seas in 1983 and 1984, it was noted that the "indirect effects of oil spills to gray whales through reduction of there [sic] food supplies...may more likely affect the long-term health and viability of the population than would direct effects." Thus, though the government claims that the probability of a oil spill resulting from a blowout is low, the effect on gray whales and their habitat if such an event were to happen is high. For example, a January 1983 biological opinion for Lease Sale 57 in the Norton Basin indicated that there was a 15 to greater than 99 percent probability "that oil spills within the lease sale area would reach gray whale feeding areas within ten days." A separate biological opinion on Lease Sale 100 reported that "trajectory calculations for some tracts indicate that there is a very high probability that oil would reach these feeding areas."

As a result of the cold temperatures in the Bering Sea ecosystem, contaminants are slower to break down and there is a greater likelihood that volatile organic contaminants transported via the atmosphere will become trapped because low temperatures greatly retard exchange from cold water to air (NMFS 1998). Furthermore, as reported by NMFS (1998), the benthic nature of the Bering Sea makes it easy for contaminants to become incorporated into benthic animals and, because of bioturbation, there is a reduced tendency for pollutants to be buried in the sediments. As a result, contaminants or pollutants can accumulate in the biota which serve as prey for benthic-feeding birds and marine mammals (NMFS 1998). While this impact may be reduced given the size of gray whale summer feeding grounds, the cumulative

[38] Accidents on drilling rigs in the Sea of Asov in 1982 and 1985 caused the release of large amounts of natural gas into the water resulting in the drastic disturbance to the composition and biomass of the water fauna and the mass mortality of many organisms, including fish and benthic mollusks (Patin 1999).

impact of a global warming and bottom trawling on benthic amphipods, exceedingly slow amphipod recovery rates, and the potential adverse impact of contaminants on amphipod survival and production could significantly harm gray whales by eliminating or reducing their food supply. Such contaminants, therefore, are another threat to gray whales and their habitat which justifies the requested listing.[39]

Trawling impacts to benthic amphipods:

While the impact of vessel strikes and entanglements on gray whales appears to be limited, the impact of benthic or bottom trawling activities in the Bering and Chukchi Seas imposes a far more significant threat to the gray whale by destroying and degrading benthic amphipod communities. The adverse impact of bottom trawling activities is not limited to the direct destruction, killing, or removal of benthic amphipods as it also impacts the ecology of the area and the structure and quality of amphipod habitat that can delay or prevent amphipod recolonization of impacted sites.

Determining the number of bottom trawlers operating in the Arctic is difficult because many vessels active in the Bering Sea target more than one species and are capable of using multiple types of fishing gear, including bottom trawling gear. Recent data published by the government suggests that the number of bottom trawlers in the Bering Sea increased substantially from 1988 to 1998 (U.S. Dept. of Comm. 2001a). The government's data, however, does not reveal the precise number of fishing vessels of all categories and classifications that conduct bottom trawling.[40] While no information is available about the amount of area affected by these trawlers annually, given the productivity of this region it is expected to be high.

The government is well aware of the potential impact of fishing activities on benthic communities, habitats, and marine mammals. Indeed, in its Draft Bering Sea Ecosystem Research Plan (NMFS 1998), the government concedes that:

> The most pressing management issues concern the possible effects of humans on the ecosystem. Perhaps the greatest concerns involve the potential effects of fishing on endangered or threatened marine mammals, and seabirds, and on benthic communities and habitats. Although the direct impacts of fisheries on some of these groups has been studied, the nature and extent of the indirect or food chain effects of fishing are unknown. Specific concerns include localized depletion of prey by fishing in important mammal foraging areas, effects of fishing activities on attached invertebrates and bottom habitat structures that may provide important food and cover for some species, effects of discards on benthic predator-prey dynamics, potential effects of removal of carbon on long-term productivity of the system, and possible effects of truncated size structure on predator-

[39] The impact of contaminants on benthic organisms is not a problem limited to American marine waters. As Patin (1999) explained, the pollution levels in Russian marine areas very often exceed the maximum permissible limits which was one reason why the United Nations Conference on Environment and Development rated Russia as one of the most polluted countries in the world in 1992. Given the current condition of the Russian economy, it is anticipated that the situation is worse today than in 1992.

[40] No information about the extent of bottom trawling activities in Soviet waters was available for inclusion in the petition.

prey dynamics and on a fished population's ability to withstand periods of poor recruitment.

Watling and Norse (1998) compared the destruction caused by bottom trawling activities to the clearcutting of a forest (See, Attachment 4). The impacts of such disturbance include changes in species composition, spatial structure, and biogeochemistry (Grassle & Sanders 1973; Pickett & White 1985; Huston 1994). While the impacts of both bottom trawling and clearcutting are immense, the destruction caused by trawling is far greater in extent and severity. This is due to the amount of ocean floor estimated to have been subject to bottom trawling (14.8 million km squared or 53 percent of the world's continental shelf area) (Watling and Norse 1998) and because the impacts associated with bottom trawling have not generated significant controversy or concern. The short-term and long-term effects of trawling depend on the weight of the gear, the degree of contact with the bottom, depth, ocean currents, bottom type, and the biological community in the area (Messieh et al. 1991; Jones 1992).

To understand the impact of bottom trawling on benthic communities, the role of benthic structures and animals must be understood. Though not in the same scale as found in a forest, benthic species provide structural diversity on the ocean floor creating habitat for a variety of other species, including commercial fish species (Watling and Norse 1998). Amphipod species, for example, construct tubes into the soft sediments of the ocean floor not only creating habitat for other creatures but also functioning to pump oxygen into what would otherwise be an anaerobic environment (Aller 1988; Meyers et al. 1988). This diversity in biogenic structures increases the level of species diversity and creates a heterogeneity crucial to the benthic ecosystem (e.g., Taylor 1978).

Bottom trawling destroys the structural diversity of the benthic community and of the ocean floor. It also directly kills seabed organisms by crushing them or by burying them under sediment (Watling and Norse 1998). If bottom trawling activities in the Bering and Chukchi Seas are removing large swaths of amphipods, this would have a direct and immediate impact on gray whales and other species who rely on the amphipods for survival. The severity of this impact is a function of the extent of the trawling activity. However, when the killing, burying, or removal of benthic amphipods by bottom trawling is combined with the impacts of global warming and ENSO events, the severity of this destruction and decline in benthic amphipods must be significant.

Recolonization of sites destroyed or disturbed by bottom trawling depends on many factors. As previously explained, Coyle and Highsmith (1994) believe that the recovery of amphipods to pre-disturbance condition may take several decades. Whether a disturbed site returns to a climax successional state also depends on the frequency of bottom trawling activities or other perturbations to the area. The disturbance caused by bottom trawling may delay recolonization and/or result in a different composition of species in the area.

For instance, Watling et al. (unpulished data) found that the top 4 cm of sediments removed as a result of scallop dredging contained the highest-quality food. This material is easily resuspended and carried away by mobile fishing gear resulting in a decrease in sediment food quality. Invertebrates, therefore, did not recolonize the disturbed site until the food quality

had recovered (Watling and Norse 1988). The reduction in food quality on the seabed may also reduce the species diversity in the area (Watling and Norse 1998).

The resuspension of buried organic matter by bottom trawling activities also increases oxygen demand in the water column which could significantly affect plankton and nekton species potentially contributing to the growth of anoxic areas such as "the dead zone" in the Gulf of Mexico. Such resuspension could also affect water clarity, oxygen content, photosynthesis, and the energy relations of organisms living or feeding where the plume interacts with the bottom (Watling and Norse 1998). Finally, if the resuspended material contains toxins, benthic species would be exposed to these toxins that were previously sequestered in the sediment (Watling & Norse 1998).

While it is clear that bottom trawling adversely impacts benthic amphipod communities, the severity of the impact in the Bering and Chukchi Seas is unknown. This is due to the fact that Russia and the U.S. have never implemented a comprehensive research program to understand these impacts. The lack of evidence to demonstrate an impact is not grounds for ignoring this threat. The best available evidence and simple logic suggests that bottom trawling adversely impacts benthic communities. Combined with the fact that there are extensive bottom trawling activities in the Bering and Chukchi Seas, the potential impact of this threat to the gray whale cannot be disputed.

Impacts of predation on benthic amphipods:

Some scientists have suggested that the prey base of gray whales is declining as the species approaches carrying capacity[41] (Grebmeier 2000; Highsmith & Coyle 1992; LeBoeuf 2000).

While gray whales predate benthic amphipods, the available evidence suggests that other natural and anthropogenic factors likely play a far more significant role in determining benthic amphipod abundance than predation by gray whales. At best, while the evidence supporting a decline in amphipod abundance caused by global warming, ENSO events, and trawling is substantive, additional research is needed to identify which threat is the most significant. Highsmith and Coyle (1994), for example, indicate that further long-term studies are needed to determine whether the decrease in amphipod biomass documented between 1986-88 is due to natural predation cycles by benthic feeding gray whales or to changing climate and hydrographic regimes.

Furthermore, regardless of cause, given the documented decline in the amphipod populations and the drastic impact of this decline on the gray whale, future human-caused environmental perturbations adversely affecting prey communities could have additional effects on predator populations (Grebmeier, 2000). Thus, top-down predator control and bottom up environmental control may be acting negatively and synergistically to cause a decline in gray whales and their primary food supply.

[41] The concept of a carrying capacity for gray whales or any species is so nebulous and unquantifiable that it is largely irrelevant. Attempting to determine a carrying capacity for any wild animal living in a dynamic ecological system is a theoretical exercise which has no meaningful application to dynamic ecosystems.

Based on the foregoing evidence, the health, viability, and survival of a gray whale preferred amphipod assemblage in the Bering and Chukchi Seas is in jeopardy. Yet, despite the critical importance of these benthic amphipods to a whole host of species, including the gray whale, amphipods in the Bering and Chukchi Seas have not been monitored systematically since 1988 (LeBouef, 2000). Tragically, even less is known about the status of the benthic amphipod communities in Russian waters. This is particularly troubling because the gray whale population relies on habitat in Russian waters for survival, Russian environmental laws have been dismantled by the current Russian leadership, and due to the current economic crisis in Russia which has largely eliminating funding for environmental research.

Attempts have been made to address this deficiency. For example, 1994 amendments to the MMPA included a provision that the Secretary of Commerce develop a research program to monitor the health and stability of the Bering Sea ecosystem, including efforts to resolve uncertainties concerning the causes of population declines in marine mammals. According to NMFS (1998), however, this research has not been funded. Rugh et al. (1999) also identified surveys of the Bering and Chukchi Seas to examine the effect of environmental parameters, particularly climate warming, on whale foraging patterns as a priority research need. Yet, according to the MMC (1999), NMFS advised the MMC at its October 1999 annual meeting that it has not committed funds for any of the five research priorities identified by Rugh et al. (1999) nor had it made plans to continue cooperative work with Mexican officials to ensure that critical calving and nursing lagoons are not degraded by development. NMFS (1998) also identified a number of research needs to better understand the ecology of the Bering Sea and the impact of climate change on the ecosystem, many and perhaps all of which have not been implemented or funded.

Furthermore, Oliver (2000) advised that historical benthic sampling sites in gray whale feeding grounds should be resampled to document any significant changes in whale food.[42] Furthermore, given observations of arctic climate change, Tynam and DeMaster (1997) recommend precautionary approaches to high-latitude ecosystems management until specific responses of arctic species to complex regional air-sea-ice dynamics, ocean circulation, and production have been determined.[43] They go on to recommend that:

> Managers of marine resources in the Arctic should be aware of present observations and predictions of climate change ... and develop risk-averse management strategies that take into account possible adverse impacts of arctic climate change on the ecosystem.

Despite these deficiencies in our knowledge, we do know that the amphipod populations have collapsed in certain areas, that gray whale stranding and starvation rates have substantially increased while birth rates have substantially decreased, and that global warming and ENSO events will continue to modify the structure, abundance, composition, and even the existence of

[42] In addition, because of the significant petroleum deposits in Russian waters, there is a high potential of future threats to the gray whale and its habitat as a result of human activities.

[43] Tynan and DeMaster (1997) also state that, given the increased human activity in the Arctic concomitant with climate driven alterations of shelf/basin circulation, ice conditions, and ecosystem structure and function, it is critical that regional process-oriented studies and integrated monitoring of key species become major components of arctic research.

benthic amphipods within the critical gray whale feeding grounds. This evidence provides compelling justification to provide increased protection to gray whales and their habitat by listing this population under the ESA.

OIL AND GAS EXPLORATION AND EXTRACTION:

The impact of oil and gas exploration and extraction, oil spills, and other activities associated with the oil and gas industries on the gray whale have been the subject of considerable debate. The gray whale migratory route has been subject to intense oil and gas development. Such activities, including the use of seismic surveys to locate potential deposits, are contemplated or underway on the outer continental shelf from California to the Beaufort Sea, and west into Russian waters of the Bering Sea (NMFS 1993). Oil and gas exploration activities have also occurred near the calving/breeding lagoons in Mexico (Rice et al. 1984). In total, gray whales migrate by or through at least eight oil lease areas within U.S. waters (Rice et al. 1984).

According to data compiled by the Mineral Management Service (MMS) and reported in NMFS (1993), hundreds of exploration and development wells have been drilled from California to Alaska between 1964 and 1990 (58 FR 3128) and additional lease sales were considered throughout the 1990s throughout gray whale range (58 FR 3129). According to the MMS (1992), a total of 25 exploratory and/or delineation wells could be drilled in California over an eight year period. In Alaska, as of 1993, 87 wells had been drilled, including 2 ongoing wells in the Chukchi Sea and 14 test wells (NMFS 1993). Though none of these wells produced hydrocarbons in commercially valuable amounts, additional exploration wells have been drilled since 1993. At present, up to 18 oil platforms are allowed to operate in prime gray whale foraging grounds in the Chukchi Sea area (U.S. DOI 1996). The government is also expecting the placement of up to 31 new platforms within the outer continental shelf in Alaska (U.S. DOI 1996).[44]

Overall, according to MMS data, over 1,500 leases have been issued to permit oil and gas exploration and extraction activities throughout the summer feeding grounds of the gray whale since 1976. Since 1990, according to MMS data, 142 leases have been issued for the Chukchi and Beaufort Seas. Though no specific data on oil and gas exploration and extraction activities is provided for Russia, Patin (1999) reported that promising oil and gas bearing areas are found on approximately 90 percent of all Russian shelves covering 5.2-6.2 million square kilometers. These areas are concentrated in the Sea of Okhtsk and the Bering, Chukchi, and East-Siberian Seas. Furthermore, while the extent of potential oil and natural gas exploration and extraction activities is not known for the western coasts of Canada and Mexico, there is evidence of considerable potential oil reserves in Mexico (Hanly no date citing Japan: An Illustrated Encyclopedia 1993).

The MMS estimates that oil spills will occur throughout gray whale range. The estimated probability of an oil spill of greater than 10,000 barrels within the range of the gray whale, for example, is 14% in southern California, 21-27% in the Bering Sea, 18-34% in the Gulf of Alaska, and 96% in the Chukchi Sea assuming commercially productive amounts of hydrocarbon

[44] Given the Bush Administration's interest in expanding domestic oil and gas production, addition gas and oil exploration and extraction activities are likely throughout the range of the gray whale.

are found in those areas (NMFS 1993). Similarly, the probability of one or more pipeline or platform spills of 1000 bbl and greater , and 10,000 bbl and greater in the Chukchi Sea as 92 and 57 percent, respectively (NMFS 1993). Furthermore, because Chukchi Sea oil will be transported by tanker, MMS (1992) predicts a 93 and 81 percent probability of one or more tanker spills of 1,000 bbl or greater and one or more tanker spills of 10,000 bbls or greater, respectively occurring outside of the Chukchi Sea. MMS (1992) also predicts additional tanker and oil spills along the western coast of North America.

An oil spill, regardless of its cause or the probability of such an accident, could adversely impact gray whales and gray whale habitat. While the impacts of such a spill are undoubtedly higher on the feeding and calving/breeding grounds, migrating whales may also be subject to the adverse effects of an oil spill. Such effects may:

1) Kill or debilitate marine mammals by matting and reducing the insulating quality of fur, by acute or chronic poisoning due to inhalation or ingestion of toxic compounds or ingestion of contaminated food, by irritation of skin, eyes, or mucous membranes, or by fouling of the feeding apparatus of baleen whales;
2) Kill, debilitate, or otherwise reduce the abundance or productivity (availability) of important marine mammal prey species and/or species lower in the marine food web, and cause acute or chronic nutritional deficiencies including starvation;
3) Stress animals making them more vulnerable to disease, parasitism, and/or predation;
4) Interfere with formation of mother/young bonds and cause mothers to abandon their young;
5) Cause animals to abandon or avoid contaminated breeding areas, feeding areas, etc. and/or to concentrate in unaffected areas;
6) Attract animals to debilitated prey making them more vulnerable to contact with harmful compounds and oil and ingestion of contaminated prey (Swartz and Hofman 1991; Albert 1981; Geraci and St. Aubin 1990).

Though Geraci and St. Aubin (1982, 1985) and Geraci (1990) suggest that gray whales are likely to only suffer minor impacts if they contact oil spills, other evidence suggest that the potential threat of oil to gray whales is more significant.

First, the studies cited by the government discounting the impact of oil spills on gray whales did not consider the impact of oil spills on gray whale food supplies which is widely accepted as a greater threat to the gray whale.

Second, in a study by Kent et al. (1980), gray whale behavior (i.e., swimming speed and direction, length of dive, respiratory rate) changed significantly from quantified behavior in the absence of surface oil when whales encountered volatile classes of oil on the water surface but not when they encountered less volatile, more globular oil on the surface.

Third, as stated above, the impact of an oil spill would be greater on the gray whales' feeding grounds. Contact with oil when feeding may not only result in the ingestion of contaminated feed but it could result in the temporary fouling of baleen. In bowhead whales, Braithwaite et al. (1983) determined that baleen plates fouled by oil had decreased filtering

efficiency for 30 days, but 85 percent of the efficiency was restored within 8 hours. While gray whale baleen is expected to recover slightly faster (Geraci and St. Aubin 1982, 1985) any interruption or hindrance of feeding, particularly given the other threats to gray whale food supplies, could be harmful.

Finally, as previously stated, between 1983 and 1984, the government identified five jeopardy opinions issued by the U.S. Fish and Wildlife Service through it consultation process in regard to the adverse impact of oil and gas leases on the gray whale. According to the MMC, the opinions found that: 1) an uncontrolled blowout or major oilspill in the lease sale areas could harm significant numbers of gray whales on their summer feeding grounds, could interfere with successful feeding, and could harm gray whale food supplies; and 2) noise disturbance resulting from oil and gas exploration and related activities may cause gray whales to abandon important feeding areas and may alter normal migration routes (May 15, 1992 letter from J. Twiss, MMC to Dr. W. Fox, NMFS).[45] In its proposed rule, 56 FR 58869, NMFS provides a remarkably different view claiming that oil and gas activities may have the potential to adversely affect the eastern North Pacific gray whale stock, but that these impacts are not likely to jeopardize its continued existence. This alteration was based on the increasing size of the gray whale population and new evidence reducing the threat of oil and gas exploration and extraction activities on gray whales.

This evidence, however, doesn't withstand even minor scrutiny.

For example, much of the new evidence regarding the impact of noise on the gray whale is similar, if not identical to information relied on in the biological opinions. The opinions found that while short-term noise impacts can probably be tolerated by the gray whale population, "any long-term or chronic impacts that interfere with successful feeding could quickly affect a significant portion of the population that uses the northern Bering Sea as its primary feeding area." Furthermore, though not mentioned in the proposed rule, the discussion of the noise studies in the biological opinion cautioned that the results of the studies along the whale's migratory route may not be applicable to gray whales in other areas or under different behavior conditions. The opinions also noted that "indirect effects of oil spills to gray whales through reduction of their food supplies ... may more likely affect the long-term health and viability of the population than would direct effects."

The proposed rule also cites to a study by Neff (1990) in concluding that there is a low probability of spilled oil ever intercepting a gray whale. This study, however, was based on oil spills occurring primarily in areas other than those for which the biological opinions were issued. Indeed, the only area of overlap is in the St. George Basin, an area not regularly used by gray whales for feeding. Conversely, in the Norton basin, an area used by gray whales, the U.S. Fish and Wildlife Service indicated that there was a 15 to greater than 99 percent probability that oil spills in the area would reach gray whale feeding areas within ten days (Biological Opinion for Lease Sale 57, January 20, 1983). Furthermore, Neff (1990) does not assess the possible effects of the simulated spills on gray whale feeding areas or on prey species.

[45] The opinions also noted that there was insufficient information to determine whether or not the cumulative impacts from oil and gas development could jeopardize the continued existence of the gray whale.

The government also reports on the issuance of several no-jeopardy opinions to justify its revised determination of the impact of oil and gas exploration and extraction activities on gray whales. Five of these six no-jeopardy opinions, however, either pre-date or are contemporaneous with the jeopardy opinions. Thus, these no-jeopardy opinions were not based on new information but, rather, were based on the nature and location of the proposed activities. In other words, these opinions concluded no-jeopardy largely because the areas in question were outside of the normal range of the gray whale. The two no-jeopardy opinions applicable to California lease sales, while relevant to the threat to gray whales during their migration, are not representative of the potential threats on gray whale feeding grounds. The sixth Biological Opinion was not an opinion at all as this consultation was done informally.

As the MMC reported, the NMFS used superficial and misleading arguments in order to downplay the significance of the jeopardy opinions that were an impediment to its delisting proposal. The reality is that oil spills remain a threat to gray whales. While the direct impact on gray whales may be limited except under the most extreme circumstances, the impact of oil spills on gray whale feeding and on their prey is potentially severe and, in combination with other natural and anthropogenic threats to benthic amphipod communities, poses a significant threat to gray whales.

NOISE IMPACTS:

Noise associated with industrial development, including oil and gas exploration, and other activities may adversely impact gray whales by: 1) interfering with or disrupting communications, feeding, breeding, or other vital functions; 2) causing animals to avoid or abandon important feeding area, breeding areas, resting areas, or migratory routes; 3) causing animals to use marginal habitat or to concentrate in undisturbed areas which in turn may result in crowding, over-exploited food resources, increased mortality, and decreased reproduction; 4) stress animals and make them more vulnerable to parasites, disease, and/or predation; and 5) attract animals making them more vulnerable to oil spills, hunting, or harassment (Swartz and Hofman 1991).

Avoidance behavior has been reported for gray whales in response to decibels greater that 120dB for continuous noise and 160-170 dB for pulsed sounds (Tyack 1988). In experiments using the underwater playback of sounds from a Bell 212 turbine helicopter projected at random intervals of 10 seconds to 2 minutes, Malme et al. (1983, 1984) reported significant course changes in apparent avoidance of the sounds. Malme et al. (1984) 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.

Reactions to noise by gray whales were more pronounced on their breeding/calving grounds. These impacts included whales vacating the study area during the projection of industry noises (Jones et al. 1991) and changes in the acoustical and observed surface behavior and distribution (Dahlheim 1988). In response to vessels and to playbacks of vessel noise, Dahlheim (1988) found that gray whales: 1) increased calling rates; 2) received an increase level of sound; 3) increased the frequency modulation, number of pulses per series, and repetition rates; and 4) changed their movements both away from and toward the sound source. In

response to the 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, 1988a; 58 FR 3129). In his study of the impact of noise on gray whales in the San Ignacio Lagoon in 1983 and 1984, Jones et al. (1994) concluded that gray whales left the lagoons, at least temporarily, in response to underwater playback of noises from boats, industrial activities, and other sources." Such results caused the MMC to suggest that "noise associated with coastal development and related activities could cause whales to avoid and, if exposure to the noise is prolonged, to abandon areas that may be essential to calving, nursing, and breeding (MMC 1994).

On its feeding grounds, Malme et al. (1986) estimated that there was a 50 percent probability of gray whale avoidance when the average pulse level of the received noise was approximately 173 dB and a 10 percent probability of avoidance at 163 dB. Noise impacts on the gray whales feeding grounds may temporarily cause the animals to abandon productive feeding areas if excessively disturbed (NMFS 1993). Because such exploration activities occur from June to September when gray whales are on their feeding grounds, the adverse impact of such disturbance could force whales to use less-productive areas potentially affecting their body condition and ability to successfully migrate and reproduce.

Because noise from oil and gas activities occurs at frequencies that overlap gray whale calling frequencies, however, it may influence other behavior causing interference with socialization, reproductive behavior, and communication (NMFS 1993).

CONTAMINANTS:

Gray whales, because of their association with a highly polluted coastline and bottom feeding behavior, are highly susceptible to exposure to various toxins and contaminants. The Arctic is more vulnerable to industrial, urban, and agricultural pollutants than any other ocean because of its very limited outflows to other oceans (O'Dowd 1992). Such toxins can have lethal and sublethal affects on cetaceans. Sublethal affects include increased susceptibility to disease, impairment of reproduction and early development, immune suppression, cancer induction and mutagenic effects, changes in behavior, and occurrence and extent of epizootics (Reijnders et al. no date).

This threat is somewhat reduced in gray whales because they are lower trophic level consumers. In research done by Varanasi et al. (1993) they found that heavy metals levels in gray whale tissues appeared to be too low to cause any deleterious effects and that the concentrations of PCBs and DDT were below levels known to cause impairment. While the concentrations of certain elements (i.e., aluminum, iron, manganese, and chromium) were found in examined stomachs, the relative proportion of these elements were similar to the relative proportions in the sediments. Varanasi et al. (1993) cautioned, however, that the lack of data from apparently healthy gray whales limits the understanding of the susceptibility of this species with respect to levels of anthropogenic contaminants found in tissues (NMFS 1993).

Evidence of the potential adverse impact of gray whale exposure to contaminants or toxins comes from Russia. In 1999, Russian natives killed 10 gray whales that had an "extremely strong smell" and "unusual taste" that was compared to "medicine." June 2, 2000 letter from Vladimir Etylin, Union of Marine Mammal Hunters to Michael Canny, Chairman, International Whaling Commission. Though tissue samples from these whales were sent to scientists in Russia and the United States, no results from this analysis have been published to date.

The reality is that we simply don't understand the full range, severity, or complexity of the impact of contaminants on the gray whale, other cetaceans, or cetacean food supplies. Indeed, an IWC Workshop on chemical pollution impacts on cetaceans concluded that:

1) There are sufficient data on adverse effects of pollutants on other marine mammals and terrestrial species to warrant concern for cetaceans;
2) A considerable amount of fundamental research is needed to adequately address the question of the effects of pollutants on all cetaceans;
3) If any progress is to be made within a reasonable time frame, a multidisciplinary, multinational, focussed program of research is required that concentrates on those species where there is most chance of success (Reinjders et al. no date).

Additional research, including the collection of baseline data, is needed to assess temporal trends and to reliably estimate the toxicity of chlorinated hydrocarbons in gray whales (NMFS 1993).

OTHER IMPACTS:

There are a number of other threats to gray whales that further justify the requested listing action. These threats include on-shore development and commercial and recreational vessel traffic (including whale watching activities).

Because of their propensity to migrate near shore, gray whales are particularly susceptible to adverse impacts associated with vessel traffic. Existing evidence suggest that a small number of whales are killed each year as a result of vessel strikes. This is likely an underestimate since not all struck whales are reported.

The impact of vessel traffic on gray whales is not limited to mortality as such traffic can also alter whale behavior. The increase in commercial and recreational whale watching activities, for example, may negatively impact migrating gray whales by interrupting swimming patterns, altering migratory routes, and displacing cow/calf pairs from inshore waters, thereby increasing energy consumption (CMC/NMFS 1988, IWC 1990). Gray whales demonstrate short-term flight reactions particularly when boats move at high speed or erratically (Reeves 1977; Swartz and Cummings 1978; Swartz and Jones 1978, 1981), though the proportion of such incidents decrease as the winter season progresses (Swartz and Jones 1978), reflecting potential habituation.

Such activities may also alter migratory routes. Bursk (1988) suggested that gray whales moved further offshore due to whale watching activities in southern California. The impact of whale watching activities on gray whales in Laguna San Ignacio have not, according to Jones and Swartz (1984), caused major disruptions. This is primarily due to the establishment of a refuge in the lagoon, which serves as an area free of all vessel activity as a sanctuary for the whales, particularly females with calves limitations on the number of vessels operated in the lagoon, and because of the efforts of commercial whale watch operators to minimize gray whale disturbance. Similarly, regulations restricting whale watching activities in the United States have reduced, but not eliminated, adverse impacts associated with whale watching.

The lack of a demonstrable impact of whale watching on gray whales, however, does not mean that there are no impacts. As Jones and Swartz (1986) stated, "the cumulative effects of continual exposure to increased water-borne noise, visual stimuli, restriction of space available to whales, or stress associated with vessels in whale areas could have serious biological implications if, for example, the reproductive fitness of gray whales is reduced over the long term." Stress has been demonstrated to have negative physiological and population effects in other large mammals (Geraci and St. Aubin 1980; Eisenberg 1981; Anderson 1995; Knight and Cole 1995). Furthermore, noise may mask environmental noise and/or interfere with communication between whales.

Development impacts are also a threat to the gray whale throughout its range, but primarily in its calving/breeding lagoons. In 1994, Mitsubishi and the Mexican government proposed the construction of a large salt evaporation facility on the shores of Laguna San Ignacio. It was feared that this facility and its operations could disrupt and displace calving and nursing whales, and spills of fuel, brine, or other chemicals could pose pollution risks to this important calving lagoon (MMC 1999). Activities associated with the operation of a salt evaporation facility (i.e., dredging and vessel traffic) in Laguna Guerrero Negro resulted in the abandonment of the calving lagoon by gray whales from 1957 to 1967 (Bryant et al. 1984). The whales did not return until 6 years after such activities had ceased (Gard 1974; Bryant and Lafferty 1980). At the present time, plans for the proposed salt plant have been withdrawn but such an effort could be resurrected in the future. Similarly, a proposed 2,000 ha tourist resort on Magdalena Bay has been deferred, but not withdrawn (MMC 1999).

As the foregoing evidence applicable to Criteria A and E demonstrates, the gray whale and its habitat are subject to substantial threats associated with both natural and anthropogenic factors. While aboriginal kills of gray whales have typically not been the source of great concern for population viability, due to the demonstrated decline in benthic amphipods, the significance of these intentional kills is increasing. Similarly, the increase in documented gray whale mortality is of significant concern as it reveals threats to the viability of the gray whale population. The lack of any realistic estimate of the number of undocumented or unreported mortalities further exacerbates concern for the survival of this population.

No population can survive without habitat. As the evidence demonstrates, the habitat of the gray whale is under attack by a number of threats, the most significant of which is global warming. The increase in sea surface temperatures attributable to global warming and related events has caused massive changes to the Bering and Chukchi Sea ecosystems. The most critical

changes are the reduction in primary production and sea ice extent and duration which is directly related to the health, abundance, composition, and production of benthic amphipods –the primary food source of the gray whale. Compelling evidence is provided documenting a decline in benthic amphipods has occurred in the Chirikov Basin several times in the past two decades. This decline is part of a continual deterioration in the health of the ecosystem which began decades ago and which threaten a number of marine species, including the gray whale. Considering that dozens of years may be required for amphipods to recover to a pre-disturbance condition, those factors which directly, indirectly, or cumulatively destroy or degrade benthic amphipod stocks including global warming, bottom trawling, and contamination, represent a significant threat to the viability and survival of gray whales.

The impact of this decline in ecosystem health and viability is reflected in the recent disturbing trends in the gray whale population including a substantial increase in mortality, decline in the condition of stranded whales, and significant reduction in calf production.

Finally, in addition to the decline in benthic amphipods, other threats to the gray whale and its habitat including oil and gas exploration and extraction activities, noise impacts, and the presence of contaminants in gray whale habitat continue to exist and to harm the eastern North Pacific gray whale population.

CONCLUSION:

This petition provides compelling evidence of the multiple and significant threats to the gray whale and its habitat. While many of these threats independently substantiate the requested listing, the cumulative impact of these threats to the gray whale and its habitat represents compelling and indisputable evidence that gray whales and their habitat warrant the protection afforded by the ESA. The impact of failing to protect the gray whale is clearly evident in the substantial increase in gray whale mortality and decrease in gray whale production documented since 1999. There is no evidence to suggest that these findings are anomalous. Rather, they are indicative of significant ecosystem-wide changes in the Arctic, primarily caused by global warming, that will likely continue in the future. Consequently, protection for the gray whale and its habitat is both urgent and imperative in order to reduce, eliminate, or prevent the adverse impact of natural and anthropogenic threats to the only remaining viable population of gray whales. Failure to provide the protection of the ESA to the gray whale will decimate the population mandating far more intrusive, costly, and complex recovery strategies as the population continues to decline.

Based on the evidence contained in this document, the petitioners request that MFS initiate the relisting of this population as a threatened or endangered species under the ESA.

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ATTACHMENT 1

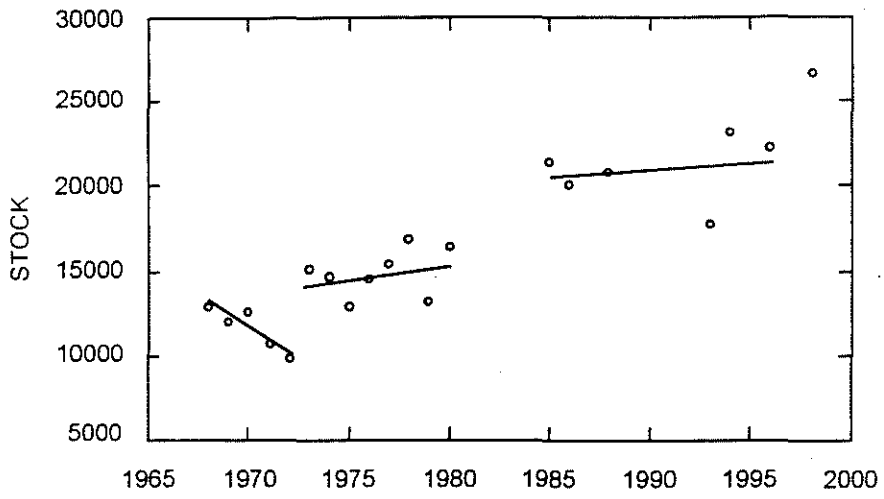

Figure 2 Estimated annual gray whale abundance derived from shore-based surveys conducted during southbound migration. Underlying trend for the 3 distinct intervals in population change highlighted with a LOWESS smooth (solid line) in each interval.

ATTACHMENT 2

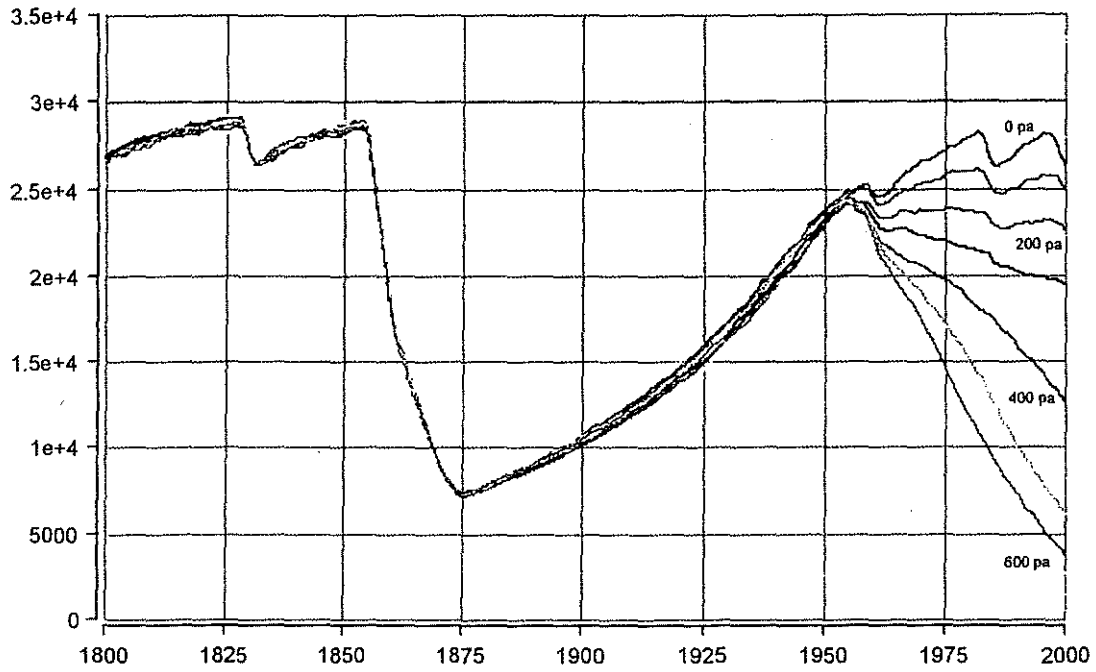

Figure 3 Summary of expected gray whale stock abundance subject to 7 constant annual offtakes (0 whales taken per annum, 100 whales taken pa, 200 pa, 300 pa, 400 pa, 500 pa, 600 pa) over a 45 yr period. The 7 scenarios commence in 1955 and abundance trajectory for each scenario derived from 1000 Monte Carlo runs of model: The commercial harvest period in the mid- to late 1980s was also included in each scenario.

ATTACHMENT 3

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February 16, 2001

BY TELEFAX AND OVERNIGHT MAIL

Ms. Cathy E. Campbell
NOAA/NMFS
Office of Protected Resources
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1315 East-West Highway
Silver Spring, MD 20910

Dear Ms. Campbell:

On behalf of the national and international memberships of Australians for Animals (AFA), The Fund for Animals (The Fund), and the Cetacean Society International (CSI) (hereinafter referred to as AFA/The Fund/CSI), we submit the following comments on the Draft Environmental Assessment (Draft EA) on Issuing a Quota to the Makah Indian Tribe for a Subsistence Hunt on Gray Whales for the Years 2001 and 2002.

This new Draft EA is the result of the opinion issued by the 9th Circuit Court of Appeals in Metcalf v. Daley (hereafter Metcalf). In issuing its opinion, the Court required that the new EA "be done under circumstances that ensure an objective evaluation free of the previous taint." The Court was unsure whether the National Marine Fisheries Service (NMFS) could achieve this standard because of its previous commitments to the Makah to support its whaling proposal. Thus, the Court asked whether the "Federal Defendants (can) now be trusted to take the clear-eyed hard look at the whaling proposal's consequences required by the law, or will a new EA be a classic Wonderland case of first-the-verdict, then-the-trial." Given the deficiencies in the new Draft EA, we believe that the Court's premonition of the government's inability to conduct an objective and fair examination of the impacts and consequences associated with Makah whaling was well founded. Furthermore, if the government were to objectively and fairly evaluate this issue, it would have to conclude that the only

acceptable alternative which complies with federal law is Alternative 4: the no-kill /no whaling option.

Remarkably, despite being given a second chance by the Court's opinion in Metcalf to properly evaluate the environmental impacts of whaling by the Makah, the NMFS has grossly failed to provide the "hard look" required by the NEPA. While NMFS has added some information to the Draft EA, this extra verbiage does nothing to address the fundamental failure of the NMFS to consider all direct, indirect, and cumulative threats to the gray whale and its habitat that must be evaluated in the context of this proposal. Furthermore, the NMFS neglected to disclose information critical to the issue, failed to provide any type of meaningful analysis of the environmental consequences of any of the alternatives, evaluated an incomplete list of alternatives, and did not substantiate its alleged purpose and need for the action. Indeed, nearly all of the deficiencies identified in response to the original Draft EA (See, September 22, 1997 comments of Australians for Animals et al., which are hereby incorporated in their entirety by reference for consideration by the NMFS – Attachment 1) remain in this document. In addition, we hereby incorporate by reference for consideration as part of the administrative record for this EA all pleadings, exhibits, briefs, administrative record materials, and all other documents in the official court files for the proceedings in Metcalf v. Daley in both the District Court for the Western District of Washington and the 9th Circuit Court of Appeals.

The deficiencies in the Draft EA suggest that the NMFS stubbornly refuses to acknowledge inadequacies in its original document. As will be documented in this comment letter, the NMFS and the Clinton Administration has ignored a wealth of evidence critical to this issue in assembling the Draft EA.[1] The government has failed to disclose evidence about many important issues including, but not limited to: the health and status of the gray whale's principal feeding areas; the impact of global warming and related climatic events on the gray whale, its food source, and its habitat; the impact of toxic contaminants in gray whales and on those who consume gray whale products; and the various important legal issues and interpretations associated with this controversy.[2] In addition, the government has frequently used misleading or inaccurate information in its analysis and completely failed to evaluate the cumulative impacts of its action as required by the National Environmental Policy Act (NEPA). To properly and comprehensively evaluate the totality of issues associated with whaling by the Makah and to comply with federal law, the NMFS must prepare an Environmental Impact Statement.

In addition to the deficiencies in the Draft EA which will be further discussed below, we must also object to the limited opportunity for public review and comment on the Draft EA. Not only has the government failed to disclose information critical to the

[1] To supplement the government's clearly deficient records, several important studies not referenced in the Draft EA have been attached. See, Attachment 2.

[2] The government has simply failed to treat this issue with the importance that it deserves. Considering that three of the four races of gray whale are either extinct (2 Atlantic gray whale populations) or nearly extinct (the Western North Pacific gray whale population), the remaining gray whale population warrants far greater consideration from the government.

public's understanding of the environmental consequences of Makah whaling, but, by providing only thirty days to review, analyze, research, and prepare comments on the document, the government is undermining a cornerstone of the NEPA process -- public involvement in agency decision-making. The role of the public in such a process is intended to ensure that the public understands the environmental consequences and actions of its government, to provide the public with an opportunity to influence the government's decision through informed and substantive comment, and to aid the government in making an informed decision based on the entirety of the record – including public comment. To facilitate the public's role in the process, the government must provide the public an adequate opportunity to critically review and analyze the Draft EA. In this case, given the international nature of this issue, international and domestic legal issues, and the abundance of scientific evidence ignored in the Draft EA, a 30-day comment period is inadequate.[3]

We also must question the timing of the release of the Draft EA only three days before the inauguration of President George W. Bush. There is no question that the Clinton administration intentionally released the document prior to January 20 due to its apparent, yet inexplicable, obsession to facilitate a return to whaling by the Makah. This action also complicates any potential effort by the Bush administration to change course on this issue or to reconsider the entirety of the record in this case before proceeding. There is no question that the regulatory review policy issued by the Bush Administration on January 20 pertains to this issue necessitating that no action be taken on this matter until, at the earliest, March 20. Ideally, the Bush Administration should rescind the entire Draft EA and, pending a review of the record in this case, should take action reflecting its position on this matter. At a minimum, however, it should extend the comment deadline to March 20 since its own policy prevents action on this matter until that time.

The remainder of this comment letter will discuss the substantial deficiencies in the Draft EA, including a blatant failure of the government to comply with the spirit and intent of NEPA, the Endangered Species Act, other laws, and the clear standard set by the Court in Metcalf. As a reminder, these comments are in addition to the September 22, 1997 (Attachment 1) and all other attachments to this comment which the NMFS must review and considering as it proceeds with this NEPA process. In addition, we hereby incorporate by reference for consideration as part of the administrative record for this EA all pleadings, exhibits, briefs, administrative record materials, and all other documents in the official court files for the proceedings in Metcalf v. Daley in both the District Court for the Western District of Washington and the 9th Circuit Court of Appeals.

THE DRAFT EA VIOLATES THE INTENT, SPIRIT, AND PLAIN LANGUAGE OF THE NATIONAL ENVIRONMENTAL POLICY ACT:

[3] Furthermore, AFA and The Fund have submitted a Freedom of Information Act request on February 2, 2001 and a supplement to that request on February 6, 2001 requesting records cited in the Draft EA and in the NMFS's Status Review of the Eastern North Pacific Stock of Gray Whales which are critical to their review of this matter, to the preparation of informed and substantive comment, and which are only available through the NMFS. To facilitate the receipt and review of these records, the comment deadline must be extended.

1. The government has not justified the purpose and need for action:

It appears that the government's primary stated purpose and need for attempting to facilitate the Makah's return to whaling is to "accommodate (its) Federal trust responsibilities and treaty whaling rights to the fullest extent possible." Draft EA at 1. In other words, the government is claiming that because the Treaty of Neah Bay allows for Makah whaling, the government must accommodate the Makah's desires regardless of the environmental impacts and overwhelming public opposition associated with whaling by people around the world. The government, however, has provided no evidence to substantiate this claim and, as will be discussed in greater detail below, has misinterpreted Native American treaty law to benefit itself and the Makah.

Secondarily, but of equal importance, is the government's remarkable inference that because, in its opinion, the International Whaling Commission (IWC) allegedly approved a quota of gray whales for the Russian aboriginal natives and the Makah, the government is obligated to ensure that the Makah can now use that quota. The NMFS has not only failed to recognize that the IWC did not approve of Makah whaling, but it also is apparently downplaying the significance of the appellate Court's decision in Metcalf, clearly viewing the opinion as a mere obstacle to overcome by jumping through the NEPA hoops prior to permitting the Makah to resume whaling. Indeed, the failure of the government to disclose crucial information and its woeful analysis of the environmental consequences of Makah whaling in the Draft EA is compelling evidence that the EA is nothing more than a makework exercise intended to justify a pre-determined outcome.

This strained attempt to justify its action to support the Makah is entirely erroneous because the IWC never recognized the aboriginal subsistence needs of the Makah as required by the IWC standards. By using the IWC quota for the Makah – a quota that was never legally granted – to justify its purpose and need for its support for a resumption of Makah whaling, the government has entirely corrupted, yet again, the NEPA process by engaging in the present environmental review after it had already determined the outcome of the process.

Furthermore, the fact that the government continues to assert that the IWC recognized the aboriginal subsistence need of the Makah indicates that the government never fully implemented the Court's order to rescind the 1997 agreement between the National Oceanic and Atmospheric Administration and the Makah Tribal Council despite its effort to do so via correspondence to the Makah. If the government had complied with this order then, since the government's request for IWC recognition was directly linked to the agreement, the IWC quota for the Makah would have, by association, been automatically rescinded as well.[4] Therefore, the government's belief that the IWC Makah quota is still valid and its use of the quota to justify the purpose and need for its

[4] While the government should have officially asked the IWC to remove the gray whale quota for the Makah from the joint quota issued to the Russian aboriginals, the fact that this was not done does not remedy the government's violation of the order in Metcalf.

support of Makah whaling is inconsistent with the Court's order and puts the government squarely in contempt.

In light of this fact, if the government intends to comply with the Court's order in Metcalf, it must withdraw the present Draft EA, rescind the Makah quota from the joint quota approved by the IWC in 1997, and prepare a new EA or, preferably an Environmental Impact Statement (EIS), to objectively and fairly take a "hard look" at the environmental impacts of this action. Furthermore, prior to authorizing Makah whaling, the government must return to the IWC to seek its approval of the Makah's alleged aboriginal subsistence needs. Even if the government were to seek additional IWC review, it will not save it from litigation over the woeful inadequacies in the Draft EA.

A. The Treaty of Neah Bay does not compel the U.S. government to support or facilitate Makah whaling:

The government appears to be basing it primary efforts to authorize the Makah to resume whaling on the Treaty of Neah Bay. The government, however, is grossly overstating its federal trust and fiduciary duties in a biased attempt to justify Makah whaling. The reality is that the U.S. is under no obligation to interpret and implement the Treaty of Neah Bay in the manner desired by the Makah. Indeed, such efforts raise serious issues regarding the government's relationships with other tribes, their interpretation of other treaties, and whether a tribe can assert an alleged treaty right and have that alleged right immediately recognized by the government. This would establish some difficult situations and dangerous precedent for the government which, predictably, the government would have no interest. As the Court explained in Parravano v. Babbitt, 70 F.3d 539, 544 (9th Circ. 1995), only "Indian treaties" and "statutes that terminate or alter Indian reservations" must be construed in favor of native Americans.

Unlike many treaty issues, this one is different because it involves a treaty in the context of an international convention. Thus, while the government's trust and protectorate responsibility for the Makah originated when the tribe lost it powers of external sovereignty by signing the Treaty of Neah Bay, the government has substantial discretion as to whether it must represent Native Americans in international venues (Beck, 1996). In this case, the international venue is the IWC, which has been recognized by its member countries, including the U.S., as the primary authority for the regulation of whales and whaling in the world. As explained by Beck (1996), the tremendous discretion of the government in whether to address any treaty issue within an international forum like the IWC is based on several cases, particularly Adams v. Vance, 570 F.2d 950 (D.C.Cir. 1977) and Japan Whaling Ass'n v. American Cetacean Society, 478 U.S. 221 (1986), involving judicial reluctance to interfere in executive decisions involving international diplomacy. These cases both reflect a reluctance of federal courts to challenge executive branch decisions involving international diplomatic policy, unless as in Japan Whaling Association, the case involves a specific question of statutory or treaty interpretation (Beck, 1996). Thus, Beck asserts that if the government did not seek a quota from the IWC for the Makah, the Makah would not likely prevail in any legal challenge either at the domestic level because of judicial reluctance to interfere in

diplomatic policy or in an international tribunal. The government's apparent fear that the Makah may sue if it is not allowed to return to whaling, therefore, is irrelevant and should not be considered in the context of the decision to be made.

The alleged treaty right of the Makah to whale remains open to question. The government claims that there is no question and that it has a trust responsibility to the tribe to comply with its treaty. It suggests that it has carefully considered this issue, but no where in the entire Draft EA does the government provide any type of comprehensive analysis of the treaty issue. Considering that the Draft EA is, according to NEPA, a place where the government is supposed to disclose such facts, the government's apparent interest in keeping its analysis to itself violation NEPA. Assuming that the government's interpretation of the treaty and its authority is also inappropriate as the government needs to prove its case beyond a few simple statements in the Draft EA.

The mere fact that nothing is in the legislative histories of the Marine Mammal Protection Act (MMPA) or the Whaling Convention Act (WCA) in regard to the Treaty of Neah Bay is largely irrelevant. Those laws were promulgated nearly 30 years and 50 years, respectively, before the treaty ever became an issue. Considering that the Makah had not even begun to consider a return to whaling at those times, it is certainly of no surprise that Congress neglected to explicitly reference the Treaty of Neah Bay during its deliberations on these laws.

In addition, though the government dismisses the Makah's lengthy absence from whaling, this fact is a basis for the abandonment of the alleged treaty right to slaughter whales. In Spalding v. Chandler, 160 U.S. 394 (1985), the Supreme Court upheld Indian title to certain land reserved by treaty, but stated that "extinguishment of the reserve" could occur by "a cessation or abandonment of use..." Similarly, the court in United States v. State of Washington, 898 F.Supp. 1453 (W.D. Wash. 1995), amended, 909 F. Supp. 787, found that the shellfishing rights under the Stevens Treaties, including the Treaty of Neah Bay, were subject to limitation because of certain tribes' failure to assert the rights for more than 100 years. Given the Makah's cessation of whaling on two separate occasions since 1860 with the last cessation lasting approximately 75 years, the Makah's claim to a treaty right to kill whales may be invalid.

Arguably, both the WCA and MMPA abrogate the Makah's whaling rights. The WCA is the statute that authorizes and implements the International Convention for the Regulation of Whaling (ICRW). The ICRW clearly and unquestionably takes precedence over the Treaty of Neah Bay. Thus, unless the Makah are explicitly exempted from the broad prohibition on whaling approved by the IWC through, for example, the aboriginal subsistence whaling scheme, any whaling by the Makah would be in direct violation of the ICRW, the WCA, and its regulations. Since Makah whaling has never been approved by the IWC, this is precisely the situation at the present time. Similarly, the MMPA includes a specific exemption for Native Alaskans but provides no such exemption for the Makah. Consequently, without such an exemption, Makah whaling also violates the MMPA.

The government attempts to pad their claims on this matter by citing to a Secretarial Order and multiple Executive Orders. These Orders, however, only mandate that the government recognize and consult with Native American tribes when addressing issues of concerns to those tribes and to act in a manner which minimizes the potential for conflict and confrontation. The Orders do not, in any way, compel the government to act on every desire made by any tribe if it is part of an existing treaty. Interestingly, the government's efforts to facilitate Makah whaling would seemingly be in conflict with the provisions to minimize conflict and confrontation. We do not object to the government consulting with the Makah on issues of potential concern to the Makah. We do object to the government attempting to facilitate Makah whaling when there is no trust responsibility that says it must, when the environmental impacts are so severe, and when the overwhelming position from the public is opposed to Makah whaling. In addition, though the government claims that it could only deny the Makah's whaling rights if there were a "conservation necessity" issue with the gray whales, Draft EA at 4, the evidence presented in this comment clearly demonstrates that this standard, given the recent increase in gray whale mortality and decrease in production, is easily met in this case.

Finally, though the government has ignored this fact, it is worth noting that the language in the Treaty of Neah Bay states that the Makah could only whale "in common with all citizens of the United States." At the time the treaty was signed, there were no prohibitions on whaling by any party. Times change, however, as noted in the opinion issued in The James G. Swan, 50 F.108 (1892). In this dispute over sealing by the Makah, the U.S. District Court for the District of Washington concluded that it was "obvious" from the language of the treaty that the Makah contained no "superior rights or privileges" to other citizens in the United States who were strictly prohibited from taking seals in particular areas. The court reasoned that the treaty explicitly secures to the Makah "only an equality of rights and privileges in the matter of fishing, whaling, and sealing." The government has consistently failed to evaluate this language that clearly prohibits Makah whaling given the prohibition on whaling by other U.S. citizens when evaluating the treaty.[5]

B. The IWC has Never Recognized the Aboriginal Subsistence Needs of the Makah.

As indicated previously, the government's attempts to use the IWC's quota for the Makah to justify its support for Makah whaling and the purpose and need for the action, is both inconsistent with the record of the 1997 IWC meeting and with the Metcalf decision. Because the IWC never recognized the aboriginal and subsistence needs of the Makah, the tribe's slaughter of a whale in 1999 violated the ICRW, the WCA, and the MMPA. Remarkably, though the government illegally avoided a comprehensive discussion of the "needs" issue in its original EA by claiming the issue was a matter of foreign affairs not subject to NEPA review, it has now avoided any "needs" discussion again by erroneously claiming that the "needs" of the Makah have already been

[5] Instead of considering this language, the government has apparently interpreted the Treaty more literally. In that case, perhaps the government may want to impose the penalties authorized by Article 10 of the treaty against those Makah who bring liquor onto the reservation clearly in contravention of the treaty.

recognized by the IWC. Since this issue is the cornerstone of the entire Makah whaling debate, the failure of the government to comprehensively evaluate this issue, disclose all relevant materials, and to provide any explanation of its bizarre interpretation of the IWC's decision is required to comply with NEPA.

Since the definition of "aboriginal subsistence whaling" is the same in U.S. law[6] and IWC regulations, whether the "needs" of the Makah can satisfy this definition is a matter of domestic and international law. Since the Makah have agreed to comply with all laws of the United States,[7] both the Makah and NMFS have a responsibility to demonstrate that the Makah's alleged subsistence need to whale is consistent with U.S. law before seeking international concurrence. Because of the government's recognition of the IWC as the primary international decisionmaking body on whaling issue, ultimately it is the IWC's determination of the "needs" of an aboriginal group that must dictate whaling practices by the Makah or any other aboriginal group. Thus while the Makah and NMFS claim that the "needs" statement of the Makah is consistent with U.S. law, this is neither unexpected given the self-interest of both groups to render such a finding, nor is it particularly critical since the IWC has the principal responsibility to make this determination.

Because of their bias, neither the Makah nor the government are in a credible position to make such a finding and, as is documented below, their finding is invalid. Even if their determination was valid, the IWC record clearly demonstrates that the IWC did not concur with this finding regardless of the tortured logic of the government to suggest that it had.

"Aboriginal subsistence whaling" means "whaling, for purposes of local aboriginal consumption carried out by or on behalf of aboriginal, indigenous or native peoples who share strong community, familial, social and cultural ties related to a continuing traditional dependence on whaling and on the use of whales." Rep. Int. Whal. Comm., Special Issue 4, 83 (1982). The phrase, "local aboriginal consumption," is further defined under the IWC regulations to mean "the traditional uses of whale products by local aboriginal, indigenous or native communities in meeting their nutritional, subsistence and cultural requirements." Rep. Int. Whal. Comm., Special Issue 4, 83 (1982). Thus, to satisfy this standard, the Makah would have to demonstrate a continued traditional dependence on whaling which is necessary to meet the tribe's nutritional, subsistence, and cultural requirements. The Makah can't meet this standard for reasons explained below. (See also, Attachment 1 and Attachment 3 -- June 26, 1997 letter from AFA and Breach Marine Protection to NOAA and NMFS).

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[6] Regulations implementing the Whaling Convention Act define "aboriginal subsistence whaling" as "whaling authorized by paragraph 13 of the Schedule annexed to and constituting part of the Convention." 50 C.F.R. §230.2.

[7] The Constitution and Bylaws of the Makah tribe state: "We, the members of the Makah Indian Tribe, in order to establish a more perfect tribal organization, promote the general welfare, conserve and develop our land, timber, and other resources, and secure to ourselves and our posterity the power to exercise certain rights of home rule, not inconsistent with the Federal, State, and local laws, ..."

First, except for the gray whale killed illegally in 1999, the Makah have not engaged in whaling for approximately 75 years. In addition, the Makah voluntarily gave up whaling in the 1860s for approximately three decades to engage in the more profitable pursuit of pelagic sealing (Waterman 1920). Thus, regardless of the reasons, the Makah have twice suspended their whaling activities with the latest suspension lasting approximately 75 years. Not only does this evidence suggest that the Makah can demonstrate no legitimate "subsistence" needs to whale, but it certainly cannot meet the standard of a continued traditional dependence on whaling.

Second, while the Makah have claimed that a return to whaling will reinvigorate traditions associated with whaling, its is unclear whether all of the whaling traditions are being followed or whether the physical act of killing a whale is necessary to restore such traditions. In Renker's 1996 report "Whale Hunting and the Makah Tribe: A Needs Statement," IWC/49/AS5, identifies a number of traditions associated with whaling are described including rigorous ceremonial and spiritual preparation by the whaling crew prior to the hunt, a strict protocol, including ceremonies, associated with butchering the whale, a requirement of "sexual continence" by the whaling crew members and their wives, Renker Report at 9, and a tradition which required the captain's wife to "lie still and utterly motionless the entire time the crew was hunting on the ocean." Renker Report at 9. It is unknown whether these traditions have been followed by the Makah. If the Makah have not followed such traditions then it would appear that the Makah have a double standard; selectively choosing which traditions to follow and which to ignore. Furthermore, since the Makah have various ceremonies associated with whales and whaling, it is unclear why some or all of those ceremonies cannot take place independent of the killing of a whale in order to meet the tribe's interest in sustaining its traditions, culture, and ceremonies.

Third, no valid evidence has been presented to suggest that whaling is essential to meet the tribes nutritional and subsistence needs. Considering that the Makah tribe has continued to survive for nearly 80 years without whaling, it is difficult to understand how whaling is essential to meet the tribes nutritional and subsistence needs.

Despite the lack of evidence to demonstrate that the Makah meet the "aboriginal subsistence whaling" standards, the government not only affirmed the Makah's subsistence needs under U.S. regulations but asked the IWC to do the same in 1997. Though the IWC failed to recognize the aboriginal subsistence needs of the Makah, the government, in a remarkably arrogant and completely erroneous interpretation of the IWC's actions proclaimed that the IWC did just that. Not only did the United States err, as will be discussed below, in its interpretation of the IWC action, but it's interpretation flies in the face of the government's documented understanding of the role of the IWC in determining whether the needs of an aboriginal subsistence group rise to the level at which whaling is permissible. Furthermore, the government's failure to seek an straight IWC vote on the Makah's needs contradicts its own statements in the Administrative Record in Metcalf that it would seek a "definitive ruling" from the IWC on "how well Makah whaling fits the IWC definition of aboriginal subsistence whaling."

At the 1997 IWC meeting, the U.S., in a backdoor attempt to obtain a gray whale quota for the Makah, submitted a joint request for a quota with the Russian Federation which encompasses the alleged aboriginal subsistence needs of the Chukotka people in Russia and of the Makah tribe. The U.S. recognized the benefits of such a maneuver since the aboriginal subsistence needs of the Chukotka natives had been recognized long ago by the IWC, thereby lessening the chance that any country would vote against the combined request – despite overwhelming opposition to the Makah's quota – because of the potential implications to the Chukotka people.[8]

The U.S. claims that it was compelled to submit a joint request with the Russian Federation because IWC articles only permit quotas to be issued on stocks and not to individual groups. The basis for this claim, however, is an article which holds that regulations may not "allocate specific quotas to any factory or ship or land station or to any group of factory ships or land stations." See, 63 FR 16702 citing Article V.2.c of the International Convention for the Regulation of Whaling. A "land station" is defined as "a factory on the land at which whales are treated or processed, whether wholly or in part." 16 U.S.C. §916(g). Since there is a substantial difference between issuing a quota to a whaling ships or land stations compared to a specific native group, this calls into question that U.S. government's claims that a joint request was the only possible means of pursuing a quota for the Makah. A specific request for the Makah alone not only would have avoided the taint of corruption and game-playing associated with the joint request but it would have provided a level playing field for the debate surrounding the aboriginal subsistence needs of the Makah.

In the record of the discussion about the Makah whaling proposal at the 1997 IWC meeting, it is clear that the majority of countries were not convinced that the Makah could satisfy the IWC standards for aboriginal subsistence whaling. Indeed, the majority of the countries making statements on this issue as detailed below, expressed opposition to Makah whaling because of concerns that the Makah could not meet the aboriginal subsistence whaling standards developed by the IWC.

Prior to the Makah debate in the IWC plenary session, this issue was subject to considerable debate within the Aboriginal Subsistence Whaling Sub-Committee. During this debate five countries questioned the legitimacy of the Makah's aboriginal subsistence need to kill whales. The French delegation asked "how subsistence requirements could arise after 70 years of non-whaling, and how a cultural revival could take place if modern whaling technologies were to be used." IWC/48/13 at 2. The Netherlands questioned whether the Makah request "met the 1981 and 1988 Commission definitions of aboriginal whaling and aboriginal consumption" and asked "how the Makah request could be based on a 'continuing tradition' after a 70 year lapse." Id. China stated that the "request was not completely in accordance with the IWC definition of aboriginal subsistence" and indicated that "the long period of no whaling suggested there was now no dependence on

[8] In a redacted, but partially readable and transcribable, portion of document 131 in the Metcalf Administrative Record, the government states that the combined request "puts opponents of Makah whaling in a box," making them oppose the gray whale quota for the Chutota "if they want to prevent the Makah from whaling."

whaling." In addition, the Chinese delegation added "an oral whaling culture or tradition could not be recognised under the current IWC arrangements for aboriginal subsistence whaling, unless the IWC established a new, broader definition for it." IWC/48/13 at 3. The delegation from Oman asked "why the Makah, who had survived without whaling for 70 years could not continue to survive without whaling," while Australia questioned the Makah had met the "IWC nutritional subsistence criteria." Id.

The Australian delegation began the debate over the Makah issue during the IWC's plenary session by claiming that "with the information that has been provided by the United States we are still of the view that the proposal for the take by the Makah does not meet those (aboriginal subsistence whaling) criteria, there is not continuing traditional dependence, nor in our view is there a recent nutritional need." Verbatim Record of IWC 49th Annual Meeting (hereafter Verbatim Record) at 65. The delegation from the Netherlands also expressed "reservation with regard to the question of need and generally the question of whether this request meets the criteria established by the Commission." Verbatim Record at 66. While the Netherlands indicated its support for the consensus, it expressly stated that such support "should not be considered as an endorsement by my country of the alleged need of the Makah." Verbatim Record at 67. The country of Spain also expressed its reservations when it stated that "we remain of the opinion that the nutritional need in respect of the request of the Makah has not, or will remain of the view that it is not in accordance with what we expected from that request." Verbatim Record at 68.

The United Kingdom expressed its support for the subsistence needs of the Chukotka in Russia, but made the following statement about the Makah:

> We have also considered carefully the needs statement submitted by the United States on behalf of the Makah. Here though I have to say that my position is very similar to a number of other delegations and the United Kingdom is not convinced that an aboriginal subsistence need has been established as this term is normally interpreted in the Commission. While we too will go along with a consensus if one is established this should not be taken to imply that we accept that a need has been established in this area. Id.

The Country of New Zealand expressed its concerns about both the process used by the U.S. to obtain the Makah quota and legitimacy of the Makah's alleged needs. Specifically, New Zealand said that it is "very concerned and disappointed that this acceptable request has been linked to another, that of the Makah, that we have previously advised is for us unacceptable because unlike the Chutotka request it does not meet this Commission's requirements for such a quota." Verbatim Record at 69. It goes on to state that it has "struggled but failed to find the necessary nutritional need," and that "there must be some nutritional need and quite simply for whatever reason that need hasn't existed for at least seventy-one years and possibly longer." Id. The New Zealand delegation concludes by sternly stating as "a matter of record, that even though we will support the request for the Chutotka we do not wish that support to be taken as in any

way providing legitimacy to the allocation of any part of that quota to those whose needs have not been established to our satisfaction." Id.

Mexico also questioned the legitimacy of the U.S. strategy to gain a quota for the Makah asserting that "on the one hand we don't find enough evidence asked to consider the Makah Indian tribe within the limits established under aboriginal subsistence quota but on the other we would consider that unjust to go against the Resolution creating though some damage to the Chukotka who have a clear right on this issue." Verbatim Record at 71. Furthermore, Mexico expressed that is was "very worried about the possibility of having here a precedent established as to the way in which we determine and we modify the criteria of aboriginal subsistence." Id. Similarly, Argentina stated that "the need for subsistence of the local community in our opinion in this particular case have not been fully and clearly demonstrated." Verbatim Record at 73. Argentina also indicated its concern for "the problem that the decision in this field may imply is, and that was also being said my (sic) all delegations, is the implications for future expansions on criteria and decisions by the Commission taking this as the first step." Id. Remarkably, even Japan, a country infamous for its killing of whales and supportive of the Makah's request, also questioned the legitimacy of the process and the findings when it stressed "that the Japanese coastal small-type operations and activities are far more historically cultured and economically important in that traditional sense compared to that in Makah." Verbatim Record at 75.

Prior to a break in the proceedings, the Australian delegation made its concern about the procedural tactics of the U.S. government and the Makah request crystal clear. First, it expressed its "regrets" for "the way in which this matter has come before the Commission by what I might characterise as almost a parliamentary device circumventing the right of the Australian delegation and others to case a separate and more honest vote and assessment in relations to the proposal for the Makah quota." Id. Second, in a lengthy statement, the Australian delegation summarized its opposition to the Makah request:

> Australia is not persuaded by the needs case as has been advanced, we were not persuaded on the last occasion and indeed nothing that we have seen subsequent to that last occasion has caused the Australian delegation to, in anyway, change its mind. Indeed if one goes to the circulated paper IWC/49/30, we believe that the arguments advanced there which include in effect asking the International Whaling Commission to pick up the debris for the demolition of the United States welfare system or to compensate for poor timber practices, or indeed a statement which attempts to persuade us that the Makah have traditionally consumed whale meat, blubber, and oil extracted from blubber when our understanding is that this has certainly not been the case since the last hunt which took place some seventy odd years ago. Nothing we have seen persuades us that the needs are in fact established. Nor indeed are we persuaded by the arguments that have been put forward in relation to the treaty obligations between the United States and the Makah people under the Neah Bay Treaty. We know that the United States Congress has consistently been in a position of being able to set aside such

> treaties if it so desired and we know that the United States jurisprudence established in such cases as United States versus the Sioux Nation in 1980 , the United States versus the Creek National 1935, have established clear precedence, clear grounds and provisions for compensation where such activities are undertaken. We are not reassured by the words of the distinguished United States delegate in relation to the purely non-commercial activities which would flow as a result of this and are aware of the fact that in the original letter from the Makah Tribal Council Chairman to the United States Department of Commerce that petitions initially for a gray whale quota, the Chairman on behalf of his people wrote and I quote 'We, that is the Makah people, have a right under the Treaty of Neah Bay to harvest whales not only for ceremonial and subsistence purposes but also for commercial purposes.' Verbatim Record at 75 and 76.

Australia went on to agree with the Brazilian delegation who said that it was "concerned about the continuing expansion of whaling characterised as aboriginal subsistence whaling which we believe threatens the credibility of the Commission processes and hence Australia, whilst supporting genuine aboriginal subsistence whaling, is very much supportive of the moves underway to ensure a better and more effective definition of what constitutes aboriginal subsistence whaling." Verbatim Record at 76. In its last attempt to appeal to the sensitivities of the American delegation, Australia stated that:

> In our view Chairman, in the absence of proven need or genuine tradition honoured in practice, we would call upon the United States to take all steps available to it to prevent the resumption of whaling activities by its citizens whether they happen to be Makah citizens or other American citizens. We note that the United States has always insisted on the highest standards of probity and integrity and of adherence to those standards. We do not believe that this proposal put forward in this fashion is something which adheres to standards which we have come to expect in that regard. We feel it's sad to see a friend such as the United States depart from those standards claiming for itself an exception in terms of demonstrating to its colleagues in the International Whaling Commission a genuine and proven need, a way in which it would insist on that being put forward by other nations. Verbatim Record at 76.

At this juncture, the inter-country negotiations began in earnest over language proposed by the Austrian and Australian governments to be added to relevant sections of the Makah request. The proposed language added "whose traditional subsistence and cultural needs have been recognized by the International Whaling Commission" to a statement about the Makah. Since the U.S. had clearly and repeatedly indicated its recognition of the IWC as the ultimately decision-maker on whaling issues, the proposal by the U.S. delegation to remove "by the International Whaling Commission" from the amended language was of little concern since the IWC, whether explicitly named or not, was the only body who could legally recognize the aboriginal subsistence needs of the Makah or any other aboriginal group. Thus, while there was unanimous consent to the

revised amended language,[9] it was only after the vote that the disparity between the interpretation of the language began. It should be noted, however, that though the delegations did reach a consensus on this matter, the Chairman of the IWC explicitly noted that "there are extensive comments on the record concerning these proposals," Verbatim Record at 91, perhaps providing evidence on how to interpret the language contained in the Makah request.

Despite the clear and overwhelming opposition to the Makah's request due to little substantive evidence to justify the Makah's aboriginal subsistence needs, the U.S. delegation immediately distributed a news release hailing the Commission's approval of the combined Russian – Makah gray whale quota. In a statement entirely contradictory to the evidence, the U.S. arrogantly proclaimed that "the Commission adopted the combined quota by consensus, thereby indicating its acceptance of the United States' position that the Makah Tribe's cultural and subsistence needs are consistent with those historically recognized by the IWC."[10] In an immediate retort to the U.S. release, the Australian delegation issued its own release in which it described the true intent of the amended language contained in the joint Russian-American schedule amendment on gray whale, stated that the IWC itself "is the only body competent to grant such recognition under the Schedule to the Convention," and explicitly rejected the claims in the U.S. release as "false and as giving an entirely erroneous interpretation of both the schedule amendment (as amended) and the decision of the Commission itself." The Australian statement goes on to assert that:

> Claims that the passage of the schedule amendment (as amended) constitute an acceptance or recognition by the Commission of the validity of the Makah claims are false. They are supported neither by the terms of the schedule amendment itself nor by the record of the Commission debate.[11]

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[9] The final amended version of the schedule amendment language was: The taking of gray whales from the Eastern stock in the North Pacific is permitted, but only by aborigines or a Contracting Party on behalf of aborigines, and then only when the meat and products of such whales are to be used exclusively for local consumption by the aborigines whose traditional aboriginal subsistence and cultural needs have been recognized.

[10] In a October 24, 1997 post-meeting memorandum by Margaret F. Hayes of the U.S. Delegation, Ms. Hayes attempts to set the foundation for how the U.S. government intended to justify Makah whaling even though the IWC did not recognized the aboriginal subsistence needs of the Makah. The memorandum suggests that David Kay, a member of the Australian delegation, was willing to make a floor statement indicating that it should be up to the U.S. to decide whether the Makah meet the aboriginal subsistence needs standards under the revised language (without the "by the IWC" phrase) and that Mr. Kay thought the revised language would "allow the U.S. government to recognize the needs of the Makah and authorize their whaling." In response to a May 1998 inquiry by Sue Arnold of Australians for Animals to Senator Robert Hill, Minister for the Environment, in which Ms. Arnold questioned the veracity of Ms. Hayes' assertions, Senator Hill reported that "there is no transcript of those discussions and I am advised that members of the Australian delegation would not agree with parts of the report of the exchange as recorded in Ms. Hayes' memorandum." See, Attachment 4.

[11] In a report by the Australian delegation entitled 'Amendments done at Monaco in October 1997 to the Schedule to the International Convention for the Regulation of Whaling of 2 December 1946,' sent to Ms. Sue Arnold of Australians for Animals, the Australian delegation to the IWC provides the following summary of its efforts on the Makah issue. It states, "whilst there as broad acceptance of the Chukotka peoples' need and acknowledgement of Russia's efforts to reduce the previous quota which had been

The apparent U.S. dispute over the role of the IWC in regulating whaling practices worldwide is really no dispute at all and is certainly not limited to any war of words between the American and Australian delegations. The U.S. government claims that the IWC has no established mechanism for recognizing the subsistence needs of any aboriginal group other than through the approval of a quota. Draft EA at 2. However, as described below, the U.S. government has consistently recognized the IWC as the principle director of whaling policies until it had to rely on procedural trickery to attempt to secure IWC recognition for the Makah's needs.

Not only does this self-serving misinterpretation of IWC aboriginal subsistence needs standards reduce the credibility of the U.S. on the international whaling stage but, should the U.S. prevail in this dispute, by establishing a precedent for individual government's to recognize the aboriginal subsistence needs of its own native groups, it has opened the floodgates to potential subsistence and commercial aboriginal whaling throughout the world. In addition, this type of unilateral action severely undermines the authority and responsibility of the IWC to protect the world's whales. This adverse precedent is an indirect impact of the government's attempts to support Makah whaling and, therefore, must be evaluated in a legally sufficient NEPA document.

The International Convention for the Regulation of Whaling (ICRW), for example, specifies that the signatories to the ICRW desire "to establish a system of international regulation for the whale fisheries to ensure properly and effective conservation and development of whale stocks..." 62 Stat. 1716 (emphasis added). In other words, the signatories to the ICRW accepted that the IWC was intended to provide the primary direction and guidance on the worldwide regulation of whaling and whale conservation. The intent and application of the ICRW was made clear by former President Truman who, in signing the ICRW, proclaimed and made public "the said convention for the regulation of whaling, to the end that the same and every article and clause thereof shall be observed and fulfilled with good faith, on and after November 10, 1948, by the United States of America and by the citizens of the United States of America and all other persons subject to the jurisdiction thereof."

The Whaling Convention Act, 16 U.S.C. §916 et seq, which provided the statutory basis for the ICRW in the U.S., also clearly establishes the IWC as the pre-eminent body regulating whaling and whale stocks in the world. Section 916c prohibits "any person subject to the jurisdiction of the United States (from) (1) engag(ing) in whaling in violation of the convention or of any regulation of the Commission, or of this subchapter, or of any regulation of the Secretary of Commerce." Furthermore, regulations implementing the WCA found at 50 C.F.R. §230 et seq., set forth as their

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under-utilized in recent years, there were reservations at to whether the claim by the Makah met the criteria that the Commission (IWC) had established for aboriginal whaling. During consultations the wording of the proposed Schedule amendment was changed to the version adopted in order to more adequately address these concerns." In addition, Australia stated that "Australia's position in relation to the amendment is that the only people who are authorized to take gray whales are those 'whose traditional aboriginal subsistence and cultural needs have been recognized' and that the Commission itself is the only body competent to grant such recognition under the Schedule to the Convention."

express purpose "to implement the Whaling Convention Act ... by prohibiting whaling except for aboriginal subsistence whaling allowed by the International Whaling Commission." Id. at §230.1. These same regulations define "whaling village" as "any U.S. village recognized by the Commission as having a cultural and/or subsistence need for whaling." Id. at §230.2.

The U.S. has also made clear its understanding of the role of the IWC in regard to past instances of Canadian aboriginal whaling.[12] At the 1996 IWC meeting, the U.S. stated that "there was agreement at UNCED that the IWC was the sole global authority for whaling," IWC Verbatim Report, 1996, during debate on a resolution encouraging Canada to refrain from issuing whaling licenses and to rejoin the IWC. In a 1997 White House statement on Canadian whaling, President Clinton states that "none of the Canadian whale hunts (in 1991, 1994, and 1996) was [sic] authorized by the IWC." The statement adds "international law, as reflected in the 1982 United Nations Convention on the Law of the Sea, obligates countries to work through the appropriate international organization for the conservation and management of whales."

Finally, the government has clearly acknowledged both the authority of the IWC and the need to comply with the aboriginal subsistence need standards of the IWC in its own actions in support of Makah whaling. In an undated memorandum (Document #48) from Michael Tillman to Dr. Baker contained in the Administrative Record in Metcalf, Tillman provides a recommendations "that we ask the IWC this year for approval to take gray whales for cultural and subsistence purposes by the Makah Tribe and by Alaskan Eskimos, provided each groups produces an adequate statement of need."[13] The mere fact that it required the Makah to develop a "Needs Statement" (Renker 1997) before it could present the Makah's request and needs statement to the IWC is indisputable evidence that the government is well aware of the IWC standards and the fact that these standards, through precedent and use, cannot be ignored. Even Renker (1997) understood the purpose of her document when she wrote in the Executive Summary that "the United States will ask the IWC to recognize that the Makah Tribe has a long tradition of aboriginal whaling and subsistence practices..." Moreover, the fact that the government subjected the Makah request to the IWC at all is proof that the government understands the rules of the game and are happy to comply with those rules unless, as is the case here, the rules do not work in their favor. Indeed, in its opening remarks at the 49th meeting of the IWC, the United States stated that it believed that the Makah's request for a "proposed harvest fits within the IWC's definition of aboriginal subsistence whaling..." (emphasis added).

As the foregoing evidence conclusively demonstrates, the IWC has never recognized the aboriginal subsistence needs of the Makah tribe and, therefore, the quota did not authorize the U.S. to permit the Makah to whale. Thus, the Makah's slaughter of a gray whale in 1999 violated the ICRW, the WCA, the Marine Mammal Protection Act,

[12] Canada, previously was a member of the IWC but has since rescinded its membership in the IWC.
[13] In a redacted, but transcribable portion of the same document, Tillman concedes that the U.S. needs "two things from the IWC: 1) acknowledgment of the cultural and subsistence need to take gray whales, and 2) a quota for the gray whales."

the Marine Sanctuaries Act, and the relevant regulations. Should the government elect to not to return to the IWC to attempt to gain IWC approval for the aboriginal subsistence needs of the Makah as it is required to do pursuant to the order in Metcalf, it will again authorize Makah whaling in violation of the smorgasbord of international and federal laws and regulations cited above and will have done so without a legally sufficient EA or Environmental Impact Statement as is required by NEPA. Considering the multiple U.S. statements in recognition of the role of the IWC in the management of whales and in the regulation of aboriginal subsistence whaling, the government cannot, with a straight face, claim that the IWC does not have the ability, means, or standards necessary to recognize the subsistence needs of an aboriginal group.

Instead of addressing this issue and providing a full-fledged discussion of the IWC process for recognizing aboriginal needs and conceding that the Makah's needs have not been recognized, the government continues to attempt to avoid this issue by sweeping it under the rug. Unlike the original EA, when the issue was deemed to be of international concern not appropriate for discussion in a NEPA document, now the issue is has already been decided, according to the government, so there is no point in further debating the matter. The government's failure to disclose evidence relating to this matter or to provide any substantive discussion of this critical issue clearly violates NEPA.

Furthermore, the government's blatant misinterpretation and misrepresentation of the facts surrounding the "needs" and treaty issues, failure to disclose important facts, avoidance of meaningful analysis or evaluation of these critical issues, and purposeful efforts to mislead the public in order to engender greater public support for the alleged purpose and need for the action also violate NEPA. These failings add up to a blatant collapse by the government to substantiate or justify its alleged purpose and need for the action. This, in turn, ensures that the remainder of the EA (as evidenced below) cannot meet the standards of NEPA.

2. The government has failed to disclose critical information:

NEPA regulations require that "environmental information is available to public officials and citizens before decisions are made and before actions are taken." 40 C.F.R. §1500.1(b). The information is required to be of "high quality," id. and NEPA documents must "concentrate on issues that are truly significant to the action in question, rather than amassing needless detail." Id. Such high quality information, including accurate scientific analysis, is intended to facilitate public scrutiny that is essential in the NEPA process. Id.

In this case, the government has grossly failed to disclose enormous quantities of information critical to this debate. The significance of this failure, as will be documented below, suggests that the government is attempting to pass off as a complete EA a document, which if it were a automobile, would be missing wheels, an engine, and the complete interior. The Draft EA is, quite literally, a shell of what it should be. For instance, the Draft EA provides virtually no information about the status, health, quantity,

and quality of gray whale habitat and, in particular, gray whale food supplies. It states that gray whales are migratory, largely spending their summers in the artic and their winters in or near the lagoons in Mexico, but it contains not a single scintilla of information about the gray whales food supply, its status, health, or threats to its viability and survival. This is a substantial omission given the fact that gray whales, like all organisms, have to eat to survive and that they are specialist feeders. While Makah whaling will not impact the gray whales benthic food supply in the arctic, NEPA requires agencies to consider the direct, indirect, and cumulative impacts of its actions. Thus, the whales food supply is so critical to population health and the biological significance of whale slaughter; it is an issue which requires disclosure and evaluation in the Draft EA.

The principal source of food for the gray whale are benthic amphipods located in the gray whales primary feeding grounds in the Bering and Chukchi Seas. Indeed, the 40,000 square kilometer Chirikov Basin is considered to possess one of the most productive benthic communities in the world (Highsmith & Coyle, 1990). Benthic amphipods are small tube-dwelling species occurring on sandy substrates in shallow coastal seas. The dominant benthic amphipods in the northern Bering Sea are Ampelisca macrocephala, Ampelisca birulai, and Byblis gaimardi. While benthic amphipods are considered the primary food source of the gray whale (Blohkin & Vladimirov, 1981; Nerini, 1984, Highsmith & Coyle 1992, 1990, 1994), studies have shown that the principle amphipod prey species is Ampelisca macrocephala, which is also the most dominant amphipod in the Bering Sea accounting for as much as 80 percent of the amphipod biomass (Highsmith & Coyle, 1992,1990). The habitat of amphipod species is largely limited by food supplies, ocean depth, space, disturbance, predation rates, reproductive potential, and sediment size (Highsmith & Coyle, 1994; Grebmeier & Cooper, Stoker, 1978; Grebmeier et al., 1989)

A. macrocephala is the largest of the amphipod species. Because of its size and the conditions (high latitude, cold temperatures) of the environment in which it lives, A. macrocephala is a long-lived, slow growing, and slow maturing species. A. macrocephala exceeds 30 mm in length and can reach concentrations above 10,000 individuals per square meter (Feder, 1981). Since larger, long-lived amphipods are responsible for the majority of secondary production, a substantial reduction in density of large individuals in the population caused by natural variability or human-caused perturbations to the ecosystem will result in a significant, long-term reduction in both biomass and secondary production (Highsmith & Coyle, 1992, 1991).

According to Highsmith & Coyle (1991), amphipods typically grow until they reach sexual maturity and then die after mating (males) or releasing their brood (females) (Boudivas & Carey, 1988; Leonardsson et al., 1988). Because of their relatively long life span and late-age of sexual maturation, A. macrocephala is very susceptible to excessive mortality and very slow to recover from environmental perturbations or other natural or human-caused population declines. A decrease in carbon flux to the benthos, for example, will reduce the fecundity of A. macrocephala (Highsmith & Coyle, 1994). As a predictor of amphipod recovery times, Dauvin (1989) reports that A. sarsi had recovered only 39 percent of its original maximum densities ten years after the Amoco Cadiz oil

spill. Highsmith & Coyle (1992) report that given their longer generation times and lower growth rates relative to maturation time, ampeliscid population in the Chirikov Basin would probably take considerably longer to recover from major population disruptions. Because of the biological characteristics of amphipods, Highsmith and Coyle (1994) predict, based on modeling, that perturbations on amphipod communities will have long-term effects from tens to hundreds of years (Grebmeier and Cooper, 1994). The smaller amphipod species (A. birulai, B. gaimardi) are shorter-lived, faster growing and maturing animals, thereby having a competitive advantage in recolonising disturbed sites (Highsmith & Coyle, 1994).

The importance of this arctic food supply for gray whales cannot be understated. Because of their migratory behavior, gray whales consume all to nearly all of the food they need to survive during their approximate 6 month occupation of the Bering and Chukchi Seas. While there is some evidence of gray whales feeding along their migratory route and in Mexico and while some "resident" gray whales feed outside of the Bering-Chukchi sea system (Darling et al., 1998), the majority of food consumption in nearly all gray whales occurs on their northern summering and feeding grounds. Thus, gray whales are heavily dependent on ecological conditions favoring high densities of large benthic amphipods (Highsmith & Coyle, 1994). These conditions include high local primary production leading to high carbon flux to the benthos, the transport of additional food into the system via ocean currents and upwellings, and the presence of the appropriate substrate or sediment size (Highsmith & Coyle, 1994). As Grebmeier (1992) explained, the supply of organic matter to the benthos is a major factor influencing benthic community structure, biomass, and metabolism (Mills, 1975; Graf et al., 1982; Grebmeier et al., 1988, 1989; and Grebmeier & McRoy, 1989). Benthic production, in turn, is critically important to support a variety of wildlife, including gray whales, Pacific walrus, and bearded seals (Grebmeier et al., 1995).

Given the importance of the northern feeding grounds for gray whales and the apparent lack of a sufficient quantity of an alternative food source anywhere along the migratory corridor, natural or human-caused perturbations to the benthic amphipod communities in the Bering and Chukchi Seas directly impact gray whales. A reduction in the gray whale food supply would lead to a decrease in physical condition, decrease in survival due to an increased likelihood of starvation and increased susceptibility to disease, and, in females, a reduction in productivity (Highsmith & Coyle, 1992).

These indicators of declining condition are precisely what were documented in the gray whale population in 1999 and 2000. As the Draft EA concedes, 273 and at least 291 stranded gray whales were found in 1999 and 2000, respectively, representing a substantial increase over the annual stranding rate documented from 1995-1998. Draft EA at 32. During those same years, calf production was substantially reduced from an estimated annual average of 1,103 from 1994 through 1998 to 428 in 1999 and 282 in 2000.[14] Draft EA at 14. The actual calf counts annually averaged 374 for 1994 through

[14] The calf count numbers for 1994 through 2000 were provided in the Draft EA. Whether these numbers or the correction factor used in converting actual calf counts to estimated calf counts are accurate is open to question.

1998 with only 141 and 96 calves being counted in 1999 and 2000, respectively. Draft EA at 14. Furthermore, as LeBoeuf et al. (2000) reported, most of the gray whales stranded in 1999 were adults and immatures (instead of the usual concentration of calves and yearlings), female, and most were undernourished with thin blubber and low levels of oil.[15] Considering that adult gray whale deaths are considered rare (Jones & Swwartz, 1984, Sanchez-Pacheco, 1998), the implications of the documented adult mortalities in 1999 and 2000 are of considerable concern and are likely linked to recent El Nino or ENSO events (Urban-Ramirez, 2000).

A decline in the abundance of gray whale food sources – benthic amphipods, therefore, is not a theoretical possibility but, rather, as the government is well aware, is a real threat. Decline or radical changes in the benthic amphipod communities have been documented, are occurring at present, and, considering the increased frequency of ENSO events and global warming patterns, will become more severe in the future. McGowan et al. (1998), for example, has documented an increase in the frequency of warming events since 1977.

Far from being a theoretical risk, substantial declines in amphipod biomass have been documented. Highsmith & Coyle (1992), for example, documented a 30 percent decline in the A. macrocephala biomass in the central Chirikov basin between 1986-87. Although the linkage between sea surface temperature and the decrease in amphipod biomass was not examined for those years, it should be noted that during 1986-87 there was a significant ENSO event and high water temperatures were prevalent in the region. As reported by LeBouef et al. (2000), sea surface temperatures, associated with ENSO 1997-98, were unusually high in the Bering and Chukchi Seas in summer 1998 and this condition likely caused a similar, if not greater, decrease in amphipod biomass as that documented by Highsmith & Coyle (1992) from 1986 to 1988. If this were the case, then it would be expected that gray whales would have suffered inadequate nutrition and body reserves leading to increased mortality and a decrease in calf production.

Grebmeier & Dunton (2000) provide the following additional information about the decline in benthic biomass:

> Although benthic biomass fluctuates among years, there is also an indication of a declining trend in benthic biomass from 1990 to 1994 (approximately 50 percent at one study site), and recent studies indicate that this trend has continued in 1998 and 1999. This biomass decline coincides with indications since the later 1980s that benthic community structure has also been changing in the region (Sirenkot & Koltun, 1992).[16]

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[15] Not only is there a female bias in recently documented mortalities, but there has historically been a female bias in slaughter statistics. Despite the obvious long-term impacts of such a bias on gray whale population health and stability, the NMFS has failed to disclose or evaluate what the impacts may be in the Draft EA.

[16] See also, LeBouef et al. (2000), reporting a decrease in amphipods in 1998 due to global warming and ENSO event. It is possible that the actual decline in amphipod biomass exceeds 50 percent in some areas due to declines documented in the 1980s and 1990s. Routine and increased monitoring of the benthic amphipod communities is absolutely essential to properly manage the Bering Sea and all of its inhabitants.

More broadly, Grebmeier and Dunton (2000) state that:

> The benthic production in a region north of the Bering Strait has historically maintained the highest benthic faunal biomass of the entire Bering/Chukchi system (Stoker 1978, 1981; Grebmeier 1993; Grebmeier & Cooper, 1994; Grebmeier et al., 1995; Reed, 1998). Although benthic biomass remains high in the area, a change in the dominant benthic fauna has occurred regionally and is likely an indicator of changing hydrographic conditions (Grub, 1993; Grebmeier et al., 1995).

Such biomass declines coincide with indications since the late 1980s that the benthic community structure has also been changing in the Northern Bering Sea region (Sirenko & Koltun, 1992). Furthermore, given the time frame required for amphipod recovery (tens to hundreds of years), a reduction in benthic biomass and production, regardless of the cause, has a direct impact on the survival, health, and viability of individual gray whales, the gray whale populations, and other wildlife species dependent on the benthic ecosystem. While amphipod recovery is possible, it is also possible that the changes in the benthic ecosystem (i.e., carbon production, currents, sediments) may so drastically alter the system that amphipods cannot recover. In either case (long duration of recovery or no recovery), the gray whale and other species dependent on the benthic ecosystem will be harmed.

There are a number of threats to the benthic ecosystem including global warming, ENSO events, industrial/agricultural or other human created contaminants deposited in or transported to the Bering and Chukchi seas, trawling activities that would cause rather obvious impacts or damage to amphipods and their habitat, and predation by gray whales and other marine species. A review of each of these impacts, which should have been included in the Draft EA, provides a compelling examination of the potential impacts to the benthic ecosystem.

It is important, however, to distinguish between natural impacts (i.e., predation by marine species, natural variability in climatic patterns) and human-caused impacts (i.e., climatic shifts resulting from human impacts, trawling activities, contamination). Without question, in order to maximize the protection of the marine mammal species who rely on the benthic ecosystem during a decline or collapse in the amphipod stocks, it is the human-caused perturbations to the ecosystem and the species which are subject to human control which must be addressed. Thus, the slaughter of gray whales by Russian or American aboriginal groups should be the first form of gray whale mortality that must be eliminated or severely restricted in order to maximize the survival of each individual whale.[17]

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[17] Ideally, if gray whale killing continues among the Chutotka people in Russia, instead of establishing a set quota which ignorantly assumes that ecosystems are static, quotas should be based on the documented health of amphipod communities (gray whale feeding grounds) in the Bering and Chukchi seas. This would require the establish and funding of a comprehensive benthic ecosystem monitoring effort which,

Some scientists have suggested that the prey base of gray whales is declining as the species approaches carrying capacity (Grebmeier, 2000; Highsmith & Coyle, 1992; Lawry et al., 1980; LeBoeuf, 2000). While we question, as explained below, the carrying capacity argument, it is important to note that, regardless of cause, given the documented decline in the amphipod populations and the drastic impact of this decline on the gray whale, future human-caused environmental perturbations adversely affecting prey communities could have additional effects on predator populations (Grebmeier, 2000) Thus, top-down predator control and bottom up environmental control may be acting negatively and synergistically (Grebmeier, 2000).

There is no question that gray whales predate amphipods and that such predation has reduced the density of amphipods. There are questions, however, as to the severity or significance of gray whale predation on benthic amphipods in light of the other factors influencing amphipod abundance, composition, density, and survival; whether gray whales are nearing carrying capacity; and whether the concept of a carrying capacity is even relevant. Thus, while whales indisputably consume benthic amphipods, the documented decline in amphipods may not be due to whales. Highsmith & Coyle (1994) indicate that further long-term studies are needed to determine whether the decrease in amphipod biomass documented between 1986-88 is due to natural predation cycles by benthic feeding gray whales or to changing climate and hydrographic regimes. Indeed, just as some have suggested that whales are responsible for the decline, it is just as legitimate, if not more so, to postulate that the decline is a product of natural and human-caused perturbations to the benthic ecosystem. Indeed, the impacts of global warming and its effect's on the earth's life support system are impossible to refute.

The concept of a carrying capacity for gray whales or any species is so nebulous and unquantifiable that it is largely irrelevant. Attempting to determine a carrying capacity for any wild animal living in a dynamic ecological system is a lot like attempting to pin a tail on a live donkey. An ecological system is always changing, never static. Thus, attempting to delineate a carrying capacity, which is, by necessity, reflective of a snapshot in time, is impossible. Thus, just as you would never be able to pin a tail on a live donkey, you can't delineate a carrying capacity for any organism living in a constantly changing environment since, because of environmental changes, the carrying capacity is constantly fluctuating. The concept of attempting to establish a carrying capacity for gray whales, therefore, may provide interesting fodder for policy makers, but it is a meaningless concept in nature.

The cumulative increases in water and atmospheric temperatures caused by global warming, the acute increases associated with El Nino Southern Oscillation (ENSO) events, or other human-caused changes to the ecosystem have caused, and will continue

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tragically, has never been attempted and which does not appear to be of significant concern to either the governments of the U.S. or Russia. Indeed, the lack of monitoring data on the health of the benthic amphipod communities in the Bering and Chukchi Seas from areas under the jurisdiction of both America and Russia is of critical concern and calls into question the credibility of gray whale management decisions.

to cause, substantial changes to amphipod populations, community dynamics, habitat, and community structure and function (McGowan et al., 1998; Grebmeier and Cooper, 2994; Grebmeier & Dunton, 2000). Increased atmospheric temperatures have reduced the number of storms, altered current patterns, reduced the supply of nutrients to the benthos and sea ice extent and thickness, while increasing sea surface temperature (US GLOBEC, 1996; Weller et al., 1997; Schumacher and Alexander, 1999).

A reduction in storm numbers will affect the feeding ecology of benthic amphipods by reducing the frequency with which detritus – a critical food source for benthic amphipods -- are resuspended in the marine environment due to turbulence caused by the storms. In addition, a reduction in storms and changes in ocean currents, overlying flows, or physical transportation mechanisms directly impact sediment and food transport which, in turn, influences carbon (food) deposition and sediment composition which affects benthic community structure. (Grebmeier and Dunton, 2000; Grebmeier et al., 1988, 1989). Sediment grain size is directly related to the current strength, and individual species of benthic infauna require specific sediment regimes within which to feed and grow (Grebmeier, 2000; Grebmeier and Dunton, 2000). According to Grebmeier (2000), sediments in the Chirikov Basin have become coarser, suggesting a changing hydrographic regime. Coincident with the changing sediment patterns documented in the mid-late 1990s, ampeliscid (amphipod) populations have declined to nearly half of their abundance and biomass observed during the mid-1980s. Grebmeier (2000), further explains that since A. macrocephala is a tube-builder that agglutinates fine sediment into its tubes, a reduction in amphipod numbers could increase erodibility of sediments possibly changing the suitability of sediments for demersal young. Since amphipods require a certain-sized sediment, alterations in sediment size, regardless of cause, can drastically alter the composition, abundance, or even existence of an amphipod community resulting in substantial impacts to gray whales and other species who rely on benthic amphipods.

A reduction in the extent and thickness of sea ice would affect both lower and higher trophic levels (Schumacher, 2000). In addition to reducing the amount of primary production (Schumacher, 2000), changes in timing and spatial patterns of sea ice could influence the timing of the spring bloom (Niebauer et al., 1995) resulting in a direct impact on habitat and the phasing of biological events (Schumacher 2000). Recent analyses show trends of decreasing arctic sea ice extent (Maslanik et al., 1996; Chapman & Walsh, 1993) coincident with warming trends (Martin et al., 1997). An ice loss rate of 9 percent per decade has been reported for the period 1961-1990 with the greatest decrease occurring in the 1990s (Chapman & Walsh, 1993). From 1987 to 1994, the rate of decease in the extent of arctic sea ice has accelerated (Johannessen et al., 1995).

Sea ice is critically important for benthic amphipod survival. As reported by Grebmeier (2000), sea ice production, extent, and duration are critical for annual carbon production (both sea ice algae and open water phytoplankton), water mass formation, and hydrographic flow that influences subsequent carbon transport through the system. During the spring ice melt, ice algae from the ice algal mats are sloughed off into the water column and serve initiate a seasonal bloom in phytoplankton (Tynan & DeMaster,

1997; Gosselin et al., 1985). Subsequently, both the phytoplankton and ungrazed ice algae sediment to the bottom of the ocean providing a flux of carbon to the benthic community (Tynan & DeMaster, 1997). Thus, as speculated by Tynan & DeMaster (1997), climate-induced negative changes in the flux of carbon from ice or the water column to the benthos could affect the distribution and reproductive success of gray whales, walruses, and bearded seals. Indeed, in warmer years, when sea ice does not extend as far south, nutrient supply is reduced and spring production on the ocean shelf is diminished (Tynan & DeMaster, 1997).

Furthermore, increased atmospheric warming from global warming or ENSO events result in warming water temperatures in Arctic waters (Schlesinger & Mitchell, 1987; Sarimiento et al., 1988), and has had, and will have, dramatic impacts on the arctic ecosystem. In addition to causing physical changes to ecosystem due to a reduction in storms and changes in ocean currents, the biological rates and behavior of the nutrient-phytoplankton-zooplankton sequence would also be directly affected (Schumacher 2000). This, in turn, may lead to significant shifts in the biota causing an alteration in the abundance and composition of benthic amphipods, a reduction in favored amphipod prey species of the gray whale, a direct and indirect reduction in food supplies for the benthic species, and increased inter-specific competition for benthic amphipods. Long term increases in sea surface and upper water column temperatures result in a reduced nutrient supply to the euphotic zone that is associated with a decline in primary productivity, accompanied by decreases in zooplankton, seabirds, and kelp production (LeBouef et al., 2000, McGowan et al., 1998). Schumacher et al., (in press) speculate that under warming conditions there would be a decline in annual primary production, a lower magnitude yet longer duration bloom in the spring phytoplankton thereby favoring planktonic versus benthic production, and an initial higher rate of production among zooplankton species that are temperature, rather than food, limited.

The impact of water temperature on primary production is of critical importance to the abundance and composition of benthic amphipods. Since amphipods rely on food or carbon flow from the ocean surface to survive, a decrease in carbon flux to the benthos would alter amphipod abundance and composition in favor of the smaller, faster growing, and faster maturing benthic amphipod species (Highsmith & Coyle, 1994). In the event that warming increased primary production in any species, this would not necessarily benefit amphipods if the increasing sea temperatures also opened areas previously unoccupied by marine fish species because of cold temperatures to these species. As a result of their feeding activities, the amphipods and their food supplies could be reduced thereby affecting amphipod abundance and composition (Highsmith & Coyle, 1994; Grebmeier & Cooper, 1994).

Since global warming elevates ampeliscid food requirements, it favors higher densities of smaller species like A. birulai over larger species like A. macrocephala, thereby lowering total biomass (Coyle and Highsmith, 1994; Weisshappel and Svavarsson, 1998; LeBouef et al., 2000). Since A. macrocephala is the largest amphipod species with the highest caloric value consumed by gray whales, a shift to the smaller, lower caloric value species would alter gray whale feeding behavior and adversely impact

its survival. While this is not to say that gray whales could not survive in an ecosystem dominated by the smaller amphipods, it would likely necessitate an increase in feeding activities for the gray whale to meet it daily and annual caloric requirements unless the increased density of the smaller amphipods compensated for their lower caloric value. Furthermore, if feeding activities are increased, then there would be a net decrease in the energy obtained versus energy expended value of each feeding pass. If, given an alteration in the abundance and composition of the benthic amphipods and increased energy expenditure associated with feeding activities, gray whales could not meet their energy needs, increased mortality and decreased production would be expected.

While enough is known about the biology, ecology, and impacts of cumulative and acute climatic regime shifts on benthic amphipods to warrant significant concern for the health, viability, and survival of a gray-whale preferred amphipod assemblage in the Bering and Chukchi Seas, not enough is known to genuinely understand the biological or ecological significance of the synergistic impact of all threats to this ecosystem or to determine which threat is the most significant. Remarkably, despite the critical importance of these benthic amphipods to a whole host of species, including the gray whale, amphipods in the Bering and Chukchi Seas have not been monitored systematically since 1988 (LeBouef, 2000). Tragically, even less is known about the status of the benthic amphipod communities in Russian waters. Oliver (2000) advised that historical benthic sampling sites in gray whale feeding grounds should be resampled to document any significant changes in whale food. Furthermore, Tynam & DeMaster (1997) recommend, given observations of arctic climate change, precautionary approaches to high-latitude ecosystems management until specific responses of arctic species to complex regional air-sea-ice dynamics, ocean circulation, and production have been determined.[18] They go on to recommend that:

> Managers of marine resources in the Arctic should be aware of present observations and predictions of climate change ... and develop risk-averse management strategies that take into account possible adverse impacts of arctic climate change on the ecosystem.

What we do know, and what the NMFS has to disclose and evaluate as required by NEPA, is that the amphipod populations have collapsed in certain areas, that gray whale stranding and starvation rates have substantially increased while birth rates have substantially decreased, and that global warming and ENSO events will continue to modify the structure, abundance, composition, and even the existence of benthic amphipods within the critical gray whale feeding grounds. Furthermore, as recommended by Tynan & DeMaster (1997), the NMFS must adopt a more precautionary approach to the management of the Bering Sea and all the species, including the gray whale, that rely on that sea for their survival. Considering the decline in the amphipods

[18] Tynan and DeMaster (1997) also state that, given the increased human activity in the Arctic concomitant with climate driven alterations of shelf/basin circulation, ice conditions, and ecosystem structure and function, it is critical that regional process-oriented studies and integrated monitoring of key species become major components of arctic research.

in the Bering and Chukchi Seas, all purposeful, human-caused whale mortality, like Makah whaling, must cease.

The failure of NMFS to include any discussion about these issues in the Draft EA is even more egregious considering that it hosted a Bering Sea Ecosystem Workshop on December 4-5, 1997. The purpose of the workshop was to promote research, coordination, and data sharing among organizations that study, manage, and utilize resources of the Bering Sea. One product of the workshop was a Bearing Sea Ecosystem Research Plan originally produced in 1998 (Attachment 5). A copy of the draft research plan, obtained through the NMFS web page, documents a host of threats to the Bering sea ecosystem, the impact of those threats on the sea and its inhabitants, including benthic amphipods. These threats include fishing activities that impact attached invertebrates and bottom habitat structures that provide important food and cover, effect of discard on benthic predator-prey dynamics, effects of carbon removal on long term productivity, prevention and detection on exotic species introduced via ballast waters, and the impact of contaminants to marine populations and the environment. Thus, the NMFS was well aware of the threats to the Bering Sea and its inhabitants well before the Draft EA was published. Yet, that information and even recognition of the Bering Sea workshop and research plan was excluded from the Draft EA.

Thus, instead of ignoring this issue and evidence as NMFS has done in the Draft EA, it must disclose and discuss these critical threats to the gray whale's food supplies. It also cannot avoid this discussion by claiming that it is a long-term concern that is outside the time frame contemplated in the Draft EA, since a collapse of benthic amphipods could cause a rapid decline in the gray whale species and because NEPA requires agencies to consider the direct, indirect, and cumulative impacts of an action. 40 C.F.R. §1508.8. Surely, given the evidence presented here and below, NMFS cannot suggest that the declining condition of benthic amphipods in the Bering and Chukchi Seas is not reasonably foreseeable.

3. The government has failed to disclose accurate information or to properly evaluate the environmental impacts of its action in the Draft EA:

In addition to the government's blatant failure to disclose or evaluate the critical issues associated with benthic amphipods and the Bering and Chukchi Seas, the government has failed to provide accurate information or to properly evaluate the environmental impacts of many significant issues in the Draft EA. This section provides an explanation of these deficiencies in regard to the several important issues that were mentioned but not sufficiently analysed in the Draft EA. A separate section of this comment provides a description of more specific concerns with statements or issues raised in the Draft EA.

A. The government's discussion of the Potential Biological Removal (PBR) estimate for the gray whale is inaccurate and results in a PBR which, if met, would drive the gray whale to extinction.

The Potential Biological Removal or PBR is intended to provide a conservative or safe and sustainable level of removal from a particular species stock. The removal contemplated in a PBR include all forms of mortality whether human-caused or not. Thus all whales that die in a year due to entanglements with fishing gear, ship strikes, standings, slaughter, disease, or for any other reason would all be encompassed by the PBR. If the number of dead whales exceeded PBR that level of mortality would not be considered sustainable. The use of a PBR is uniquely American, mandated by the MMPA. While we have several concerns about the legitimacy and value of the PBR which will be addressed below, for the purpose of this discussion we will assume the PBR is a valid measurement. It is worth noting, however, that the PBR estimate is only as good as the gray whale population estimate used to calculate the PBR. Considering that many of the historical gray whale population estimates don't add up and that there have been multiple changes in gray whale counting methodologies over the years, the value of such population estimates, other than for population trends, is questionable.[19] A PBR is defined as the product of the minimum population estimate, one-half the maximum theoretical net productivity rate, and a recovery factor. The PBR is expressed in mathematical terms as PBR = Nmin x 0.5Rmax x Fr.

The PBR for the gray whale fluctuates based on estimated population size. Thus, the gray whale PBR for the 1995/96 population estimate (22,571)[20] is calculated as 432 based on a minimum population estimate of 21,597 (Hall and DeMaster, 1999). This estimate was calculated using 0.02 as one-half of the maximum theoretical net productivity rate meaning that the theoretical net productivity rate was 4 percent or .04. Amazingly, within two short years, the population estimate had increased by 4,064 whales to a level of 26,635 (Draft EA at 14). Despite the fact that such an increase is biologically impossible given breeding patterns and mortality factors, not to mention a calf count in 1996 and 1997 of only 2,600, the Draft EA then claims that the PBR for this population is 649 based on a minimum population estimate of 24,477 (Draft EA at 15). The Draft EA goes on to claim that up to 649 gray whales, including the five whales that the Makah would like to kill annually, could be removed from the current population

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[19] Indeed, though the government has, until recently, consistently stated that the gray whale population has been increasing at 2.5 percent per year, a more critical review of population estimates from 1967 through 1996 suggest a different conclusion. Thus, if the population estimates from 1967 through 1996 are broken down into related subgroups (1967-1972, 1973-1980, and 1985-1996 – there is no population estimates from 1981-1984), the data suggest a declining population trend between 1967-1972 and a statistically stable trend in the other two segments. See, Attachment 6. Thus the major jumps in population number, particularly between 1980 and 1985 are not consistent with the apparent stability of the population prior to 1980. It is also worth noting that in Butterworth et al. (in press), they state, citing to a personal communication with Breiwick, that the 1987/88 census provided the most reliable estimate of absolute abundance. The 1987/88 population estimate was 21,000 compared to an estimated population in 1999 of 22,571, far less than what would be expected if there were a 2.5 percent annual rate of increase.

[20] It is worth noting that in the original Draft EA the 1995/96 population estimate was listed as 22,263 whales, 300 whales less than Hill and DeMaster (1999) reported. This discrepancy is not uncommon as a review of the gray whale literature documents wide fluctuations, in some cases biologically impossible increases, in gray whale population estimates over time. Far from providing any confidence to anyone concerned about gray whales, such disparate and frequently inexplicable estimates provide ample evidence that the government does not really understand the status of the gray whale.

with "no negative impacts on the gray whale population." Draft EA at 40.[21] As will be demonstrated below, this assertion is wrong.

Not only is this alleged safe level of mortality not sustainable, but the PBR contained in the Draft EA is entirely inaccurate as it is based on a maximum theoretical net productivity rate of 0.053 or 5.3 percent which is more than double the current estimated observed rate of increase. The 0.053 rate was contained in Wade (1994),[22] yet in the 1999 Alaska Marine Mammal stock assessments prepared by Hall and DeMaster, they state that "it is recommended that the 4% Rmax be employed for this stock." Despite this recommendation, the Draft EA inexplicably relies on the larger rate (0.053) contained in Wade (1994). The decision by Hall and DeMaster (1999) not to use the 0.053 rate may be related to the rejection by the IWC of a similar rate, the maximum net productivity level, contained in Wade (1994) or may be due to other concerns. Unless the NMFS can justify the 0.053 rate, which it claims has been done in a paper by Ferrerro which is in preparation and had not been released for analysis in these comments, then it must rely on the 4 percent rate recommended by Hall and DeMaster (1999).

The danger represented by the grossly overinflated PBR of 649 given in the Draft EA is evidenced by the results of a modelling exercise done by Dr. Milani Chaloupka who created a comprehensive heuristic model on the gray whale. When the population is modelled under a scenario that removes 649 whales per year, the population, as graphically indicated in Attachment 7, declines precipitously suggesting that the current PBR is more a prescription for extinction rather than a safe biological removal level for the gray whale.[23]

If we replace the incorrect statistic (0.053) promoted by Wade (1994) and used in the Draft EA with the statistic used by Hall and DeMaster (4 percent or .04) to recalculate the PBR for gray whales based on the 1997/98 population estimate, the new PBR is 490. While this is much lower than the 649 contained in the Draft EA, it remains an overestimate because the gray whale population estimate from 1997/98, as previously mentioned, was not biologically possible given the population estimate from the 1995/96 whale counts. Interestingly, Hall and DeMaster (1999) did not rely on, or even mention, the 1997/98 data in their 1999 stock assessment report. It is not clear why this data was not used, but it suggests that the integrity of the 1997/98 count data is questionable if not entirely invalid.

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[21] The Draft EA also claims, citing (Ferrero et al., in prep.) that there are an estimated 83 human-caused mortalities of gray whales per year from the entire eastern North Pacific stock of gray whales. It is unclear what types of mortalities are encompassed by the term and whether the figure 83 is an actual count or an average.

[22] The Draft EA suggests that the larger productivity rate (0.053) was contained in Wade and DeMaster (1996). This is incorrect as Wade and DeMaster (1996) recalculated the theoretical maximum net productivity rate using process error and came up with a rate of 0.051. While this a minor difference, this corrected rate remains more than double the current observed rate of increase and is 25 percent higher than the rate recommended by Hall and DeMaster (1999).

[23] The actual starting point for the modeling of a gray whale removal factor of 600 is irrelevant as the population would decline precipitously, as demonstrated in Attachment 7, regardless of the size of the starting population.

In addition to the blatant error made in the PBR calculation contained in the Draft EA, we also question the legitimacy of the PBR process. If the true intent of the PBR is to define a safe level of removal that will be sustainable, the PBR, as it is currently constructed and calculated, fails to provide this security.

For instance, since only adult females can produce young then why shouldn't the PBR be based on adult females. Such a calculation would theoretically provide a safe level of removal of adult female gray whales – the breeding segment of the population -- that would be sustainable. If we assume that 53 percent of gray whales are adults, that 50 percent of those are adult females, and we use the minimum population estimate contained in the Draft EA along with a 0.02 (one-half of the maximum theoretical net productivity and a recovery factor of 1, then the PBR for adult female gray whales would be 130. If we use the same statistics but replace the minimum population estimate with that used by Hall and DeMaster (1999) (21,597), then the adult female gray whale PBR is 114. Thus, depending on the starting minimum population estimate, a total of 130 or 114 adult female gray whales could theoretically be removed without harming the gray whale population.[24] To put these numbers in perspective, of the total documented adult gray whales stranded in 1999 for which sex could be determined, 62 were adult females (48 Mexico, 7 California, 7 Oregon/Washington) (LeBouef, 1999).

Since the gray whale is a highly migratory species with multiple threats to its existence throughout its migratory corridor, any proposed human slaughter of these whales would necessarily have to occur near the end of each year after a determination is made as to whether the adult female PBR had already been exceeded due to strandings, entanglements, ship strikes, or other forms of mortality. Hunting at any other time of the year, since the total adult female mortality, could not be known, would have to be impermissible if the PBR was to be meaningful.

Considering that the PBR is intended to provide a safe level of removal, the use of a maximum theoretical production rate simply doesn't make sense. Even though the maximum rate is halved when used in the equation, if the intent was to be conservative and safe, it would make more sense to use the one-half of the observed rate of increase since the buffer built into the equation would then be real. Indeed, Hall and DeMaster's (1999) use of 0.02 as one-half the maximum production rate is just slightly lower than the actual current observed production rate of 0.025 (Hall and DeMaster, 1999).[25] As a consequence, this provides only a very slim margin for error.

If a total population PBR was calculated using, as it logically should, one-half the observed rate of increase and assuming a recovery factor of 1, then the gray whale PBR using the 1995/96 and 1997/98 minimum viable population estimates would be 270 and

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[24] These estimates are provided for the purpose of the argument and should not be considered, in any way, to represent support of this level of gray whale mortality by AFA, The Fund, or CSI.

[25] It should be noted that in a comprehensive heuristic model of the gray whale created by Dr. Milani Chaloupka, the largest rate of gray whale population increase that could be obtained through the model was approximately 0.5 percent, not the 2.5 percent current rate of increase cited by Hall and DeMaster (1999).

306. If the same statistics were used to calculate the adult female PBR, the PBR would be 72 and 81. While this clearly reduces both the total population and adult female PBRs, it provides a real, instead of theoretical, margin of safety which may compensate for undocumented mortalities which, as explained below are likely significant, but not apparently considered in calculating the PBR.

The recovery factor is another estimate that requires some review. The NMFS apparently sets this factor at 1 for the gray whale because it is a non-listed species that is subject to slaughter but is still increasing. Other than that agency-created justification, the NMFS has never provided any more substantive explanation of the factor and how it is calculated. Since it could be argued that the population is not fully recovered, a reduction in this factor to .85, .90, or .95 may be warranted. Considering the significant increase in strandings documented in 1999 and 2000 and substantial reduction in calf production in 2000, the gray whale population has undoubtedly declined since 1999 raising questions about the governments continued reliance on a recovery factor of 1.

Finally, it is not at all clear from our review of the PBR process that the PBR equation takes into consideration undocumented mortality of gray whales. The reality is that the number of documented gray whale mortalities from slaughter, strandings, ship strikes, entanglements, and other forms of mortality are only a fraction of the actual annual mortality. Hall and DeMaster's (1999) PBR calculation, as explained previously, provides such a small margin of error compared to the observed production rate that it could not possibly compensate for the amount of undocumented gray whale mortality.

Such undocumented mortalities must occur as a result of ship strikes, entanglements, starvation, and disease. It is also clear, as reported by Heyning and Dahlheim (1994), that only approximately 5 percent of stranded whales are found and examined by biologists each year. Even if we assume that a slightly greater percentage of whales are found but not examined by biologists each year, the number of whales who die and never strand is far in excess to the number of carcasses found. Thus, the 274 whales found stranded between late December 1998 and September 15, 1999 (LeBouef et al., 2000) may represent only the tip of the iceberg in terms of all strandings which, based on Heyning and Dahlheim's estimates, could have approached 5,480 undocumented gray whale mortalities. While there is no evidence to suggest that such a large number of gray whales died, it is indisputable that there are undocumented mortalities. Despite this, the NMFS fails to even consider or analyze this issue in the Draft EA nor does it adequately analyze the significance of the increase in 1999 and 2000 strandings (more than three times the strandings than in 1998) (LeBouef et al., 2000; Draft EA at 32) and of the unusually large number of stranded adult and immature whales (compared to the usual propensity of stranded calves and yearlings) in 1999 (LeBouef et al., 2000).

The NMFS must evaluate these inaccuracies, data deficiencies, and explain why such deficient, poor quality, and misleading data was contained within the Draft EA. The government must why it used an estimate rejected by the IWC, why it used a population estimate which is beyond biological possibility given the 1995/96 data, and, if it believes these estimates are accurate, it must provide some rationale to explain its position. If it

intends to continue to use the clearly inaccurate PBR of 649, it also must explain how it can put forth a PBR which, based on modelling, drives the gray whale population to extinction. Finally, given the deficiencies in the PBR, as currently defined and calculated, the NMFS must provide some reasonable explanation as to why a PBR process, which provides no safety for gray whales, should not be changed.

B. The governments analysis of the Pacific Coast Feeding Aggregation or summer resident whales and its evaluation of the impacts of a Makah whale hunt on the resident whales is misleading and inaccurate:

The Draft EA provides several pages of alleged analysis of the status of the summer resident gray whales or the Pacific Coast Feeding Aggregation and the anticipated impact of a Makah hunt on these whales. The Draft EA claims that there are up to 269 summer resident whales ranging from Canada to California, that, except for a few exceptions, they don't show high site fidelity, and that they demonstrate both inter-annual and inter-seasonal movement and distribution variability. While we appreciate the extra analysis of the summer resident whales in this Draft EA, compared to the original where there was virtually no information, the information and analysis is misleading and inaccurate.

The government is attempting to dilute the significance of the summer resident whale issue by claiming that there are up to 269 summer resident whales spread out from Canada to California. While this may be true, given the relatively small area in which the Makah may be authorized to hunt, it is the resident whales in that area who are of principal concern. The estimate of 269 summer resident whales, Draft EA at 22, made by Calambokidas et al. (2000b) can only be interpreted to mean that, based on observations in 1999, there were an estimated 269 gray whales who did not migrate to the Bering sea. Whether all of these whales were actual summer residents would require many more years of data collection. It is possible that the number of whales not migrating to the Bering Sea may be increasing because of declining food supplies in the Bering Sea or as a consequence of northward migrating whales in poor condition electing to delay or suspend their northward journey in order to feed. If such transient whales are removed from the estimate, then the actual number of summer resident whales – those who routinely do not migrate to the Bering Sea – is smaller. The anomalous summer resident situation described by Calambokidas in 1999, where a large number of new summer resident whales were identified, is consistent with declining food supplies to the north and the poor condition of the whales that year as evidenced by significant strandings and reduced calf production. Conversely, it is also possible, that additional surveys have identified new summer resident whales in different areas along the west coast of the United States and Canada.

The government also failed to disclose information about spatial scale and efforts associated with the various surveys conducted for summer residents. Thus, while there were several surveys done, it is not known whether each of the surveys were done over the same spatial scale or using the same effort. More than likely all of the surveys differed substantially in terms of spatial scale and effort. Therefore, just because summer

resident whales were not seen in the same area multiple years in a row may not be because they weren't there but, rather, because the effort used to look for them or the scale of the area studied was different. Furthermore, whales that were not spotted in successive years, may have been present but simply not have been identified.

In regard to the northwest Washington/southwest Canada area of particular importance in connection with the Makah hunt, it is important to note that Gosho (1999) reported a high proportion of resightings of gray whales in 1996 and 1997 (78% -- 14 of 18 whales observed in 1996 were observed in previous years; 82% -- 23 of 28 whales observed in 1997 were observed in previous years). Draft EA at 19.

Based on the information contained in the Draft EA, there remains considerable reason to believe that resident whales constitute a unique group of animals. The genetic data is not enlightening since the sample sizes are so small. Even if the residents and migrants were genetically identical, the summer resident gray whales may still comprise a distinct subgroup based on a behavioural or physiological difference that has not been identified or evaluated. There is no data, for example, on whether the resident whales breed with the migrating whales. If there were no interbreeding, this would definitely suggest that the resident whales were a unique subgroup of animals. Until and unless the government can prove otherwise, it must consider resident whales, particularly those in the northwest Washington area, as a unique subgroup of whales. In terms of management, the precautionary principle requires that we are exceedingly conservative in rendering management decisions that would affect this subgroup of whales.

The government purports to adopt a "very conservative approach" in evaluating the environmental impacts of Makah whaling on summer resident whales. Draft EA at 40. To do this, the government "treats the Pacific coast feeding aggregation as a separate management unit." Id. The government then goes on to use inaccurate figures to calculate the PBR for the summer residents. While we question the utility and accuracy of a PBR estimate in general for the reasons provided above, the use of these inaccurate factors result in an even more useless PBR estimate.

For example, in calculating a range of PBR estimates for the summer residents, the government uses a minimum population estimate of 157, a theoretical maximum net productivity rate of 0.053, and a recovery factor of 0.5. The population estimate of 157 is for the entire summer resident population so any PBR number calculated using that estimate is not applicable to the summer resident gray whales in or near the Makah hunting area. The productivity rate of 0.053, as previously explained, is an overestimate of the maximum theoretical net productivity rate and should not be used. Instead, either the 0.04 rate used by Hall and DeMaster (1999) or, more appropriately, the 0.025 observed rate of increase should be used. Therefore, if we recalculate the PBR for the all summer residents using the alternative productivity rate numbers, the PBR is 1.57 (using 0.04) or .98 (using 0.025). If we assume that there are only 50 summer residents in the area of the Makah hunt, the PBR for that group is .5 (using 0.04) or .3 (using 0.025). These results suggests that not a single whale could be removed due to any cause from the summer resident group in the Makah whaling area without harming the population.

For the high end estimate, the Draft EA using the summer resident population estimate of 269. This is not the correct population estimate to use since the PBR formula requires the use of the minimum population estimate (Nmin) calculated, apparently, by using a log-based confidence interval of some unknown quantity. If the Nmin were actually 250 instead of 269 then, using the corrected net productivity rate factors and a recovery factor of 1, the upper end PBR for the entire summer resident group would be 5 (using 0.04) or 3 (using 0.025). As a reminder, this means that only a total of 3 or 5 summer resident whales, depending on which productivity rate is used, could be allegedly removed from the population due to any cause without harming the population.

Finally, as indicated previously, the PBR would seemingly be a more valid tool to determine allegedly safe levels of removals if it was limited to adult female gray whales since they are the only segment of the population that can produce young. Thus, if the summer resident group in the area of the Makah hunt consisted of a total of 50 whales, assuming that 53 percent were adults, 50 percent were adult females, and using the 0.025 observed rate of increase and a recovery factor of 0.5, the PBR for adult female gray whales in this area is only .08. At this level the government could not, under any circumstances, allow the Makah to kill any whales.

Given the uniqueness of the summer resident population, the government simply does not have the luxury of allowing a single summer resident whale to be killed by the Makah if its intent is to responsibly manage this subgroup of whales. The NMFS have not provided sufficient information or analysis in the Draft EA to eliminate or reduce concerns associated with the potential disastrous environmental impacts associated with the killing of a summer resident whale by the Makah.

4. The Draft EA does not contain a reasonable range of alternatives and fails to identify a proposed action:

NEPA requires that an environmental document "rigorously explore and objectively evaluate all reasonable alternatives." 40 C.F.R. §1502.14(a). In this case, not only has the government ignored potential alternatives that may satisfy the Makah's interest in interacting with whales without resulting in slaughter, adverse impacts to the environment, or threats to public safety, but its analysis of Alternative 4, the no kill/no whaling alternative was obscenely biased. Such a bias is inconsistent with the intent of NEPA and may have led less informed reviewers to the conclusion that the no kill option would not be acceptable and, therefore, was unreasonable.

It is the government's purposeful efforts to make the no action alternative appear to be so unreasonable that raises serious questions about the government's objectivity in this process. First, contrary to the government's alleged fear of abrogating treaty rights and not accommodating its alleged federal trust responsibilities, the reality, as explained previously, is that the government is under absolutely no obligation to facilitate whaling by the Makah. The treaty doesn't require such a duty, the case law does not support such a mandate, and the various relevant Secretarial Orders and Executive Orders, while

promoting consultation and coordination between the government and the Makah, certainly do not require the government to accommodate every or any desire of the Makah tribe.

Second, the government's fear of litigation from the Makah or the potential that the Makah may elect to whale without government approval are not grounds for rejecting Alternative 4. There is no guarantee that the Makah would pursue litigation or whale without government approval if the government elects to implement Alternative 4. Indeed, if the government selected Alternative 4, the Makah may recognize the broader public interest served by not engaging in whaling and that changing societal values have eliminated whaling as an acceptable activity. Given the public opposition to Makah whaling, surely the government will not decide to allow the Makah to whale because it is fearful of something that may never happen. To do so would be to raise serious questions about the capability of the decision makers and the decision-making process within the NMFS. Ironically, the government appears to be fearful to deny the Makah a return to whaling because of potential litigation, but it is willing to facilitate whaling by the Makah despite already losing one case on this issue and surely recognizing that such a decision will likely result in additional litigation.

Furthermore, considering the broad discretion provided to the government in interpreting and implementing treaties, even if the Makah were to pursue litigation to be allowed to whale there is little chance that they would prevail. Conversely, if the Makah elected to whale without government approval, there is a strong likelihood that the government would prevail in court arguing that the Makah's unilateral actions violate a smorgasbord of international conventions and national laws and regulations.

Third, the notion that not authorizing the resumption of whaling by the Makah would be "inconsistent with the IWC objective for the management of whale stocks subject to aboriginal subsistence whaling," is entirely irrelevant considering, as documented previously, that the IWC never recognized the aboriginal subsistence needs of the Makah.

Finally, the government's concern that its adoption of the no-action alternative as its final decision will "provoke confrontation between the Makah Tribe and NOAA," is laughable. The notion that the government would go against overwhelming public opposition to Makah whaling and permit an activity that violates an abundance of laws, causes significant environmental impacts, and will threaten public safety just because the Makah may get mad raises serious concerns about the underlying motivations of the government in accommodating the Makah's desire to kill whales.

The government is required to provide a no action alternative, 40 C.F.R. 1502.14(d), and it must subject this alternative to the same fair and objective analysis as it subjects other alternatives. The NMFS has not done that in the Draft EA. Instead, it has purposefully biased its analysis of the no action alternative raising inaccurate and misleading claims as to why the no-action alternative cannot be selected instead of objectively documenting the benefits and consequences of the alternative.

The government has also failed to consider other reasonable alternatives. The Draft EA, in fact, only includes four alternatives; three that permit the Makah to kill whales under different restrictions and the no-action alternative. NEPA requires the consideration of additional reasonable alternative.

Though the Makah have expressed an interest in developing eco-tourism on their lands but have rejected whale watching instead of whaling, a whale-watching alternative or other non-lethal options are viable and reasonable alternatives that should have been considered. Since the government's decision affects far more interests than just the Makah, the fact that the Makah have objections to watching whales instead of slaughtering whales, is irrelevant. Similarly, the Makah's claim that whale watching cannot satisfy their cultural and spiritual needs is largely a self-serving argument designed to achieve the ultimate whaling objectives of the tribe. Surely, the opportunity to interface with gray whales at close range with paying customers who can be educated about the natural history and biology of the gray whale while also learning about the cultural and spiritual importance of gray whale to the Makah would be of enormous potential benefit, in many ways, to the Makah.[26] While such a scenario may not allow the Makah to engage in butchering ceremonies while standing on or near a slaughtered whale, it surely would satisfy a large part of the Makah's cultural and spiritual interest in whales. A whale-watching alternative should have been seriously considered in the Draft EA.

Finally, NEPA requires agencies to identify a proposed action in any draft environmental document. 40 C.F.R. §1502.10. In the Draft EA, for whatever reason, the NMFS failed to identify a proposed action in violation of NEPA.

5. The government has failed to provide any evaluation of the cumulative impact of its action:

In evaluating any action under NEPA, the government is required to consider the direct, indirect, and cumulative impacts of the action on the environment. 40 C.F.R. §1508.8. A "cumulative impact" is defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions." Id. at §1508.7. In other words, the NMFS should have evaluated the cumulative impact of all past, present, and reasonably foreseeable actions of private, state, federal, and international entities that may impact the gray whale and/or its habitat. Because of the migratory nature of the gray whale, this would have required consideration of all such actions from Alaska to Mexico. The NMFS ignored this mandate.

The NMFS failed to even attempt to provide a laundry list of such actions (i.e., development activities, oil exploration activities, ship traffic data, commercial fishing

[26] The redacted portion of AR-110 provides a discussion of why non-lethal alternatives such as eco-tourism and whale watching would satisfy the Makah's goals of self-determination and tribal identity.

activities, recreational activities, industrial/agricultural/residential source of contaminants). A list alone would not have complied with the terms of NEPA which require the cumulative impact of such actions to be evaluated. Moreover, the NMFS neglected to consider some very critical issues, namely the status of the benthic amphipods, in the Draft EA which meant that even this issue, which has enormous implications for the health and viability of the gray whale population, was not considered in any type of cumulative impacts analysis. The NMFS simply did not bother to engage in any cumulative impact analysis.

The cumulative impact analysis must be contained in the Draft document so that the public can consider such evidence when reviewing, analysing, and preparing comments on the Draft EA. Inserting some attempt at a cumulative impact analysis in a Final EA – if such a document is prepared – does not satisfy the requirements of NEPA.

6. The Draft EA fails to provide sufficient explanation or analysis of the following issues:

This section of the comment letter discusses specific concerns with information or statements contained in the Draft EA.

A. The government must provide additional explanation for the Makah Tribe's refusal to accept NOAA's recision of the cooperative agreement as ordered by the Court in Metcalf. Draft EA at 7. The Draft EA should have delineated the reasons, if any, provided by the Makah tribe for its decision to reject the recision. Of course, the Makah's rejection of the rescission does not, in any way, undermine the Court's order, though it certainly calls into question the credibility of the Makah and their compliance with their own Constitution and Bylaws in which they claimed they would adhere to U.S. law. It should also be noted that, since the Makah tribe was an intervening party in Metcalf v. Daley, it's rejection of NOAA's recision of the agreement is in violation of the Court's order placing the Makah in contempt.

B. While it should be abundantly clear from the foregoing comments that AFA, The Fund, and CSI are unalterably opposed to Makah whaling, we want to make it perfectly clear that this includes strenuous opposition to Alternatives 1, 2, and 3 in the Draft EA. Given the scientific and legal evidence, under no circumstances should the Makah be allowed to slaughter migrating or resident whales in the open ocean, in the Strait of Juan De Fuqua, or in any other area. The increase in flexibility for the Makah tribe to whale virtually wherever and whenever they want contained in Alternatives 2 and 3 is particularly egregious and unacceptable. Indeed, considering the substantial changes in whale hunting scenarios proposed in Alternatives 2 and 3 compared to all alternatives offer in the past, the NMFS has to provide some explanation for this sudden urge to provide the Makah carte blanche opportunities to kill whales.

C. The Draft EA indicates that Makah whaling, if approved, will occur in its usual and accustomed grounds. Draft EA at 7, 9. It is unclear, however, what the origin is for the delineation of the Makah's usual and accustomed whaling grounds. The Draft EA must

provide some additional information, including historical documentation if any exist, to justify the boundaries of the usual and accustomed whaling grounds.[27] Furthermore, since the current boundaries apparently extend into waters under the jurisdiction of Canada, there must be some explanation of the legal issues associated with the Makah tribe pursuing or killing a gray whale in Canada and whether such activities are legal under Canadian law.

D. The Draft EA states that the Makah's usual and accustomed whaling grounds overlap the Flattery Rocks and Quillauyte Needles National Wildlife Refuges in northern Washington. Draft EA at 9. If the boundaries of the refuges encompass ocean areas within which the Makah may pursue or kill whales, several additional laws including the Refuge Recreation Act, National Wildlife Refuge System Improvement Act, and a number of U.S. Fish and Wildlife Service (FWS) regulations and policies would be applicable to the Makah's actions and would have to be considered and followed. Additional information about the refuges and whether Makah whaling could occur in areas within the boundaries of the refuges must be provided. Furthermore, if whaling could occur within either refuge, the NMFS, FWS, and the Makah must comply with all refuge statutes, regulations, and policies prior to engaging in whaling.

E. Though the government concedes that gray whale strandings were substantially higher in 1999 and 2000 (273 in 1999, at least 291 in 2000 – five to thirteen times higher than the annual counts from 1995-1998), that the majority of strandings involved adults, immature, and female whales unlike the usual calves and yearlings, and that gray whale calf production was substantially decreased (428 in 1999, 282 in 2000 compared to 1323 in 1998) in both years, Draft EA at 32, 14, (LeBouef et al., 2000), the government failed to provide any substantive analysis of these figures. In addition, though LeBouef et al. (2000) reported unusual gray whale migratory behaviors, the government neither disclosed or discussed this matter or its significance. The purpose of NEPA is not simply to state facts, but to analyze the information presented in the document. Considering the massive increase in mortality and decrease in production in 1999 and 2000, the government is obligated to provide a rational, detailed explanation for such events, to consider the potential causes of such events, and to contemplate the implications of such events to population health and viability and to management issues. This evidence suggests that the gray whale population declined 1999 and 2000 increasing the impact of purposeful removal of any whales.

Furthermore, the government provides absolutely no discussion of the gray whales who die each year but whose deaths are never recorded or documented. Given the propensity for gray whale carcasses to sink, there is good reason to believe that the there are a large number of undocumented mortalities each year. Heyning and Dahlheim

[27] The Draft EA states that the Makah's usual and accustomed whaling grounds overlap the Flattery Rocks and Quillauyte Needles National Wildlife Refuges in northern Washington. Draft EA at 9. If the boundaries of the refuges encompass ocean areas within which the Makah may pursue or kill whales, several additional laws including the Refuge Recreation Act, National Wildlife Refuge System Improvement Act, and a number of U.S. Fish and Wildlife Service regulations and policies would be applicable to the Makah's actions and would have to be considered and followed.

(1974), for example, suggest that only 5 percent of stranded gray whales are found and examined each year. The number of undocumented gray whale mortalities is critical in devising responsible management schemes. If there is no educated estimate of the number of undocumented mortalities to factor into management decisions, any management decisions are likely to be biologically reckless.

F. As it did in the original Draft EA, the government has again failed to disclose or consider the impacts of Makah whaling to the individual whales pursued and slaughtered. See and consider Attachment 1. Gray whales are highly intelligent and highly sentient creatures who are likely capable of experiencing many of the same emotions as humans. The killing of such sentient, intelligent creatures requires consideration of the cruelty and suffering that the animal will experience while being pursued or slaughtered. The allegation that the whale killed by the Makah in 1999 died within eight minutes of being struck by the harpoon, Draft EA at 27, is not something to be proud of but, rather, should be characterized as a deplorable act of cruelty. Eight minutes is certainly not an instantaneous or even a quick death. Considering the alleged humane benefits of utilizing a 50 mm military assault rifle to kill the whale, surely death and the end to the whale's suffering should have come must quicker. Furthermore, what contingency plans, if any, are in place in the event that the rifle seizes or otherwise fails to operate? Will the whale then be left to suffer for hours as it slowly bleeds to death or will the Makah embed additional harpoons into the animal's flesh in a attempt to speed up the whale's torturous death? The reality is that there is no humane method to kill as whale. The issue of a "humane kill," along with the impact of killing on an individual whale must be addressed in the Draft EA.

G. The government has consistently resisted any discussion of the adverse precedent established by its actions in support of Makah whaling. This is a blatant violation of NEPA in that the precedent of Makah whaling is a significant impact of this action that could jeopardize whale species throughout the world. The government's blatant and purposeful misinterpretation of IWC policies and its actions at the 1997 IWC meeting, established a foundation for every other IWC member country in the world to engage in the self-recognition of the alleged subsistence whaling needs of its aboriginal or native people. By doing so, such determinations will proceed without any independent or meaningful review of such decisions by the very body (the IWC) which was established to make such determinations. This not only sets the stage for countries to pursue whale quotas at the IWC for use by their aboriginal groups, but it opens the door to countries using other excuses (i.e., scientific whaling) to facilitate a return to whaling among its native peoples. This will substantially increase the number of aboriginal groups pursuing and slaughtering whales, increase the threats to whale species worldwide, and places the world one step closer to a resumption in commercial whaling.

By establishing this precedent, the government has unlatched the door to commercial whaling. Though the 1997 agreement between the Makah and the government specified that the whaling activities would not be for commercial purposes, there is little dispute that it is the intent of the Makah and, likely the U.S. government, to ultimately kick the door open and allow the Makah to engage in commercial whaling. It

has always been the position of the Makah that it had the legally authority to engage in commercial whaling and the Administrative Record in Metcalf provides ample proof of the tribe's commercial whaling intent.[28] Remarkably, in the course of a few short weeks in 1995, the Makah went from advocating a return to commercial whaling to accepting whaling for cultural and spiritual purposes. We suspect that the Makah only agreed to these terms based on a government promise that, in time, it would address the gray whale listing under the Convention on the International Trade in Endangered Species (CITES) and take whatever other actions were necessary to accommodate the Makah's interest in commercial whaling.[29] Whether the government will or will not concede that this is the case, the potential for the initiation of commercial whaling by the Makah or other native groups as a result of the government's efforts to aid the Makah must be evaluated in the Draft EA. In addition, the government must discuss whether, under the 1997 management agreement, the Makah could have given whale meat and other products to a third party, including another tribe, for the purpose of sale and whether that form of commercial use, even if the Makah did not benefit in any way, was prohibited.

H. The government apparently believes that because the .50 caliber rifle will be shot in a downward direction toward a harpooned whale, that there will be no public safety threats beyond those expected for the Makah whaling crew. Because of this misplaced belief, the government fails to provide any analysis of public safety concerns associated with Makah whaling in the Draft EA. This is directly in conflict with the government's own argument in support of the Coast Guard's rule establishing a Regulated Navigation Area to protect Makah whalers. In the government's brief in Progressive Animal Welfare Society v. Slater, No. 98-36053, it defends the Coast Guard's rule by stating that "there is no dispute that .50 caliber hunting rifles have a range far in excess of 500 yards, and the anticipated hazards arising out of attempts to shoot, capture, and tow huge gray whales are manifest."

New evidence, however, demonstrates that the seriousness of the threat to public safety associated with Makah whaling cannot be understated and is more than that contemplated by the government, including the Coast Guard. As evidenced by information obtained by the Peninsula Citizens for the Protection of Whales (PCPW), the firing of the military rifle could endanger citizens on the water or shoreline in the vicinity of the killing event (See, Attachment 8). In a February 5, 2001 letter from Roy Kline, the former head of aeroballistics at the U.S. Army's Picatinny Arsenal, to the PCPW, Mr. Kline states that the rifle used by the Makah should not be fired within 6100 meters of the

[28] For instance, in a May 30, 1996 e-mail from S. Ashton to Chief, General Counsel Fisheries, Ms. Ashton states that, "well, the real question here is whether we can reassure the opponents of Makah whaling that their treaty prohibits them from ever engaging in international commerce. This is probably not something we can say. From what you say, members of the tribe could (if the moratorium were lifted and the CITES list revised) export whale meat and products to a foreign country. Likely so. Or the tribe could sell meat to an intermediary in the U.S. for export. If they could sell directly, they could sell through an intermediary."

[29] At present, the U.S. government is engaged in conflicting policies. On the one hand it has defended the CITES Appendix I listing from change while, on the other hand, it is permitting gray whales to be killed by U.S. citizens in U.S. waters. The CITES Appendix I prohibits the sale or transfer of the species or parts protected, though we suspect that the U.S. government may not consistently defend this designation if its ultimate objective is to allow the Makah to engage in commercial whaling.

shoreline or any surface vessel. Based on tests conducted on this weapon, including tests where the weapon was fired into different media, Mr. Kline indicated that a ricochet could travel as far as 4 – 4 ½ kilometers. The potential for richochet or even a misfiring must be high since the scenario involves a person standing in a moving, rocking boat shooting at a wounded, moving whale.[30] The government cannot ignore this risk as it has in the Draft EA. A comprehensive evaluation of this risk is clearly required.

Furthermore, the Draft EA also fails to consider the impacts of Makah whaling on non-protesting individuals who may observe the actual killing. Given that Alternatives 2 and 3 would permit the Makah to whale in areas far closer to areas where a larger number of people may be recreating or living, there is an increased likelihood that innocent bystanders, including children, may be subject to the brutal, bloody spectacle. This is a potential impact to the "human environment" which must be disclosed and evaluated.

I. The government's discussion of contaminants in the Draft EA is incomplete. The Draft EA contains a smattering of statistics concerning the evaluation of a relatively small number of gray whale tissue/blubber samples for the presence of PCB and DDT. The lipid levels and levels of PCB and DDT contaminants found in many of the samples are largely meaningless since the Draft EA provides no measure of what levels constitute what level of risk. The Draft EA concludes its assessment of contaminants in the gray whale by claiming that "none of the tissues examined had contaminant concentration that exceeded the U.S. Food and Drug Administration regulatory tolerance limits for human consumption based on fish and shellfish guidelines." Draft EA at 31. Instead of disclosing what these tolerance limits are and explaining how tolerance limits in fish and shellfish can be extrapolated to gray whales, the government apparently simply wants the public to accept its information as fact. Considering the propensity of the government, particularly in this case, to stretch the truth to reach a predetermined outcome, placing such trust in the government's fact is inappropriate.

Considering the feeding behavior of the gray whale (bottom feeder primarily), the fact that the species occupies a highly polluted coastline, and because of bioaccumulation mechanisms, it is inevitable that gray whales are exposed to and consume large amounts of pollutants of all kinds. Thus, the government's evaluation of only PCB and DDT raises serious questions about the impact of other toxins including chlordane, hexachlorocyclohexane, mercury, dimethylmercury, and cadmim have on gray whales and why the government has not studied these contaminants.

Furthermore, the government's analysis is woefully inadequate as it: fails to describe the extent of toxins in the gray whale's habitat, including its northern summering grounds; fails to identify sources for toxic contaminants throughout its habitat; avoids any discussion of the likelihood of gray whales being exposed to contaminants or why, despite their feeding behavior, they are not highly contaminated; or the impacts of such contaminants in whale flesh if consumed by humans. The report of ten whales taken by

[30] Furthermore, as explained by the Coast Guard, the hunt also poses public safety risks to boaters and other recreationists whose small crafts may be overtaken by powered whaling boats pursuing whales. See, government's brief in Progressive Animal Welfare Society v. Slater, No. 98-36053.

the native Russian people of Chukotka that had such a strong disgusting smell deemed unfit for human consumption (Russian Federation letter to Michael Canny, Chairman, IWC, 2000), provides compelling evidence that toxic contamination may be far more serious than the NMFS is disclosing.

J. The 1999 Status Review of the North Pacific gray whale population states that "this stock's annual migrations along the highly polluted coastline of the western United States and their concentration in limited winter and summer areas may make them particularly vulnerable to impacts from commercial or industrial development or local catastrophic events." Despite this concession, the Draft EA provides no analysis of the extent of past, present, and future commercial or industrial developments, including oil drilling activities, or a description or likelihood of local catastrophic events. The Draft EA also fails to identify the potential impacts of such impacts on the gray whale population in violation of NEPA.

6. An Environmental Impact Statement is clearly required to comprehensively evaluate the impacts of the proposed action:

Considering the foregoing evidence, there should be no question that an EIS is the only level of NEPA review that is suited for the comprehensive examination that this issue warrants. In determining whether an action should be evaluated in an EIS, an agency must consider the significance of the impacts and the action. In the NEPA context, the significance of an impact refers to both its context and intensity. 40 C.F.R. §1508.27. In considering the "context" of an action, an agency must evaluate the "significance of an action ... in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality." In the case of the gray whale, it is clear that the context of the action clearly qualifies as significant given that the issue is of regional, national, and international interest and importance. Not only has Makah whaling activities generated interest and protest worldwide, but the decisions made in connection with this activity, particularly those decisions made internationally, are of enormous importance and precedent for the future of whaling, whale management, and whale protection worldwide.

The "intensity" criteria refers to the "severity of impact." Id. at §1508.27(b). In evaluating the intensity of an action, the NEPA regulations delineate ten criteria or significance factors that must be considered. Whaling by the Makah clearly and easily satisfies eight of the ten criteria.

It is, for example, indisputable that the "impacts (of the action) may be both beneficial and adverse." Id. at §1508.27(b)(1). While the Makah and their supporters may characterize the impacts as beneficial, most other interested parties would characterize the impacts as adverse to gray whales, other whale species, the public interest, and the international interests of the U.S. government.

Though the government has failed to identify a proposed action in the Draft EA as is required by NEPA, it surely would have chosen an alternative authorizing Makah

whaling which would have adversely affected "public health or safety." Id. at §1508.27(b)(2). As evidenced above, the firing of a 50 mm military style rifle from a moving, pitching boat at a moving target in water in the vicinity of a shoreline and/or other boats increases the threat to public safety.

The adverse consequences of Makah whaling, should it be allowed, will undoubtedly effect "unique characteristics of the geographic area such as ... park lands ... or ecologically critical areas," Id. at 1508.27(b)(3), as it will likely occur either in or adjacent to the Olympic Coast National Marine Sanctuary. The image, integrity, and public ability to enjoy this sanctuary, which represents a "pristine ocean and coastal environment that is important to the continued survival of several ecologically and commercially important species of fish, shellfish, and marine birds and mammals," Draft EA at 9, has been and will continue to be impaired by the Makah hunt.

In terms of the fourth criteria, there can be no dispute that Makah whaling has had, and will have, severe "effects on the quality of the human environment (which) are likely to be highly controversial." Id. at §1508.27(b)(4). Though NMFS recognizes the controversy and even concedes that Makah whaling is controversial, it remains unwilling to subject the issue to the legally required level of environmental review. Beyond public controversy, Makah whaling is also a substantial scientific controversy for many of the reasons documented in this comment letter. Similarly, there is a high likelihood that the "possible effects on the human environment are highly uncertain or involve unique or unknown risks." Id. at 1508.27(b)(5). For the Makah, there are unknown risks associated with pursuing a whale and with consuming, potentially contaminated, whale products. Furthermore, considering our rudimentary knowledge of the ecology and biology of the arctic ecosystem and threats to that ecosystem, the risk of killing gray whales is uncertain.

In addition, Makah whaling establishes a troubling precedent which will lead to "future actions with significant effects." Id. at §1508.27(b)(6). Not only has the government's effort to aid the Makah's efforts to whale established a dangerous precedent within the IWC likely opening the floodgates to a barrage of aboriginal subsistence whaling but it also has led to efforts by the Nuu-Chah-Nulth in Canada, a non-member of the IWC, to seek an annual quota of 1000 whales from the British Columbia government and Canada's federal government. In addition, given the clear interest of the Makah to engage in commercial whaling, by allowing the Makah to resume whaling in violation of multiple laws, the U.S. government is one step away from permitting the Makah to engage in commercial whaling. While the current agreement specifies that the Makah cannot whale commercially, the fact that the Makah are whaling at all increases the likelihood of commercial whaling in the future.

While the killing of even a singly gray whale is not "individually insignificant," it is indisputably related, as demonstrated in this comment, to other actions with "cumulatively significant impacts." Id. at §1508.27(b)(7). Far from even attempting to evaluate the cumulative impacts associated with this action, the NMFS entirely ignored this NEPA requirement. It must examine all of the potential impacts of this action in a

cumulative sense to even begin to understand the true consequences or effects of Makah whaling.

Finally, as has been revealed repeatedly in the foregoing evidence and the information provided below, efforts by NMFS to facilitate the Makah's resumption of whaling "threatens a violation of federal (and) state law(s) imposed for the protection of the environment." Id. at §1508.27(b)(10).

With such clear and compelling evidence that the government's unidentified but anticipated action to support Makah whaling easily satisfies the significance criteria found in NEPA, there should be no dispute that an EIS is the only proper level of NEPA review in this case.

OTHER MATTERS OF CONCERN:

Marine Mammal Protection Act:

The Draft EA claims that the Departments of Commerce and Interior, "after careful analysis...concluded that the MMPA does not abrogate Indian treaty rights to harvest marine mammals." If such a careful analysis has been done, the relevant information should be included in the Draft EA. This is particularly important since there are compelling arguments to suggest that the MMPA does abrogate the treaty rights of the Makah to kill whales or, otherwise, makes such killing illegal. Many of these arguments were contained in the comments submitted by AFA and others in response to the original EA (See, Attachment 1) and must be considered anew during this NEPA process. Since these previous comments must be considered again, we will not rehash the arguments contained in Attachment 1. We would like to supplement those arguments, particularly the discussion of the 1994 MMPA amendments, by referring to a September 4, 1997 letter from the Marine Mammal Commission to James Baker. In that letter, the former Director of the MMC, Mr. John Twiss, makes it clear that the 1994 MMPA amendments did not actually amend the MMPA.

Marine Sanctuaries Act:

As a supplement to comments previously submitted regarding the Marine Sanctuaries Act contained in Attachment 1 at 27 which must be considered in this NEPA process, we offer the following additional comments.

Under the Whaling Convention Act, 16 U.S.C. §916 et seq., "no person shall engage in whaling without first having obtained an appropriate license or scientific permit" issued by the Secretary of Commerce. Id. at §916d(a). Such a license, albeit a blanket license of questionable legality, has been issued to "whaling captains identified by the relevant Native American whaling organization" through the revised WCA regulations. See 50 C.F.R. §230.5. The fact that a license has been issued for Makah whaling activities which may occur within the Olympic Coast National Marine Sanctuary trigger consultation procedures under the Marine Sanctuaries Act, 16 U.S.C.

§1434(d)(1)(a). This provision specifies that "federal agency action internal or external to a national marine sanctuary, including private activities authorized by licenses, leases, or permits, that are likely to destroy, cause the loss of, or injure any sanctuary resource are subject to consultation with the Secretary." Id. Such a consultation process, the details of which are provided for in the cited statutory provision, must be complied with. if the government intends to allow the Makah to resume whaling.

Furthermore, regulations governing the management of the Olympic Coast National Marine Sanctuary require that a permit be obtained before "a person may conduct an activity prohibited" by the regulations. 15 C.F.R. §922.153. This permit process must be complied with by the Makah if the government intends to allow the Makah to resume whaling.

Endangered Species Act:

The Endangered Species Act is the primary law in the United States protecting endangered species and their habitats. Section 7 of the ESA delineates a process whereby "each Federal agency shall, in consultation with and with the assistance of the Secretary, insure that any action authorized, funded, or carried out by (the) agency is not likely to jeopardize the continued existence of any endangered species or threatened species..." The Draft EA identifies a number of species of federally listed endangered or threatened animals including the Steller sea lion, multiple whale species, short-tailed shearwater, brown pelican, Aleutian Canada goose, bald eagle, snowy plover, several species of sea turtle, and the marbled murrelet which occur off northern Washington. Draft EA at 33-36. For several species, the Draft EA concedes that Makah whale hunting "may affect" the species thereby triggering the formal consultation under the ESA. For example, the Draft EA states that Makah whaling is "unlikely" to affect marbled murrelets, Draft EA at 43, that is tantamount to a "may affect" admission. For brown pelicans, the Draft EA states that Makah whaling may temporarily displace pelicans, Draft EA at 43, if they are in the area of the whaling activity – another "may affect" concession. Finally, the Draft EA admits that steller sea lions are unlikely to be affected other than as a result of "normal startle/fleeing behavior, Draft EA at 43 – another clear "may affect" determination. The existence of these species in or near the area where the Makah would engage in whaling if authorized triggers the ESA formal consultation procedures. The NMFS, therefore, must engage in consultation with the FWS prior to issuing any final determination on this matter and before the Makah are allowed to resume whaling.

Though the ESA no longer provides any direct protection to the gray whale, it does mandate that the "secretary shall implement a system ... to monitor effectively for not less than five years the status of all species which have recovered ... (and) have been removed" from the list. The intent of Congress in adding this mandate was to apply the "precautionary principle" to provide some assurance that the initial decision was not in error. Thus, the purpose of this monitoring plan is to evaluate the validity of the status determination used in the delisting process and to determine whether the status of the population has deteriorated within a 5-year period subsequent to delisting.

In response to this mandate, the NMFS developed a 5-year plan for research and monitoring of the Eastern North Pacific population of gray whales in October 1993. The five year plan was designed to result in a status review of the gray whale which was to include a recommendation on whether to (1) continue the monitoring program for an additional 5 year period; (2) terminate the monitoring program; or (3) consider changing the status of the gray whale under the ESA.[31] Monitoring Plan at 25. Though the NMFS have subsequently claimed that this report was never finalized, and that therefore it's recommendations were not set in stone, this is a largely an irrelevant argument since the plan was required by the ESA.

Though the Monitoring Plan was intended to determine whether the gray whale delisting decision was accurate, many of the key research objectives and needs developed to make this determination were never funded or implemented. Thus, it came as no surprise that the Status Review of the Eastern North Pacific stock of gray whales prepared by Rugh et al. (1999) painted a very positive picture of the status of the gray whale population, despite substantial evidence to the contrary, and recommended that the gray whale continue to be classified as non-threatened, that abundance monitoring should continue, and that research should continue on human impacts to critical habitats. Status Review at iii. The results of the Status Review are also not surprising considering that 24 of the 37 individuals who participated in the review workshop were employees of NMFS and that the public, despite earlier promises by the agency, was never provided an opportunity to consider the Review.

Of particular concern is the failure of the government to follow through on its commitment to monitor gray whale habitat essential to the species survival, monitoring contaminant levels in gray whales, and to conduct necessary research on the status of the benthic amphipod standing stock in the Bering and Chukchi Seas. The mere reference to a few studies on benthic amphipods contained in the Status Review does not constitute the level of monitoring that is clearly required given the critical importance of this food resource to gray whales. As indicated previously, the health, status, viability, and threats to the benthic amphipods in the Bering and Chukchi Seas is critical to properly managing the gray whale. The government, however, has yet to engage in any regular comprehensive monitoring of these benthic amphipod stocks, has failed to commit a sustained sum of funding for such research, and has not developed any coordinated research efforts with the Russians. The lack of annual data on the status of the benthic amphipods in both Russian and American waters is a critical issue which substantially compromises the ability to make responsible gray whale management decisions. Similarly, the government's failure to establish a routine and comprehensive monitoring

[31] In a letter to the NMFS, the Marine Mammal Commission was highly critical of the monitoring plan. Among other things, the MMC raised concerns that the plan "does not appear to consider or include means for assessing, monitoring, avoiding, or mitigating human activities that may pose threats to habitats essential to the welfare of this population. In addition, the MMC, citing to the Scientific Committee of the IWC, questioned the utility of Bayesian synthesis methodology for assessing the status of the Eastern North Pacific gray whales and raised questions about the utility of the plan's proposed biennial gray whale surveys. In regard to the latter point, the MMC stated that "it is not self-evident that this planned research program would be capable of detecting anything but a catastrophic decline in five years.

strategy to assess the level and impact of multiple contaminants in gray whales is not appropriate.

If the research, identified by experts, necessary to evaluate the merits of the gray whale delisting decision in 1994 is not done, it calls into question the legitimacy of the results of the status review and subsequent findings.

CONCLUSION:

It should be clear, based on the foregoing evidence, that the Draft EA is woefully inadequate and in violation of NEPA and multiple other laws.

The government has not justified the purpose and need for its action. Indeed, its use of the IWC quota as justification for the action is both meritless and in violation of the Court's order in Metcalf. Moreover, the government's continued presumption that the IWC has recognized the aboriginal subsistence needs of the Makah is entirely erroneous. The content of the Draft EA is remarkably void of any discussion of the status of the gray whales critical food supplies – benthic amphipods. It also includes misleading and inaccurate information pertaining to population statistics and potential biological removal estimates. Furthermore, it downplays the significant of the existence of summer resident whales in or near the Makah's whaling grounds by basing its analysis on a larger population of resident whales that occupy a larger geographic area. To top it all off, the government has failed to analyze the cumulative impacts of its action. This is in complete disregard to the requirements of NEPA.

These are only a handful of the multiple inadequacies contained in the Draft EA and summarized in this comment letter. Considering the significance of the impacts associated with Makah whaling, an EA cannot provide the proper level of NEPA review – an EIS is required.

If the government elects, contrary to all of the legal and scientific evidence and the overwhelming public opposition to Makah whaling, to support the Makah's resumption of whaling, AFA, The Fund, and CSI will consider all options, including litigation, to correct such a mistake.

Thank you in advance for considering these comments.

Sincerely,

D.J. Schubert
Wildlife Biologist

Sue Arnold, President
Australians for Animals

ATTACHMENT 4

Table 4. A comparison of the impacts of forest clear-cutting and trawling of the seabed Sources include Norse (1990), FAO (1995), and discussions at the 1996 MCBI trawling workshop.

Impact	Clear-cutting	Bottom trawling
Effects on substratum	exposes soils to erosion and compresses them	overturns, moves, and buries boulders and cobbles, homogenizes sediments, eliminates existing microtopography, leaves long-lasting grooves
Effects on roots or infauna	stimulates, then eliminates saprotrophs that decay roots	crushes and buries some infauna; exposes others, thus stimulating scavenger populations
Effects on emergent biogenic structures and structure-formers	removes or burns snags, down logs, and most structure-forming species aboveground	removes, damages or displaces most structure-forming species above-sediment-water interface
Effects on associated species	eliminates most late-successional species and encourages pioneer species in early years-decades	eliminates most late-successional species and encourages pioneer species in early years-decades
Effects on biogeochemistry	releases large pulse of carbon to atmosphere by removing and oxidizing accumulated organic material, eliminates nitrogen fixation by arboreal lichens	releases large pulse of carbon to water column (and atmosphere) by removing and oxidizing accumulated organic material, increases oxygen demand
Recovery to original structure	decades to centuries	years to centuries
Typical return time	40-200 years	40 days-10 years
Area covered/yr, globally	~0.1 million km^2 (net forest and woodland loss)	~14.8 million km^2
Latitudinal range	subpolar to tropical	subpolar to tropical
Ownership of areas where it occurs	private and public	public
Published scientific studies	many	few
Public consciousness	substantial	very little
Legal status	activity increasingly modified to lessen impacts or not allowed in favor of alternative logging methods and preservation	activity not allowed in a few areas