

Environmental Assessment/Regulatory
Impact Review/Final Regulatory Flexibility Analysis
(EA/RIR/FRFA)

for

A Regulatory Amendment
to
Implement Minimum Approach Distances around Humpback Whales in
waters off Alaska

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1.0 INTRODUCTION

NMFS is amending 50 CFR Part 224.103 to establish regulations on minimum approach distances around humpback whales, Megaptera novaeangliae, within waters off Alaska. Under these regulations it would be unlawful to approach by any means, including by interception, within 200 yards of a humpback whale. This is necessary to minimize the disturbance to humpback whales feeding in waters off Alaska.

Actions taken to implement these regulations must meet the requirements of Federal laws and regulations. In addition to the Marine Mammal Protection Act (MMPA), the most important of these are the National Environmental Policy Act (NEPA), the Endangered Species Act (ESA), Executive Order (E.O.) 12866, and the Regulatory Flexibility Act (RFA).

This Environmental Assessment/Regulatory Impact Review/Final Regulatory Flexibility Analysis (EA/RIR/FRFA) analyzes the impact of a regulatory amendment to establish regulations on minimum approach distances around humpback whales.

1.1 Purpose of and Need for the Action

The purpose of the regulations for a minimum approach distance is to reduce the potential for vessel disturbance to feeding humpback whales by managing the vessel activity occurring within close range of the animals.

The regulations are necessary because the current situation of voluntary compliance with the Alaska Marine Mammal Viewing Guidelines (Guidelines) does not appear to be sufficient to ensure minimal disturbance to humpback whales. Disturbance activities are currently prosecuted under the "take" prohibition, which includes harassment, of the ESA and the MMPA. However, proving a case of harassment can be difficult. The current situation of vessel activity in waters off Alaska and the issues associated with the available regulatory tools results in some difficulty in effectively managing vessel operation to reduce the potential negative impacts to humpback whales. Thus, the regulations would serve as a protective measure for humpback whales as well as providing a more solid enforcement tool.

Background

The Marine Mammal Protection Act 1972, as amended (MMPA), was enacted for the purpose of ensuring the long-term survival of marine mammals by establishing Federal responsibility for their conservation and management. Section 11(f) of the ESA provides the Secretary of Commerce with broad rulemaking authority to enforce the provisions of the ESA. The regulations are promulgated under the authority of both the ESA and the MMPA. The rule is an appropriate mechanism to promote conservation and recovery, and to enhance enforcement under the ESA. For example, given the potential that close approaches to humpback whales could harm, harass, injure or otherwise "take" a humpback whale, this rule is issued to more fully implement protections established under section 9(a) of the ESA. Also, the NMFS has an obligation under ESA section 7(a)(1) to use its authorities to further the purposes of the ESA to conserve species. In addition, Section 112(a) of the MMPA provides the Secretary of Commerce with the broad authority to implement actions that are necessary to carry out the conservation purposes of the Statute. The alternative to the status quo would be promulgated under the authority of the ESA and the MMPA.

The ESA and MMPA impose a general moratorium on the "taking" of marine mammals. "Take" is defined under the MMPA as to harass, hunt, capture, or kill any marine mammal or attempt to do the above. Harassment is defined as any act of pursuit, torment, or annoyance which has the potential to injure a marine mammal or marine mammal stock in the wild; or has the potential to disturb a marine mammal stock in the wild by causing a disruption of behavioral patterns, including but not limited to migration, breathing, nursing, breeding, or sheltering. The ESA defines "take" as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct.

Beyond this prohibition on "take", no protective regulations exist in Alaska to minimize disturbance to humpback whales, apart from specific whale restrictions implemented by the National Park Service for waters of Glacier Bay National Park and Preserve.

In 1996 the National Marine Fisheries Service (NMFS) started a campaign of public outreach to give the wildlife viewing industry and the general public some guidance on responsible marine mammal viewing. Working from the basic "take" prohibitions in the MMPA and the ESA, the NMFS, Alaska Region, developed Marine Mammal Viewing Guidelines (Guidelines) that were designed to help individuals avoid "taking" a marine mammal, and to provide

protection to marine mammals subjected to viewing pressure. The Guidelines detailed appropriate viewing behavior from water-based platforms, as well as from land and from aircraft. These Guidelines apply to all marine mammals, cetaceans and pinnipeds, except walrus, in waters off Alaska. The Guidelines include minimum approach distances as well as general operating procedures designed to reduce the potential negative impact to marine mammals.

The Guidelines have been in place under a situation of voluntary compliance on the part of the public and the charter boat industry since implementation. Other than the ability to prosecute "takes" under the MMPA and the ESA, there is no enforcement capability associated with the Guidelines.

Over the last several years the viewing pressure has increased in coastal Alaska. The charter boat industry has grown in several key locations in southeast Alaska and in south-central Alaska such that the potential impact to humpback whales is much greater than in earlier years.

In response to this recent increase in vessel traffic NMFS, Alaska Region, expanded its public outreach effort. Public meetings were held in key coastal communities around the state to increase public awareness of and compliance with the Guidelines. The Guidelines brochures were also distributed through direct mailings, through various media, and at numerous public venues around the state. Efforts were also made to hold meetings with charter boat groups to discuss the Guidelines as well as to discuss remedies to situations of non-compliance. However, after three years of an extensive campaign to promote the effectively voluntary Marine Mammal Viewing Guidelines, situations of non-compliance continue to occur and the potential for negative impact to the animals remains.

After careful evaluation of the overall marine mammal viewing situation in Alaska, NMFS concluded that regulations were necessary to manage the vessel traffic around humpback whales.

The nature of humpback whale distribution and feeding behaviors concentrates viewing pressure on individuals or groups over extended periods of time. While the potential for disturbance to marine mammals other than humpback whales exists, regulations to protect humpback whales were considered most critical at this time.

Prior to developing the proposed rule NMFS solicited suggestions for the specific nature of the regulations. NMFS, Alaska Region, advertised in coastal Alaska newspapers and mailed letters to a

wide range of interested parties, including environmental groups, the tourism industry and wildlife viewing operators inviting individual suggestions for practical, effective and enforceable regulations. NMFS received suggestions that ranged from minimum approach distances (ranging from 100-500 yds), speed limits around whales, limits on the number of boats in an area, time spent with a whale, and permitting. Some of the measures suggested are difficult to implement in an effective, practical and enforceable way. After initially reviewing the range of potential alternatives, developed through these sources, NMFS concluded that minimum approach distances would be the most appropriate measure, at this time, to minimize impacts to feeding humpback whales. A minimum approach distance of 200 yd was put forth in the proposed rule.

In response to public comment received on the proposed rule NMFS has created a new preferred alternative (see below) for the final analysis.

1.2 Alternatives Considered

Alternative 1: Status quo. No regulatory measures exist, other than within Glacier Bay National Park and Preserve, to limit the approaches of vessels to humpback whales in waters off Alaska.

Alternative 2: NMFS proposes to implement regulations to prohibit in waters within 200 nautical miles of the coast of Alaska, approaches, by any means including by interception, within a minimum distance of a humpback whale.

Option 1: Preferred Alternative. Prohibit approaches within 100 yards of a humpback whale (similar to the Marine Mammal Viewing Guidelines), implement a slow, safe speed requirement in proximity to a humpback whale, exempt commercial fishing vessels who are actively fishing, vessels limited in their ability to maneuver and state, local and federal government vessels acting in the course of official duty.

Option 2: Prohibit approaches within 200 yards of a humpback whale.

Alternative 3: Establish other protective measures such limits on the time spent with a whale, permits, certification programs, or limits on underwater noise.

Alternative 4: Prohibit approaches to humpback whales within a certain distance but exempt certain vessel types, eg. kayaks or non-motorized vessels.

Alternative 5: Establish certain vessel limits within varying distances of a humpback whale. For example, different limits on the number of vessels that may be within 100 (90m) yards, 200 yards (180m) etc. of a humpback whale.

1.3 Description of the Alternatives

Alternative 1: Status quo. The ESA and the MMPA prohibit the "take" of marine mammals. Beyond the statutory prohibition on "take" there are no NMFS-promulgated regulations governing the conduct of vessels around marine mammals in Alaska. The Guidelines provide a code of conduct for responsible marine mammal viewing.

However, several issues make the current situation ineffective in preventing disturbance: 1) the "take" provisions may be difficult for the public to interpret and abide by, 2) the "take" prohibition is difficult to enforce, and 3) because the Guidelines are not codified as law, they must be adhered to on a voluntary basis for them to be effective. Reports received by the NMFS, Alaska Region, indicate that the Guidelines are not adhered to on a consistent basis. This creates potentially negative pressure on the animals and creates some competitive pressure among wildlife viewing businesses that may lead to encroachment on the whales.

Maintenance of the status quo could lead to further disturbances of humpback whales by vessels in waters off Alaska. The viewing pressure, particularly within the commercial sector, has increased in recent years and is likely to continue to increase. This pressure comes, primarily, from dedicated whale watch operations as well as from recreational boaters. While large commercial craft, such as cruise liners, do not typically undertake directed efforts to view marine mammals, the potential also exists for these vessels to cause disturbance to humpback whales.

Alternative 2: Limit approaches to a humpback whale to a minimum distance from the whale.

Option 1: Preferred Alternative. Prohibit anyone from approaching, by any means and including by interception (i.e., placing a vessel in the path of a humpback whale so that the whale surfaces within 100 yards of the vessel) within 100 yards of a humpback whale in waters off Alaska. This alternative also includes the implementation of a slow, safe speed requirement. The slow, safe speed requirement is consistent with the U.S. Coast Guard's Inland and

International Rules (COLREGS 33 U.S.C. 30 and 34).

In addition, this alternative exempts commercial fishing vessels lawfully engaged in actively setting, retrieving or closely tending commercial fishing gear. For purposes of this exemption commercial fishing means taking or harvesting fish or fishery resources to sell, barter, or trade. Commercial fishing does not include commercial passenger fishing operations (i.e. charter operations or sport fishing activities). The exemption also includes vessels limited in their ability to maneuver and state, local and federal government vessels operating in the course of official duty.

Option 2: Prohibit anyone from approaching, by any means and including by interception (i.e., placing a vessel in the path of a humpback whale so that the whale surfaces within 200 yards of the vessel) within 200 yards of a humpback whale in waters off Alaska.

NMFS proposed a 200 yd minimum approach distance in the proposed rule. NMFS received a number of comments (11 of 43 vs. 12 of 43 that supported the 200 yd distance) that specifically opposed the 200 yd approach distance.

For the Preferred Alternative in the final analysis, NMFS has chosen a minimum approach distance of 100 yds. The Preferred Alternative is created in response to public comment and to maintain consistency with the published Marine Mammal Viewing Guidelines and with regulations that exist for humpback whales in Hawaii. Also, compliance will be essential to effective implementation of these regulations. Currently the industry is operating under the 100 yd guideline and this distance is generally recognized as the minimum approach distance for waters around Alaska. Consistency with this guideline should contribute substantially towards achieving industry compliance.

The Preferred Alternative also contains a "slow, safe speed" requirement in proximity to a humpback whale. A large number of commenters (17 of 43) responding to the proposed rule requested that NMFS implement speed restrictions. The request for implementation of a speed limit was the prevailing comment received during the public comment period. Laist et al. (2001), in a study of worldwide occurrences of whales struck by ships, indicated that most lethal or severe injuries to whales struck by vessels occurs by ships traveling 14 kts or faster. The authors recommend that in areas where special caution is needed to avoid such events, measures to reduce the vessel speed below 14 kts may be beneficial.

While Laist et al. (2001) indicate that most lethal or severe injuries are caused by ships 80 m or longer, the potential also exists for smaller vessels traveling at fast speeds to injure a whale. This could be particularly the case for some of the coastal areas in waters off Alaska where whale density is high, whale surfacings unpredictable, and vessel traffic great.

NMFS believes that some form of speed restrictions should be imposed to reduce the likelihood of mortality or injury to a whale in the event of a vessel/whale collision. Implementation of a specific speed limit (i.e. less than 14 kts) throughout the state or even in local, specifically designated areas was, however, considered problematic from an enforcement and practical perspective. Practical impediments to using specific speed limits include the fact that "clutch-in speed" of vessels varies. For some vessels, the "clutch-in speed" may be greater than 10 kts. Practically as well as for enforceability, a safe speed standard, rather than a strict nautical mile-per-hour standard is appropriate.

NMFS is, therefore, including a requirement for "slow, safe speed" in proximity to humpback whales. In this situation, the U.S. Coast Guard recommends that operational guidance for vessels use language that they are familiar with, understand and accept by convention. For mariners, that means application of "safe speed" as defined in the Inland and International Rules (COLREGS) (33 U.S.C. 30 and 33 U.S.C. 34). Implicit here is the recognition that mariners must adjust speeds to accommodate hazards that they may encounter during the course of operations.

Operation at a "slow, safe speed" will allow vessels sufficient time to vary course and speed to reduce the potential for a strike. The COLREGS Rule 6 defines operation such that "every vessel shall at all times proceed at a safe speed so that she can take proper and effective action to avoid collision and be stopped within a distance appropriate to the prevailing circumstances and conditions." A slow safe speed around whales will provide enhanced safety to the whale, the vessel and the passengers onboard the vessel.

Three other additions are made to the Preferred Alternative: 1) an exemption for commercial fishing vessels, 2) an exemption for vessels limited in their ability to maneuver, and 3) an exemption for state, local and federal government vessels operating in the course of official duty. These exemptions are implemented in response to public comment and due consideration by NMFS.

NMFS is exempting commercial fishing vessels lawfully engaged in actively setting, retrieving or closely tending commercial

fishing gear. For purposes of this regulation commercial fishing means taking or harvesting fish or fishery resources to sell, barter or trade. Commercial fishing does not include commercial passenger fishing operations (i.e. charter operations or sport fishing activities).

Commercial fishing vessels are not actively seeking whales. Commercial fishermen usually avoid setting gear close to whales to prevent injury to the whale and damage to the fishing gear. In some instances commercial fishing vessels may find themselves, while actively fishing, in close proximity to a humpback whale. The activities of commercial fishing may make it very difficult to realistically adhere to the approach prohibition.

NMFS is specifically not exempting commercial fishing vessels in transit. Commercial fishing vessels in transit should be able to abide by the approach restrictions in the same way as other transiting vessels or those purposefully approaching humpback whales. Abiding by these regulations should not cause commercial fishermen in transit significant alterations in their path or the time taken to get to a fishing ground to set or retrieve gear.

NMFS is exempting vessels limited in their ability to maneuver. Certain vessel types and some vessels in certain situations may be precluded from closely approaching a whale because of limitations on their maneuverability. These situations could then pose hazards to the vessel should it be required to adhere to the whale approach regulations. The primary motivation for this exemption is vessel and personal safety. Some examples of vessels that may be restricted in their ability to maneuver and who may be able to claim this exemption are tugs pulling large barges, vessels with deep draft in narrow and/or shallow passageways, vessels laying cable or other similar vessel types or situations.

Finally, NMFS is also including an exemption for state, local and federal government vessels operating in the course of official duty. The activities of these vessels are often critical to important safety missions or other activities that require that they closely approach a humpback whale. Examples of this type of operation may be Coast Guard vessels engaged in a search and rescue operation, military ships undertaking activities critical to national security, local or state government enforcement or safety operations, research vessels, or vessels engaged in disentangling a humpback whale or other marine mammals. These examples are not meant to be exhaustive and there may be other situations in which vessels limited in their ability to maneuver or state, local or federal government vessels would be exempt from approaches within 100 yds of a humpback whale.

Under the Preferred Alternative vessel operators must ensure that as they approach a humpback whale they do not position the vessel closer than 100 yards to the animal. NMFS recognizes that there are circumstances when a whale, under its own volition, might come within 100 yards of a vessel. This might occur as a vessel idles, is at anchor or is underway. The regulation is not designed to cause a vessel that experiences a whale's voluntary approach to retreat from the area to reestablish the 100 yard minimum approach distance. NMFS believes that requiring operators to engage in avoidance behaviors to reposition the vessel would create greater potential for disturbance or physical impact than having the vessel remain in the original position. Thus, no avoidance measures are implemented for situations in which the whale approaches the vessel.

However, NMFS is distinguishing the above-described situation in which the whale voluntarily approaches a vessel from the situation in which a vessel operator places the vessel in the path of an oncoming whale in order to intercept the whale, resulting in the whale coming within 100 yards of the vessel. Interception is prohibited by the regulation.

The intent of the protective measure is to create a "buffer" area around humpback whales to minimize potentially disruptive activities that may cause negative impacts to the animals. These potential impacts from vessels could result not only from vessels actively engaged in whale watching activities but also from transiting vessels.

Alternative 3: Establish protective measures other than approach distances.

Other, potentially protective measures were considered for humpback whales in Alaska waters. These included limits on the time spent with an animal or group of animals, permitting, certification programs, and reduction in underwater noise. These measures could provide a degree of protection for humpback whales exposed to vessel traffic. However, many of these suggestions are also difficult to implement and/or monitor in an effective, practical and enforceable way.

Permitting and certification programs require a large infrastructure to implement, as well as having equity issues in determining who is permitted/certified and who is not. Ambient noise in the underwater environment can often be fairly great and measuring and regulating the relative contribution by certain vessel types would be difficult to do. Imposing noise reduction requirements on certain vessels could also require significant changes to a vessel's construction. Restricting a vessel's time

in an area or with a whale was considered problematic at this time.

Imposing time limits on a vessel staying with a whale may also be difficult to enforce; particularly in determining what the point of reference is i.e. an individual whale or group of whales and the burden of proving that it was the same individual or group, and group composition, that the vessel was staying with.

Alternative 4: Prohibit approaches to humpback whales within a certain distance but exempt non-motorized vessels i.e. kayaks. The intuitive reasoning for exemption of kayaks may be that these vessel types could be less likely to cause a disturbance or negative impact to humpback whales and thus should be exempt from approach restrictions. However, the converse may also be true. Because of their size, maneuverability, and silence, these vessel types are more likely to surprise or startle a whale. NMFS, Alaska Region, also receives complaints that kayaks are disturbing to whales.

This may be particularly the case when humpback whales are intensively feeding and are using noise cues to detect objects at the surface. For silent vessels on the surface the danger to the vessel and to the whale may be greater when the whale is unable to detect the vessel until it may be too late to avoid the obstruction. The Marine Mammal Viewing Guidelines recommend emitting periodic noise, such as tapping the side of a non-motorized vessel or one that has its engines shut off, expressly to avoid this mutual danger.

Alternative 5: Establish certain vessel limits within varying distances of a humpback whale. For example, different limits on the number of vessels that may be within 100 yards, 200 yards etc. of a humpback whale.

This alternative may be effective at minimizing pressure on humpback whales by dispersing the vessels over a greater distance. However, it may be problematic to implement on the water with different numbers of vessels at different distances. The intent would be to have the fewest number of vessels closest to the whales. Given that there are usually numerous vessels congregated in a particular location, this spatial arrangement would inadvertently establish prime, and exclusive, viewing for the vessels that are closest. The ensuing situation would place some businesses at a competitive disadvantage if they were further displaced than others. Time limits within the various viewing circles would be necessary to avoid the establishment of exclusive viewing areas closest to the whales. The implementation of time limits would be very difficult to enforce.

Summary

The primary objective of implementing regulations is to manage vessel activities to minimize disturbance that could adversely affect the individual animal or the population. This should be balanced with the objective of allowing whale watching activities to occur. Whale watching activities can be good platforms for education on cetacean behavior and on habitat concerns. NMFS believes that, at this time, the most appropriate measure to minimize impacts to feeding humpback whales that would also provide a satisfactory viewing opportunity is to implement a minimum approach distance of 100 yds for vessels operating around humpback whales. Included in this measure is a requirement for operation at a slow, safe speed in proximity to a humpback whale. Commercial fishing vessels, vessels limited in their ability to maneuver and state, local and federal government vessels are exempt from the approach prohibition.

The minimum approach distance implemented by NMFS would not supersede more conservative measures in place for the waters of Glacier Bay National Park and Preserve (Park) or other sites. The National Park Service implemented regulatory restrictions for vessels within the Park boundaries (36 CFR 13.65) to limit disturbance to humpback whales. These restrictions include a minimum approach distance of 1/4 mile. This or any other more conservative measure that might be implemented in the future would remain in effect for the waters within the Park boundaries.

1.4 Biology of the Humpback Whale

Classification and Species Description

The humpback whale, Megaptera novaeangliae, belongs to the Order Cetacea, suborder Mysticeti. The mysticeti are baleen whales, named for the comb-like plates (baleen) descending from the roof of the mouth that are used to filter prey. Humpback whales are in the family of rorquals, the Balaenopteridae, subfamily Megapterinae.

Humpback whales are slender and streamlined, with a series of 14 to 35 throat grooves that are up to 38 cm wide, extending to the navel (Leatherwood 1983). Humpback whales average 46 feet in length and 25 tons for an adult male and 49 feet in length and 35 tons for an adult female (Wynne 1992). They are generally grey/black in color with some degree of white markings on the throat, belly and undersides of the flippers. The pectoral flippers are exceptionally long for the rorquals, extending to almost one third of the total body length. The humpback whale is more stocky in appearance than others of the same family. The baleen plates of humpback whales are short (about 2 ft long) and dark gray to black. These whales exhale a single blow that rises

straight and high (up to 10 ft) into the air. Humpback whales typically have a knobby dorsal fin that is shorter and more rectangular than in other rorquals. Humpback whales are a long-lived species (up to 50 years) that reach sexual maturity when 33-36 ft in length (Harrison ed. 1988). Females give birth on average once every two to three years to a single calf. The calves are about 16 ft in length at birth and nurse for 10-11 months.

Humpback whales are listed as endangered under the Endangered Species Act of 1973 and are protected from hunting worldwide by the International Whaling Commission. Although harvest is not restricted for the indigenous people of Alaska, they are not harvested by Alaska Natives.

Distribution and population status

The humpback whale is a highly migratory species that is found in all oceans of the world. Humpback whales undertake long migrations from the wintering grounds in low latitude waters to the feeding grounds in high latitude waters. When not undertaking a migration these whales are typically found in nearshore habitat.

Humpback whales frequenting the North Pacific basin spend the winter months in the warmer tropical waters off Hawaii, Mexico and southern Japan. These areas are the preferred sites for breeding and nursery activities. The summer feeding range of these humpback whales extends along coastal inland waters of British Columbia, southeast Alaska, through western Alaska to the Russian Far East and as far north as the Bering Sea.

Humpback whales frequenting the waters of the North Pacific have been divided into three stocks: 1) the California/Oregon/Washington and Mexico stock; 2) the Central North Pacific stock; and 3) the Western North Pacific stock (NMFS 1999; Calambokidis et al. 1997). The Central and Western North Pacific stocks feed during summer months in the waters of coastal Alaska.

Humpback whales wintering in Hawaiian waters form the Central North Pacific stock and migrate to feeding grounds in the summer months in northern British Columbia/Southeast Alaska and Prince William Sound west to Kodiak (NMFS 1998 and 1999). The Western North Pacific stock winters in the waters off Japan and likely spends summer months feeding in coastal Alaska waters west of the Kodiak Archipelago (NMFS 2000).

Prior to commercial whaling the worldwide population of humpback whales was thought to have been in excess of 125,000 animals (NMFS 1991). Approximately 15,000 animals were believed to have

been present in the North Pacific prior to 1905. Humpback whales were heavily hunted until the International Whaling Commission banned commercial harvest in 1966 (Rice 1978). As a result of commercial whaling, the North Pacific population may have been reduced to as low as 1,000 animals (Rice 1978).

The current annual abundance estimate for the North Pacific population is 6,010 animals (Calambokidis et al. 1997). The current abundance estimate of humpback whales in the North Pacific is based on data collected by nine independent research groups that conducted photo-identification studies of humpback whales in the three wintering areas. The abundance of the Central North Pacific stock is estimated to be 4,005 animals (Straley 1994, NMFS 2000). Current population trend data suggest an increase over historical numbers; however it is not possible to assess the rate of increase (NMFS 2000).

Annual abundance estimates have also been calculated for feeding aggregations of the Central North Pacific stock of humpback whales in specific locations off Alaska (NMFS 2000). The estimate for Prince William Sound is <200 animals; for southeast Alaska, 404 animals; and for the Kodiak Island region, 651 whales. These estimates represent minimum estimates for the three known feeding areas because the study areas do not include the entire geographic region. Little is known regarding humpback whale abundance between feeding areas, for example, south of Chatham Strait and west of Kodiak Island. As a result the sum of the estimates above from these feeding aggregations is considerably less than the 4,005 animals estimated for the Central North Pacific stock.

Feeding aggregation and behavior

A relatively extensive data set exists on the seasonal movements, distribution and behavior of humpback whales in the North Pacific, primarily for the Central North Pacific stock. The Western North Pacific stock is less well studied due primarily to the remote locations in which these animals range. Humpback whales generally spend the summer months from early Spring to late Fall in localized coastal areas engaged in intensive feeding activity.

Humpback whales congregate in the waters of their summer range in distinct feeding aggregations (Baker et al. 1992), with the same whales returning repeatedly to localized feeding areas. The identified feeding areas of the Central North Pacific stock are southeast Alaska, Prince William Sound and Kodiak Island. Interchange among feeding areas has been at very low rates, usually involving just a few individuals (Calambokidis et al.

1997, Baker et al. 1992). Site-fidelity of feeding humpback whales appears to be maternally directed (Straley 1984) and is likely a learned event with mothers bringing their calves to a unique feeding site and the calves, once weaned, returning to these same areas.

Humpback whales feed singly or in groups using several different feeding strategies to capture their prey. Some of the common feeding behaviors in southeast Alaska include "browsing" conducted by individual animals; non-synchronized diving behavior; "lunge" feeding; and bubble-net feeding. Lunge feeding is a cooperative feeding behavior employed by a loosely assembled group of animals. The whales also use a technique referred to as "bubble net" feeding that involves the animal diving near an aggregation of prey, releasing bubbles to concentrate the prey and surfacing through the bubbles to capture the prey.

Humpbacks feed mainly on small schooling fishes, such as herring, walleye pollock, capelin and sandlance, and large zooplankton, such as krill (Wing and Krieger 1983, Krieger and Wing 1986, Krieger 1988). The productive temperate waters off Alaska have historically contained large numbers of herring schools and krill patches in inland coastal waters in predictable locations. Humpback whales, although not limited to these areas, return to specific feeding locations such as Frederick Sound, Chatham Strait, North Pass, Sitka Sound, Glacier Bay, Pt. Adolphus, and Prince William Sound, as well as other similar coastal areas.

2.0 NEPA REQUIREMENTS: ENVIRONMENTAL IMPACTS OF THE ALTERNATIVES

An environmental assessment (EA) is required by the National Environmental Policy Act of 1969 (NEPA) to determine whether the action considered will result in a significant impact on the human environment. If the action is determined not to be significant based on an analysis of relevant considerations, the EA and resulting finding of no significant impact (FONSI) would be the final environmental documents required by NEPA. An environmental impact statement (EIS) must be prepared for major Federal actions significantly affecting the human environment.

An EA must include a brief discussion of the need for the proposal, the alternatives considered, the environmental impacts of the action and the alternatives, and a list of document preparers. The purpose and alternatives were discussed in Sections 1.1, 1.2, and 1.3. The list of preparers is in Section 6. This section contains the discussion of the environmental impacts of the alternatives.

2.1 Environmental Impacts of the Alternatives

Alternative 1: Status quo. No regulatory measures exist, other than within Glacier Bay National Park and Preserve, to limit the approaches of vessels to humpback whales in waters off Alaska.

Alternative 2: NMFS proposes to implement regulations to prohibit in waters within 200 nautical miles of the coast of Alaska, approaches, by any means including by interception, within a minimum distance of a humpback whale.

Option 1: Preferred Alternative. Prohibit anyone from approaching, by any means and including by interception (*i.e.*, placing a vessel in the path of a humpback whale so that the whale surfaces within 100 yards of the vessel) within 100 yards of a humpback whale in waters off Alaska. This alternative also includes the implementation of a slow, safe speed requirement. The slow, safe speed requirement is consistent with the U.S. Coast Guard's Inland and International Rules (COLREGS 33 U.S.C. 30 and 34).

In addition, this alternative exempts commercial fishing vessels lawfully engaged in actively setting, retrieving or closely tending commercial fishing gear. For purposes of this exemption commercial fishing means taking or harvesting fish or fishery resources to sell, barter, or trade. Commercial fishing does not include commercial passenger fishing operations (*i.e.* charter operations or sport fishing

activities). The exemption also includes vessels limited in their ability to maneuver and state, local and federal government vessels operating in the course of official duty.

Option 2: Prohibit anyone from approaching, by any means and including by interception (i.e., placing a vessel in the path of a humpback whale so that the whale surfaces within 200 yards of the vessel) within 200 yards of a humpback whale in waters off Alaska.

Alternative 3: Establish other protective measures such as limits on the time spent with a whale, permits, certification programs, or limits on underwater noise.

Alternative 4: Prohibit approaches to humpback whales within a certain distance but exempt certain non-motorized vessels, eg. kayaks.

Alternative 5: Establish certain vessel limits within varying distances of a humpback whale. For example, different limits on the number of vessels that may be within 100 yards, 200 yards etc. of a humpback whale.

The status quo alternative, under which no regulatory measures exist to manage the impact of vessels on humpback whales, could have negative impacts, as noted in further detail below, on the whales and their environment. This alternative would be the least restrictive on vessels operators because the current guidelines for approaches to marine mammals, including humpback whales, are strictly voluntary.

Alternatives 2-5 provide varying beneficial effects to the whales and their environment. These alternatives establish various kinds of buffer zones around humpback whales which would, to different degrees, minimize potential impacts to these animals in waters off Alaska. At a minimum short-term impacts would be alleviated, and potentially, also long-term impacts to the whales.

Alternative 2, Option 1, the Preferred Alternative, would provide a buffer zone around humpback whales of 100 yds. The addition of a slow, safe speed requirement should reduce the potential for vessel collisions to occur. Should vessels strike a whale at a slow, safe speed this requirement should minimize the likelihood of the collision resulting in a serious injury or mortality to the whale. Further details on the effects of the Preferred Alternative are outlined in detail in Section 1.3. While the other alternatives could provide some benefit to the environment and the whales, eg. reducing underwater noise, speed around

whales etc., for various reasons (provided in Section 1.3) these alternatives were considered inadequate, only partially protective (Alt. 4), or would be difficult to adhere to and to enforce (Alts. 3 and 5). Public comment received during the proposed rule stage also resulted in the creation of the current Preferred Alternative. Therefore, based on currently available information Alternative 2, Option 1 is considered to afford the greatest benefit to the whales and their environment.

Following is a more detailed discussion of the potential impacts to humpback whales and their environment from various vessel activity.

2.2 Whale watching activity in Alaska

The predictable summer distributions of feeding North Pacific humpback whales provide the opportunity for much whale watching activity in Alaska waters. Humpback whale prey appear to concentrate consistently and the intensive feeding behavior of the whales leads to animals remaining in relatively defined areas over long periods of time. These feeding locations are also often in areas easily accessible from coastal communities. This combination of factors has led to the recent extensive development of the Alaska whale watch industry.

The majority of dedicated wildlife excursions in Alaska waters are day trips that originate out of specific coastal communities in southeast and south-central Alaska. The coastal hubs of this industry are, principally, the southeast Alaska communities of Petersburg, Juneau, Sitka, and Gustavus, as well as Seward and Homer in south-central Alaska. The tours range from several hours in duration to several days.

Most of the whale-watching activity occurs within less than a couple of hours of the coastal town from which it originates. This often means that the same group of whales in a local feeding area is continually exposed to vessel traffic throughout the duration of the whale-watch season.

Except for those trips that conduct whale watching as a sideline to a sport fish charter, most of the tours generally follow a specific route, stopping at known humpback whale feeding sites, as well as specific sites occupied by other marine wildlife. Depending on the schedule of the tour the vessels may stop to view feeding humpbacks for the length of several dive cycles (i.e., 20 minutes), or for extended periods of time up to an hour or more.

The whale watch season in Alaska typically starts in early to mid-May as the initial influx of tourists, and of whales, arrives

in the state. Tours are operational on a daily basis through the month of September and in some cases into early October.

Whale watch activities are conducted from a variety of platforms: small vessels supporting recreational boaters, kayaks, sport fishing/wildlife viewing charters that can carry 6 passengers, and larger 100-150' vessels capable of carrying 100 or more passengers. The majority of vessels have conventional prop-driven engines; some of the newer and larger catamarans are water-jet propelled. Incidental whale watching also occurs from large cruise liners and Alaska State ferries.

The whale watch industry is essentially unregulated in Alaska. Vessels carrying paying customers must obtain Coast Guard-regulated licenses and must have state business licenses to operate; however, there are no regulations specific to whale watch operation. As a result, information on this industry is very limited. Such basic data as number and size of vessels used, operation mode (e.g, short "dedicated" whale watch trips, multi-day multi-purpose kayak excursions, etc.), operating costs and revenues, total trips made and total customers served, etc., are simply unavailable to NMFS at this time. Furthermore, no mechanism currently exist through which NMFS may collect such data, in a timely manner. Efforts to acquire this information through "voluntarily" means has proven to be only partially successful, to date.

In addition to the dedicated whale-watching vessels, recreational boaters and large commercial vessels such as cruise ships, commercial industrial traffic, ferries and fishing vessels transit through humpback whale feeding areas. It is difficult to quantify vessel traffic; however, the main transit routes for Alaska's vessel traffic, of all types, is in nearshore areas that are also the prime feeding sites for humpback whales.

Large scale commercial traffic does not necessarily target humpback whales for wildlife viewing but the vessel routes make some vessels likely to encounter whales, with the potential for some disturbance and/or collision to occur. Data from the NMFS Alaska Region stranding database indicate 14 whales were struck by vessels from 1988-1999 (Table 1). This likely represents a minimum number as all vessel strikes are not necessarily reported. Recent years have seen an increase in the number of vessel strikes reported.

A unique feeding site at Pt. Adolphus in southeast Alaska near the entrance to Glacier Bay is a stopping point for some of the large cruise liners. This is an area of very deep water near to shore that is frequented by a small group of feeding humpback whales. Because of the bathymetry of this area the large cruise

liners can pass fairly close to shore. The underwater sound from these vessels travels across the feeding humpbacks before hitting the steep-sided shore. The acoustic impact of this type of whale watching has not been quantified; however, it is likely to be high.

Table 1. Vessel Collisions with Cetaceans Reported to NMFS AK Region from 1989- August 2, 1999.

<i>Cetaceans</i>	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Total
Gray	0	0	0	0	0	0	0	0	1	0	0	1
HarbrPorpoise	0	0	0	0	0	0	0	0	0	1	0	1
Humpback	0	0	0	0	0	0	0	0	1	2	1	4
Sperm	0	0	0	0	0	0	0	0	1	0	0	1
Stejneger's	0	0	0	1	0	0	0	0	0	1	0	2
Unidentified	0	0	0	0	0	0	1	1	2	0	1	5
Total	0	0	0	1	0	0	1	1	5	4	2	14

2.3 Impact of vessel traffic on cetaceans

Adverse impacts to cetaceans from vessel traffic could manifest in several ways: direct physical impact from a vessel strike; noise effects which could impede echolocation in some whales or damage or interfere with hearing; disruption and alteration of normal feeding, resting and other critical behaviors; habitat modification, including prey disruption; and ultimately, reduced fitness, leading potentially to reproductive effects or population level changes.

These are changes that could manifest at the level of the individual, in either short-term or long-term changes in the individual that may or may not be measurable (*i.e.*, obvious gross behavioral changes or undetected physiological changes). Impacts could also manifest in long-term changes at the level of the population(s). Short-term changes can be difficult to interpret in terms of the significance to the individual or the population. Also, studies on one species or group of animals (*i.e.*, a feeding aggregation, vs. a transiting aggregation, vs. a breeding or calving aggregation) may not be applicable to another species or group. In instances of apparent lack of change in the individual or of habituation there is the risk of falsely interpreting this as no effect.

Studies of vessel impact to marine mammals have most often looked at short-term effects (*e.g.*, measuring disturbance or avoidance behaviors) rather than longer-term or cumulative effects of repeated exposure to numerous vessels over time (*e.g.*, decreased survivability or reproductive effects such as increased birthing intervals which are directly related to productivity). Immediate responses to vessel presence, such as avoidance behavior or changes in dive patterns, can be measured more easily; longer-

term effects can often be difficult to define and to measure. Most studies have not addressed long-term impacts.

The potential for vessels to cause disturbance to cetaceans, and other marine mammals, is widely recognized. However, the literature on impacts is not extensive. Baker and Herman (1989) note that "human disturbance has the potential to reduce an animal's biological fitness, defined as its relative reproductive contribution to subsequent generations, and thus inhibit the recovery of an endangered population."

Typical measures of a whale's reaction to the presence of a vessel have been visible changes in behavior, such as avoidance reactions or displacement, increased fluke or flipper activity, blow intervals or dive patterns and swimming orientation and speed. These reactions are measurable and can be assumed to have a certain energetic cost. However, animals could also incur an energetic cost through behaviors that are not necessarily measurable (*i.e.*, physiological stress responses such as increased heart rate or pathological conditions). Vessels could also interfere with prey dynamics, forcing animals to expend more energy in foraging efforts for the same amount of prey captured. The difficulty lies in quantifying the energetic cost or determining the net effect of a potential stressor on the animal's overall energy burden. An energetic cost that results from vessel disturbance might otherwise be devoted to reproduction. Should this occur, there may be long-term negative effects associated with vessel activity that might not be demonstrated through short-term studies.

Rochelle Constantine (1999), in her analysis of the effects of tourism on marine mammals in New Zealand, notes that there is a tenuous balance between the ecological significance of a particular area and the stresses placed on the animals. Therefore, it should not be assumed that the regular presence of animals in an area is an indication that the activities in the area have no impact. Long-term studies could yield additional information on the effects of disturbance on the overall population. However, this kind of information is not currently available.

Humpback whales

Relatively few studies have been published on the effects of vessel activity on humpback whales. Baker and Herman (1989) conducted controlled studies on the impact of vessel traffic on humpback whales in Glacier Bay and in the Frederick Sound area of southeast Alaska. They examined responses to obtrusive, unobtrusive, and "passby" conditions conducted by different vessel classes.

Respiratory behaviors were the most sensitive indicators of response to a vessel. The obtrusive condition resulted in a striking increase in the frequency of blows when the whale was near the surface and an increase in the longest submergence observed (Baker and Herman 1989). The effects declined as the activity of the vessel moderated during the unobtrusive and "passby" conditions. Within the 400 m range of influence, vessel operations accounted for 27.5% of the variance in the blow intervals of whales.

Baker and Herman (1989) also noted the tendency of humpback whales to orient in the direction of a vessel as it approached, and then to turn away at a perpendicular as the vessel reached its closest point of approach. The percentage of whale movement devoted to avoidance behavior increased from 15% at a distance from the vessel of 4000 m to 27% at a distance from the vessel of 1000 m. Some of the other factors examined were difficult to analyze due to the infrequency and variability of the behaviors. Of note, however, is that predictable behavioral reactions were evident up to a distance of 4000 m from the vessel.

Baker and Herman (1989) also noted changes in aerial behavior and pod composition with the proximity and presence, respectively, of vessels. The presence of large vessels was correlated with changes in pod composition; aerial behavior occurred with a 50% probability when vessels approached within 478m of the focal pod. Baker and Herman conclude that humpback whales exhibit a considerable degree of short-term changes in their behavior in response to vessel traffic.

Other studies on humpback whales in their wintering grounds indicate some changes in behavior in response to vessels. Corkeron (1995) examined the impact of vessel presence or absence on humpback whales in Hervey Bay, Queensland, Australia, an overwintering site for some southern ocean animals. He examined both non-calf and calf pods and observed that blow rates did not differ significantly for either types of groups whether vessels were present or absent.

However, Corkeron's study showed that for both pod types, the animals dove more often in the presence of vessels when the vessels were within 300 m of the animal. Calf pods almost never dove when vessels were absent yet did so when vessels were present. Also, for non-calf pods the rates at which certain behaviors (e.g., roll, lunge, fluke and flipper activity, and breaching) occurred were significantly different when vessels were present than when vessels were absent.

Salden (1988) examined humpback whale encounter rates on the wintering ground of the Hawaiian Islands. Salden observed a shift in distribution of cow/calf pairs to more offshore waters in areas of high vessel traffic. The relative frequency of calf encounters declined in the waters adjacent to the tourist centers of Kaanapali and Lahaina. In Lahaina this downward trend, while not steep, was consistent from 1982 to 1986. Southeast of Kaanapali the calf encounter rates experienced a decline from 1984 to 1985, with a sharp decline occurring from 1985 to 1986. The calf encounter rates have increased over the same general time period in waters 3-4 km from shore. Salden notes that human activity in near-shore waters could have a negative effect on calving, pushing cow-calf pairs to less protected waters further offshore. Vessel activity may have resulted in a redistribution of cow/calf pairs.

Other cetaceans

Richardson et al. (1984) observed a strong avoidance reaction of bowhead whales to approaching vessels in arctic waters. Some bowheads reacted strongly to the presence of vessels by orienting and swimming rapidly away from the vessel. There was a highly significant orientation away from the vessel when the vessel's engine was engaged. The orientation away from the vessel was significant at a distance from the vessel of <900m. Significantly more whales also moved at a moderate to fast speed away from the vessel when the vessel was as far away as 4 km. An increase in whale swimming speed was also observed as vessel distance decreased to <2 km. Bowheads also exhibited significantly shorter surfacing times with fewer respirations per surfacing when the vessel was within 4 km. Some disruption of social groups was also observed in response to vessel approaches. The authors of this study note that bowheads responded to vessels more dramatically and consistently than to other human disturbances.

Watkins (1986) examined a 30 year historical collection of notes on disturbance to whales, taken by scientists from Woods Hole Oceanographic Institute during the course of various vessel-based research activities that occurred within 35 km of Cape Cod, MA. These observations were made on finback whales (Balaenoptera physalus), minke whales (B. acutorostrata), right whales (Eubalaena glacialis), and humpback whales. Watkins found that each of the species for which observations were made reacted differently.

Watkin's summary indicates that the primary cause of reaction by these whales was to underwater sound, followed by light reflectivity and tactile sensation. Negative reactions to sounds occurred when the underwater sounds appeared, in their

estimation, to be a) unexpected, b) too loud, c) suddenly louder or different, or d) perceived as being associated with a potentially threatening source. Most negative reactions occurred when whales were within 100 m of the source.

In general Watkins found some degree of habituation to relatively "non-disturbing" stimuli. Whales near shore became less wary, over time, of boats and their noise and the animals appeared to be less easily disturbed. This appeared to be particularly the case with humpback whales. It should be noted, however, that the conclusions drawn in this study did not result from controlled experiments on the impact of human activity on humpback whales. While measurable startle responses might diminish with time, this does not necessarily indicate that a negative impact has diminished as well. Vessels could still cause stress impacts or could disrupt prey aggregations forcing whales to spend a greater amount of time and energy foraging.

Studies of the response of Hector's dolphins off the coast of New Zealand to vessel and swimmer presence indicate that these dolphins were not displaced by either activity (Bejder et al. 1999). However, the authors found that in 30% of the encounters of swimmers with dolphins the dolphins departed the area, indicating potential disturbance. Also, in the presence of vessels, the animals tended to form significantly tighter groups (Bejder et al. 1999). Johnson and Norris (1986 in Bejder et al. 1999) observed that tightening of groups is often observed in dolphins in situations of surprise, threat, or danger. Bejder speculates that interactions with boats, even if not avoided, might be stressful.

Management implications

An evaluation of the analyses presented above indicates that whales, including humpbacks, do exhibit short-term changes in behavior in the presence of vessels. Effects can be seen at distances as great as 4 km.

There is some indication, with humpback cow/calf pairs in Hawaii and Hector's dolphins in New Zealand, that some localized displacement does occur in areas of high vessel traffic. Humpback whales and bowhead whales also oriented away from vessels either at the vessel's closest point of approach (for humpbacks) or as the vessel was approaching (for bowheads).

Even in the presence of vessel disturbance whales may not altogether abandon the area in which the disturbance occurs. The dependence of humpback whales on dense aggregations of prey may cause these whales to remain in an area to feed, despite potentially negative impacts from nearby vessels. However, the

effect of a disturbance may still accumulate and potentially manifest over the long-term. Although wildlife viewing activities have been occurring for some time in some areas of Alaska, the pressure has been at a level less than that which exists currently. The impact of the current viewing pressure, or an increased viewing pressure, may, therefore, not be detected for many years.

Adherence to the precautionary principle of species conservation would dictate that in the absence of these long-term studies, but given the available data on short-term effects, the implementation of measures to reduce vessel disturbance should be applied.

2.4 Impacts on Endangered or Threatened Species

Background. The Endangered Species Act (ESA) provides for the conservation of endangered and threatened species of fish, wildlife, and plants. The program is administered jointly by NMFS for most marine species, and the US Fish and Wildlife Service (FWS) for terrestrial and freshwater species.

The ESA procedure for identifying or listing imperiled species involves a two-tiered process, classifying species as either threatened or endangered, based on the biological health of a species. Threatened species are those likely to become endangered in the foreseeable future [16 U.S.C. § 1532(20)]. Endangered species are those in danger of becoming extinct throughout all or a significant portion of their range [16 U.S.C. § 1532(20)]. The Secretary of Commerce, acting through NMFS, is authorized to list marine mammal and fish species. The Secretary of the Interior, acting through the FWS, is authorized to list all other organisms.

In addition to listing species under the ESA, the critical habitat of a newly listed species must be designated concurrent with its listing to the maximum extent prudent and determinable [16 U.S.C. § 1533(b)(1)(A)]. The ESA defines critical habitat as those specific areas that are essential to the conservation of a listed species and that may be in need of special consideration. The primary benefit of critical habitat designation is that it informs Federal agencies that listed species are dependent upon these areas for their continued existence, and that consultation with NMFS on any Federal action that may affect these areas is required. Some species, primarily the cetaceans, listed in 1969 under the Endangered Species Conservation Act and carried forward as endangered under the ESA, have not received critical habitat designations.

Listed Species. Species listed as threatened or endangered under the ESA that occur in waters off Alaska are presented in Table 1.

Table 1. Species currently listed as endangered or threatened under the ESA and occurring in waters off Alaska

Common Name	Scientific Name	ESA Status
Northern Right Whale	<i>Balaena glacialis</i>	Endangered
Bowhead Whale ¹	<i>Balaena mysticetus</i>	Endangered
Sei Whale	<i>Balaenoptera borealis</i>	Endangered
Blue Whale	<i>Balaenoptera musculus</i>	Endangered
Fin Whale	<i>Balaenoptera physalus</i>	Endangered
Humpback Whale	<i>Megaptera novaeangliae</i>	Endangered
Sperm Whale	<i>Physeter macrocephalus</i>	Endangered
Snake River Sockeye Salmon	<i>Onchorynchus nerka</i>	Endangered
Short-tailed Albatross	<i>Phoebastria albatrus</i>	Endangered
Steller Sea Lion	<i>Eumetopias jubatus</i>	Endangered and Threatened ²
Snake River Fall Chinook Salmon	<i>Onchorynchus tshawytscha</i>	Threatened
Snake River Spring/Summer Chinook Salmon	<i>Onchorynchus tshawytscha</i>	Threatened
Puget Sound Chinook Salmon	<i>Onchorynchus tshawytscha</i>	Threatened
Lower Columbia River Chinook Salmon	<i>Onchorynchus tshawytscha</i>	Threatened
Upper Willamette River Chinook Salmon	<i>Onchorynchus tshawytscha</i>	Threatened
Upper Columbia River Spring Chinook Salmon	<i>Onchorynchus tshawytscha</i>	Endangered
Upper Columbia River Steelhead	<i>Onchorynchus mykiss</i>	Endangered
Snake River Basin Steelhead Lower Columbia River Steelhead	<i>Onchorynchus mykiss Onchorynchus mykiss</i>	Threatened Threatened
Upper Willamette River Steelhead	<i>Onchorynchus mykiss</i>	Threatened
Middle Columbia River Steelhead	<i>Onchorynchus mykiss</i>	Threatened
Spectacled Eider	<i>Somateria fishcheri</i>	Threatened
Steller's Eider	<i>Polysticta stelleri</i>	Threatened

¹ The bowhead whale is present in the Bering Sea area only.

² Steller sea lion are listed as endangered west of Cape Suckling and threatened east of Cape Suckling.

Alternative 2, Option 1, the Preferred Alternative, is designed to provide protection to humpback whales that could be negatively impacted by vessel activity. The regulations would not negatively affect other listed species. Some positive effect could occur for other ESA-listed species and other non-listed marine mammals co-existing with humpback whales if general vessel operation is modified.

2.5 Coastal Zone Management Act

Implementation of the preferred alternative would be conducted in a manner consistent, to the maximum extent practicable, with the Alaska Coastal Zone Management Program within the meaning of

Section 30(c)(1) of the Coastal Zone Management Act of 1972 and its implementing regulations.

2.6 Conclusions or Finding of No Significant Impact

Alternative 2, Option 1, the preferred alternative, is not likely to significantly affect the quality of the human environment, and the preparation of an environmental impact statement for the proposed action is not required by Section 102(2)(C) of the National Environmental Policy Act or its implementing regulations.

Assistant Administrator for Fisheries, NOAA

Date

3.0 REGULATORY IMPACT REVIEW

The requirements for all regulatory actions specified in Executive Order (E.O.) 12866 are summarized in the following statement from the order:

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

Executive Order 12866 requires that the Office of Management and Budget review regulatory programs that are considered to be "significant". A "significant regulatory action" is one that is likely to:

1. Have an annual effect on the economy of \$100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities;
2. Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;
3. Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or
4. Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this Executive Order.

A regulatory program is "economically significant" if it is likely to result in any of the effects described above. In part, the Regulatory Impact Review (RIR) is designed to provide

information to determine whether the regulation is likely to be "economically significant."

3.1 Impact of the Alternatives

Issue and Objectives of the Action: Disturbance of humpback whales occurs under the current viewing situation. The Marine Mammal Protection Act prohibits the "take", including harassment, of humpback whales and other marine mammals. Recognizing harassment potential from the perspective of the vessel operator and proving a case of harassment from the enforcement perspective is often difficult. NMFS, Alaska Region, therefore implemented the Marine Mammal Viewing Guidelines to provide a structure for voluntary action to prevent disturbance to marine mammals, including humpback whales, in waters off Alaska. Voluntary compliance does not appear to be working.

Therefore, NMFS, Alaska Region, is implementing a regulation establishing a mandatory minimum approach distance around humpback whales along with a slow, safe speed requirement. This action is intended to reduce the potential for vessels to disturb humpback whales by managing the vessel activity occurring in close range of the animals.

A brief description of the alternatives follows:

Alternative 1: Status quo. No regulatory measures exist, other than within Glacier Bay National Park and Preserve, to limit the approaches of vessels to humpback whales in waters off Alaska.

Alternative 2: NMFS proposes to implement regulations to prohibit in waters within 200 nautical miles of the coast of Alaska, approaches, by any means including by interception, within a minimum distance of a humpback whale.

Option 1: Preferred Alternative. Prohibit anyone from approaching, by any means and including by interception (*i.e.*, placing a vessel in the path of a humpback whale so that the whale surfaces within 100 yards of the vessel) within 100 yards of a humpback whale in waters off Alaska. This alternative also includes the implementation of a slow, safe speed requirement. The slow, safe speed requirement is consistent with the U.S. Coast Guard's Inland and International Rules (COLREGS 33 U.S.C. 30 and 34).

In addition, this alternative exempts commercial fishing vessels lawfully engaged in actively setting, retrieving or closely tending commercial fishing gear. For purposes of this exemption commercial fishing means taking or harvesting fish or fishery resources to sell, barter, or trade.

Commercial fishing does not include commercial passenger fishing operations (i.e. charter operations or sport fishing activities). The exemption also includes vessels limited in their ability to maneuver and state, local and federal government vessels operating in the course of official duty.

Option 2: Prohibit anyone from approaching, by any means and including by interception (i.e., placing a vessel in the path of a humpback whale so that the whale surfaces within 200 yards of the vessel) within 200 yards of a humpback whale in waters off Alaska.

Alternative 3: Establish other protective measures such limits on the time spent with a whale, permits, certification programs, or limits on underwater noise.

Alternative 4: Prohibit approaches to humpback whales within a certain distance but exempt certain vessel types, eg. kayaks or other non-motorized vessels.

Alternative 5: Establish certain vessel limits within varying distances of a humpback whale. For example, different limits on the number of vessels that may be within 100 yards, 200 yards or 1/4 mile of a humpback whale.

While the need for management measures is directed at all vessels, the primary focus is on vessels that actively engage in wildlife viewing, specifically whale watching. This focus occurs by virtue of the nature of whale watching operations whose aim is to approach closely to humpback whales. The Preferred Alternative is not designed to cause a vessel that is watching whales to retreat from the area when a whale approaches the vessel within the 100 yard limit. NMFS believes that requiring vessels to engage in avoidance behaviors to reposition the vessel outside of 100 yards in those instances when a whale approaches under its own volition would create greater potential for disturbance or physical impact than having the vessel remain in the original position. Thus, no avoidance measures are required. Nor is this measure designed to cause major disruptions to large commercial traffic whose intent is not to watch whales. However, a distinction is made concerning the vessel that is deliberately positioned to intercept the path of the whale such that the whale surfaces within the buffer area. That kind of maneuvering would be prohibited by the regulation.

The public and private sectors likely to be affected, to some degree and either positively or negatively, by any of the alternatives, including the preferred alternative, are the following: the transport and maritime industries such as oil supertankers, tug and barge operations, fishing operations, and

ferries; the commercial tourism industry including various size classes of cruise ships, wildlife viewing/whale watch vessels, smaller owner-operator charter vessels that conduct multi-purpose tours, and the eco-tourism companies (in this instance eco-tourism is typically independent companies conducting kayak-based tours in coastal marine waters); the private vessel-based recreating public; and the general public at large. Comprehensive cost data for these groups are not available to NMFS. For this reason NMFS cannot complete a quantitative cost/benefit examination of the alternatives. The qualitative industry descriptions and available economic information are provided below. This information forms the basis for an assessment of the relative cost and benefit of implementing the action.

Transport and maritime industries

A number of different vessel-based transport and business ventures occur in waters off Alaska. Oil transport supertankers travel across the Gulf of Alaska in and out of the Port of Valdez. Much of the goods transport in and out of Alaska is done by barge traffic that transits the major waterways off the coast as well as servicing many small, remote communities. In addition, the Alaska Marine Highway system operates a passenger ferry system through southeast Alaska, across the Gulf of Alaska, in the south-central part of the state, as well as periodic service along the Aleutian chain. The Alaska Marine Highway System operates a total of 9 ferries that, based on 1997 data, collectively conduct a total of 1,395 trips per year (a trip is defined as a sailing made by one vessel in one general direction of travel).

NMFS has virtually no empirical operating cost data available from this sector, with which to quantitatively estimate the potential direct or indirect economic impacts of the preferred action on these operations. However, it is reasonable to assume, based upon general knowledge of this class of marine operations, that this greater industry sector is likely to incur very minor changes in operating costs as a result of adherence to the preferred regulatory measure. These vessels do cross areas that may contain humpback whales. However, under the regulation, as structured, these vessels are likely to need to make only minor adjustments in their course or speed when confronted with a humpback whale or group of whales. The minor adjustments while underway would depend on the individual situation.

The fishing industry operates in waters along the extent of coastal Alaska and in many offshore locations. NMFS is exempting from the prohibition commercial fishing vessels while they are actively engaged in commercial fishing.

Private recreational vessels

There are no reliable data on use frequency, expenditure, or operating cost patterns among the myriad small private recreational boats which operate in coastal Alaska. It is, nonetheless, not unreasonable to assume that the attributable cost of the preferred action to private recreational vessels operating in nearshore waters off Alaska is also likely to be minimal. An unknown number of vessels operate out of all coastal communities in Alaska. These vessels are used as a primary means of transportation or to support a variety of sporting activities. While the regulation would affect the operation of these vessels the cost incurred is likely to be negligible, involving very slight alterations to a vessel path, and operational behavior, for a short period of time and distance.

Commercial tourism industry

The commercial tourism industry can be most easily examined by creating some size/operation-based distinctions: the large cruise liners; intermediate-sized regional cruise ships; dedicated wildlife viewing companies; and smaller owner-operator charter vessels that conduct multi-purpose tours. The sectors of this industry likely to be most affected are the dedicated wildlife viewing companies and smaller owner-operator charter vessels. This latter group will be discussed separately.

Large cruise liners that travel the waters of the Alaska Inside Passage are usually on a point-to-point course, rarely making deviations to interact directly with humpback whales. These vessels would generally be expected to incur minimal cost to make minor deviations in their course to adhere to the regulation.

Another group of vessels in this industry is typically defined as "cruise ships" but operates on a more regional basis: these vessels are generally in the 100'-300' range and carry fewer passengers than the large cruise ships. Although smaller, these vessels are believed to operate in a manner more consistent with the large cruise ships. However, because of their size and the nature of their tours these vessels operate in more nearshore waters where the potential for interaction with humpback whales might be slightly greater than the large cruise liners. Overall the smaller cruise ship group is also likely to be only minimally affected.

Dedicated whale watch and charter vessels

By virtue of how this group prosecutes their business they are the focus of the protective measures. The objective of these vessels is to approach closely to the humpback whales to provide an opportunity for viewing the animals in the wild. As a result, this group of operators has the greatest potential to approach too closely. This industry is also in high demand and projected to increase in the future.

Approximately 1.3 million visitors traveled to Alaska in 1997, according to data from the Alaska Visitor's Association (AVA). There has been a steady increase from 0.5 million visitors arriving to the state in 1980. The AVA data also indicate that 37% to 58% of visitors to the state spend their time engaged in wildlife viewing, and tourism is the industry that Alaskans indicated that they would most like to see grow in the next 10 to 15 years (AVA 1999).

The dedicated whale watch and charter vessel sector of the commercial tourism industry is a loosely assembled group of vessels which are not represented by any one organization. They are generally based in local coastal communities and have arisen largely in response to localized opportunity and demand for whale watching or other marine mammal viewing. Comprehensive data on the characteristics of the industry sector, such as number of vessel operators, number and size of vessels, carrying capacity, number of trips per season, operating costs, and gross income are not available.

In general, all charter operators, natural history or fishing, are required to be licensed by the USCG, be enrolled in a random drug testing program, and have current marine first aid and CPR certificates. These operators are also required to have a current Alaska Business License. Insurance is not mandatory, but is highly encouraged.

Natural history charters are required to obtain a special use permit issued by the USDA Forest Service if any part of the tour is conducted on public lands, which means any time clients are taken to the beach in the national forest for any reason. In that case insurance is required, the Forest Service is listed as "additionally insured" and the special use permit has to be mentioned in all advertising.

Specific data on the number of vessels or operators that conduct whale watching tours is not available. However, the state's Commercial Fisheries Entry Commission registers all vessels that conduct commercial fish charters. Many of the smaller fishing

charter operations in the state also conduct whale watch charters and would be reflected in the CFEC statistic. Those vessels solely conducting whale watch tours would not be included in this statistic. In 1998, 3,670 vessels were registered as offering charter fishing operations, an increase of 213% from 1988. While all of these vessel likely do not interact directly with humpback whales, a portion of this number does and all could potentially interact to some degree with humpback whales. Of note, is the significant increase in the charter fishing vessel operations in the state over the last ten years. Some of this increase is also likely a result of an increasing demand for whale watch charters.

The U.S. Coast Guard is another source of general data on vessel numbers. All vessels under 5 net tons are required to register with the Coast Guard. Those vessels over 5 net tons are required to be "documented" by the Coast Guard in a national documentation program, different from the state "registration" program. Many whale watch vessels are likely to be under 5 net tons and would be included in the registration program. However, there are also likely to be whale watch vessels that are greater than 5 net tons which would not be included in the registration database. Coast Guard data from the 1999 vessel registration program indicate a total of 34,353 active vessels. This includes 2,171 commercial passenger vessels, 4,809 commercial fishing vessels, 660 rental vessels, 24,462 pleasure vessels and 1,226 in the "other" category. It is expected that some portion of the commercial passenger vessels are used for whale watching activities. The remainder of the 34,353 vessels could potentially interact with whales; however, realistically many of these vessel would not interact directly with whales and some likely are not used at all on the ocean. Those whale watch vessels not captured by the statistics described above would be any whale watch vessel that is greater than 5 net tons that is not used as a charter fishing vessel in the state of Alaska.

In an attempt to gather some information about the operations of whale watch vessels NMFS informally contacted as many whale watch operators as possible. The information collected is not comprehensive nor derived from a statistically valid sampling design. It is presented merely to give the reader some basis for understanding the whale watch industry in Alaska. NMFS does not know what portion of the industry these numbers represent.

Four statewide advertisement sources were consulted and 49 operators identified "whale watch", "whales" or "marine mammals" in the description of the services offered. All 49 of these operators were contacted by telephone and 22 operators (45%) were willing to discuss the nature of their operations. Forty one percent of those willing to provide information stated that they offer whale watching as part of charter fishing, hunting, or

general sightseeing trips. The information is based on the 1998 operating season or an average provided for past seasons (years not defined). The majority (71%) of the operators indicated that their businesses were established after 1986.

These 22 businesses operate a total of 35 vessels. Vessel sizes range from 16 feet to 78 feet in length and range in their carrying capacity from 6 passengers to 220 passengers. The majority (12 or 34%) of the vessels carry 6 passengers. The total number of trips per season (the season is approximately May until September, with one operator conducting trips year round) per operator ranges from 6 to 1,130. The companies operate different types of tours that vary from 3 hours long to trips of several days, the latter of which include meals and accommodation.

Under the preferred action, this sector of the commercial tourism industry, and other vessel operators, could incur some additional cost. The regulation would require that vessels not approach within 100 yards of a humpback whale. Accurate determination of distance on the water can be difficult. Therefore, while not required by the regulation, the vessel operators may choose to (would likely) purchase some distance measuring device such as a laser ranger finder (\$400) to ensure that they do not violate the prohibition.

In theory, some operators may argue that the value of a whale watch tour could be reduced by the regulation and therefore cause a diminished demand and ultimately reduced income. However, this is unlikely to occur or, if it does, only to a very slight degree. Indeed, the current framework for humpback viewing already includes some restrictions: a statutory prohibition on "taking", which includes harassment; and Marine Mammal Viewing Guidelines. The regulation would not be significantly different from the current operating structure under which the NMFS Guidelines recommend that vessels not approach within 100 yards of a humpback whale.

The long-term economic and both long-term and short-term social benefits of improving protective measures around humpback whales are expected to be greater than the potential cost incurred from implementing the preferred action. Less disturbance to the animals is likely to occur. This provides a direct environmental benefit as well as a social benefit to the public who does not like to see vessels approaching too closely to humpback whales. Conservation of the humpback whale population is also expected to provide long-term economic benefit to the whale watch industry who depend on the presence of the animals to conduct their business.

Alternative 4 would exempt some whale watch vessels (i.e. kayaks and other non-motorized vessels) from restrictions. This could conceivably result in some economic gain to this vessel class; however, the likelihood of a large overall gain being realized is small because this category of vessels is limited in their capacity for customers.

While some economic cost to various industry groups may be incurred with the regulation, overall this cost is likely to be minimal and greatly outweighed by the benefits obtained. The relative economic burden may be greatest for the commercial tourism industry, however, as noted, there may actually be offsetting "benefits" for this same group of operations, from adherence to the rule.

Non-consumptive resource use

While no market exists within which humpback whales are "traded" (in the traditional economic sense), they nonetheless have economic value. In general, it can be demonstrated that society places economic value on (relatively) unique environmental assets, even if those assets are never directly exploited. That is, for example, society places real (and measurable) economic value on simply "knowing" that, in this case, humpback whale populations are flourishing in their natural environment.

A substantial literature has developed which describes the nature of these non-use values to society. In fact, it has been demonstrated that these non-use economic values may include several dimensions, among which are "existence" value, "option" value, and "bequest" value. As the respective terms suggest, society places an economic "value" on, in this case, the continued existence of the humpback whale resource; society further "values" the *option* it retains through the continued existence of the resource for future access to humpback whale populations; and society places "value" on providing future generations the opportunity to enjoy and benefit from this resource. These estimates are additive and mutually exclusive measures of the value society places on these natural assets, and are typically calculated as "willingness-to-pay" or "willingness-to-accept" compensation (depending upon with whom the implicit ownership right resides) for non-marginal changes in the status or condition of the asset being valued.

Quantitatively measuring society's non-use value for an environmental asset (e.g., humpback whales), is a complex but technically feasible task. However, in the current situation, an empirical estimation of these values is unnecessary, because the Endangered Species Act (ESA) implicitly assumes that society

automatically enjoys a "net benefit" from any action which protects threatened or endangered species (including the habitat they rely upon), and/or facilitates the recovery of populations of such species (or their habitat). Therefore, it is neither necessary nor appropriate to undertake the estimation of these benefits. It is sufficient to point out that these very real "non-use" values to society from conservation measures for humpback whales do exist.

Therefore, the effect of implementing the preferred action is likely to produce an overall net social and economic benefit.

Based on the criteria listed in section 3.0, and the forgoing economic impact analysis, NMFS determines that the preferred alternative is not significant for purposes of E.O. 12866.

4.0 FINAL REGULATORY FLEXIBILITY ANALYSIS

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

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

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

To ensure a broad consideration of impacts and alternatives, NMFS has prepared an FRFA pursuant to 5 USC 604, without first making the threshold determination of whether or not this action would have a significant economic impact on a substantial number of small entities. A Final Regulatory Flexibility Analysis is conducted below to comply with the RFA.

Following are the alternatives considered within this document.

Alternative 1: Status quo. The ESA and the MMPA prohibit the "take" of marine mammals. Beyond the statutory prohibition on "take" there are no NMFS-promulgated regulations governing the conduct of vessels around marine mammals in Alaska. The Guidelines provide a code of conduct for responsible marine mammal viewing.

Alternative 2: Limit approaches to a humpback whale to a minimum distance from the whale.

Option 1: Preferred Alternative. Prohibit anyone from approaching, by any means and including by interception (*i.e.*, placing a vessel in the path of a humpback whale so that the whale surfaces within 100 yards of the vessel) within 100 yards of a humpback whale in waters off Alaska. This alternative also includes the implementation of a slow, safe speed requirement. The slow, safe speed requirement is consistent with the U.S. Coast Guard's Inland and International Rules (COLREGS 33 U.S.C. 30 and 34).

In addition, this alternative exempts commercial fishing vessels lawfully engaged in actively setting, retrieving or closely tending commercial fishing gear. For purposes of this exemption commercial fishing means taking or harvesting fish or fishery resources to sell, barter, or trade. Commercial fishing does not include commercial passenger fishing operations (*i.e.* charter operations or sport fishing activities). The exemption also includes vessels limited in their ability to maneuver and state, local and federal government vessels operating in the course of official duty.

Option 2: Prohibit anyone from approaching, by any means and including by interception (*i.e.*, placing a vessel in the path of a humpback whale so that the whale surfaces within 200 yards of the vessel) within 200 yards of a humpback whale in waters off Alaska.

Alternative 3: Establish protective measures other than approach distances.

Other, potentially protective measures were considered for humpback whales in Alaska waters. These included limits on the time spent with an animal or group of animals, permitting, certification programs, and reduction in underwater noise.

Alternative 4: Prohibit approaches to humpback whales within a certain distance but exempt certain vessel types, eg. kayaks or non-motorized vessels.

Alternative 5: Establish certain vessel limits within varying distances of a humpback whale. For example, different limits on the number of vessels that may be within 100 yards, 200 yards etc. of a humpback whale.

Under 5 U.S.C., Section 604(a) of the RFA, each FRFA is required to contain:

1. A succinct statement of the need for, and objective of the final rule;

Vessel-based disturbance of humpback whales is currently a problem in waters off Alaska. The Marine Mammal Protection Act and the Endangered Species Act prohibit the "take", including harassment, of humpback whales and other marine mammals. Recognizing harassment potential, from the perspective of the vessel operator, and proving a case of harassment, from the enforcement perspective, is often difficult. NMFS, Alaska Region, therefore, implemented Marine Mammal Viewing Guidelines to provide a structure for voluntary action to prevent disturbance to marine mammals, including humpback whales, in waters off Alaska. Voluntary compliance is not achieving the Agency's conservation and management objectives. The measures implemented by this final rule will provide protection from harassment to humpback whales. (For additional detail, refer to Sections 3.1).

2. A summary of the significant issues raised by the public comments in response to initial regulatory flexibility analysis, a summary of the assessment of the agency of such issues, and a statement of any changes made in the proposed rule as a result of such comments;

The public commented that implementation of a 200 yd minimum approach distance, as considered in the proposed rule, was a more strict regulation than the status quo operating situation. The public commented that a 200 yd minimum approach distance could diminish passengers' satisfaction with a whale watch tour and hence affect future business by reducing clientele. However, the agency has chosen to implement a 100 yd minimum approach distance which does not differ from the status quo guidelines and would therefore not affect business in the manner perceived.

3. A description of and an estimate of the number of small entities to which the rule will apply or an explanation of why no such estimate is available;

The Small Business Administration establishes criteria for defining a "small entity" for purposes of the RFA. However there are no specific criteria for most of the industry sectors to which this regulation would apply. Therefore, NMFS is applying conservative fishing industry criteria of <100 employees (applicable to fishing businesses other than processors) and <\$3M gross revenues as a threshold measure for definition of "small entities."

Quantitative data from potentially affected vessel operators are not available for NMFS to precisely determine whether the affected industry sectors are small entities or not. These data are not available because the charter industry is largely unregulated and no statistics are recorded on the nature of charter operations. A qualitative assessment of the types of vessels that would be impacted indicates that the dedicated whale watch and charter vessels would be most probably directly impacted and also most likely are "small entities", consistent with the SBA definitions.

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

There are no reporting, recordkeeping and other compliance requirements of the rule.

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

NMFS has chosen to implement a 100 yd, instead of a 200 yd, minimum approach distance, which would, therefore, minimize any negative economic impact that may have occurred under the proposed rule. The creation of an alternative or exemption for small entities that would result in these vessels not adhering to the minimum approach distance around humpback whales would not be consistent with the intent of

the rule. Indeed, it is the behavior of the segment of this industry, which is virtually exclusively composed of 'small entities', which has prompted the action. There are no meaningful subsets of this industry segment which could reasonably be exempted from the requirements of the action, and still achieve (even substantially) the stated objective. The minimum approach distance is designed to manage vessel activity around humpback whales so as not to cause disturbance to these animals, consistent with the conservation objectives of the MMPA and the ESA. It is the Agency's position that this conservation measure would not be effective if a sector of the commercial whale watching industry were to be exempted in any way.

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