

Public Testimony Sign-Up Sheet

Agenda Item D-2(a) ^{BSAIA} Trawl Sweeps

	NAME (PLEASE PRINT)	AFFILIATION
1 ✓	Jon Wavander	Oceana
2 ✓	JOAN GAUVIN	Best Use Cooperative
3 ✓	LORI SWANSON	GROUND FISH FORUM
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NOTE to persons providing oral or written testimony to the Council: Section 307(1)(I) of the Magnuson-Stevens Fishery Conservation and Management Act prohibits any person "to knowingly and willfully submit to a Council, the Secretary, or the Governor of a State false information (including, but not limited to, false information regarding the capacity and extent to which a United State fish processor, on an annual basis, will process a portion of the optimum yield of a fishery that will be harvested by fishing vessels of the United States) regarding any matter that the Council, Secretary, or Governor is considering in the course of carrying out this Act.

D2(a)



March 29, 2009

Mr. Eric Olson, Chair
 North Pacific Fishery Management Council
 605 W. Fourth Avenue, Suite 306
 Anchorage, AK 99501-2252

Mr. Doug Mecum, Regional Administrator
 NOAA Fisheries, Alaska Region
 709 West Ninth Street
 Juneau, AK 99802-1668

RE: Agenda item D-2(a) Bottom trawling in the Northern Bering Sea and trawl gear modifications

Dear Chairman Olson, Mr. Mecum, and Council members:

We do not support expansion of the flatfish trawl fishery into the Northern Bering Sea Research Area (NBSRA) at this time. The North Pacific Fishery Management Council and National Marine Fisheries Service (NMFS) should continue your leadership and further the actions you have taken to date to apply precautionary fishery management in the Northern Bering Sea and the Arctic. You have already acted wisely by demonstrating to the nation and the world that commercial fisheries in the far North will be compelled to follow a precautionary, science-based approach. We strongly encourage you not to advance the flatfish trawl fishery ahead of the science by opening previously relatively unexploited and unsurveyed habitat intended for research purposes. Hence, you should not support Alternative 3 of the trawl sweep modification amendment¹, which would remove a 3,500 square mile area from the Northern Bering Sea Research Area (NBSRA) for the purposes of commercial trawling and is completely unrelated to the modification of trawl gear.

This week, you will evaluate a draft environmental assessment¹ (EA) considering the effects of a new configuration of bottom trawl gear that lifts most of the length of the 'sweeps' two inches off the seafloor. The 'sweeps' are the cables that attach the doors to the footrope of the net of a bottom trawl. The footrope and doors of the trawl still contact the seafloor. As we have previously mentioned in letters and testimony, this modification of bottom trawl gear is unrelated to the expansion of bottom trawling into the NBSRA. A decision about whether or not to allow bottom trawling in the NBSRA should be made according to the science-based approach already called for by the Council to develop and implement a research plan for the area.

There is no justification for opening any portion of the NBSRA to commercial bottom trawling. Under the Council's action and NMFS's final rule implementing FMP Amendment 89, the NBSRA, including the 3,500 square mile 'wedge' between St. Matthew Island and Nunivak, is appropriately closed to bottom trawling. We understand the head and gut fleet's motivation for pursuing expansion of trawling into the area is a purported high concentration of yellowfin sole and a low concentration of bycatch species. This assertion is unfounded. As you know, there is a lack of a NMFS trawl survey within most of the 3,500 square mile wedge area. Without such

¹ EA/RIR/IRFA for proposed Amendment 94, Require Trawl Sweep Modification in the Bering Sea Flatfish Fishery, May 2009.

surveys, the abundance and diversity of target and non-target species and habitats are largely unknown. As such, there is no reliable analysis of the impacts of that trawling, including expected bycatch of prohibited species and whether allowing bottom trawling in this area might reduce overall bycatch.

This lack of available information is one of the basic reasons for which you created the Northern Bering Sea Research Area, called for a research plan to be developed, and approved a four-year schedule for Western Alaska communities and stakeholders to provide input for potential adjustment and review of the NBSRA boundary. You should not deviate from that plan now.

We realize that the growing importance of flatfish species to the groundfish industry's profits will demand more of your time and attention in the coming years. That fact reinforces the importance of a credible analysis of the environmental impacts of the increasing flatfish trawl fishery before decisions are made that may markedly increase or redistribute bottom trawling in the Bering Sea.

For those reasons and others, we encourage you to keep to the timeline that the Council created and maintain the closure of the NBSRA to bottom trawling unless and until science shows such trawling could be conducted without harming the health of the ecosystem and without affecting opportunities for the subsistence way of life.

Sincerely,

A handwritten signature in black ink, appearing to read "Jim Ayers". The signature is fluid and cursive, with a large loop at the end.

Jim Ayers,
Vice President, Oceana

Draft proposed changes to Section 3.7.4 of the BSAI FMP for inclusion as a housekeeping amendment in BSAI Am. 94 (trawl sweeps modification)

3.7.4 Community Development Quota Multispecies Fishery

The western Alaska community development quota program was established in order: (i) to provide eligible western Alaska villages with the opportunity to participate and invest in fisheries in the Bering Sea and Aleutian Islands Management Area; (ii) to support economic development in western Alaska; (iii) to alleviate poverty and provide economic and social benefits for residents of western Alaska; and (iv) to achieve sustainable and diversified local economies in western Alaska. Requirements governing the CDQ Program are in the Magnuson-Stevens Act.

~~The western Alaska Community Development Quota (CDQ) Program (hereinafter the CDQ Program) was established to provide fishermen who reside in western Alaska communities a fair and reasonable opportunity to participate in the Bering Sea and Aleutian Islands groundfish fisheries; to expand their participation in salmon, herring, and other nearshore fisheries; and to help alleviate the growing social and economic crisis within these communities. Residents of western Alaska communities are predominantly Alaska Natives who have traditionally depended upon the marine resources of the Bering Sea for their economic and cultural well-being. The CDQ program is a joint program of the Secretary and the Governor of the State of Alaska. Through the creation and implementation of community development plans, western Alaska communities will be able to diversify their local economies, provide community residents with new opportunities to obtain stable, long-term employment, and participate in the BSAI fisheries which have been foreclosed to them because of the high capital investment needed to enter the fishery.~~

~~The NMFS Regional Administrator shall hold the designated percent of the annual total allowable catch of groundfish for each management subarea in the BSAI for the western Alaska community quota as noted below. These amounts shall be released to eligible Alaska communities who submit a plan, approved by the Governor of Alaska, for their wise and appropriate use.~~

~~The CDQ program is structured such that the Governor of Alaska is authorized to recommend to the Secretary that a Bering Sea rim community be designated as an eligible fishing community to receive a portion of the reserve. To be eligible a community must meet specified criteria and have developed a fisheries development plan approved by the Governor of Alaska. The Governor shall develop such recommendations in consultation with the Council. The Governor shall forward any such recommendations to the Secretary, following consultation with the Council. Upon receipt of such recommendations, the Secretary may designate a community as an eligible fishing community and, under the plan, may release appropriate portions of the reserve.~~

~~Not more than 33 percent of the total western Alaska community quota for any single species category may be designated for a single CDQ applicant, except that if portions of the total quota are not designated by the end of the second quarter, applicants may apply for any portion of the remaining quota for the remainder of that year only.~~

3.7.4.1 Eligible Western Alaska Communities

The list of eligible communities is provided in the Magnuson-Stevens Act.
~~The Governor of Alaska is authorized to recommend to the Secretary that a community within western Alaska which meets all of the following criteria be eligible for the CDQ program:~~

Draft proposed changes to Section 3.7.4 of the BSAI FMP for inclusion as a housekeeping amendment in BSAI Am. 94 (trawl sweeps modification)

~~1. be located on or proximate to the Bering Sea coast from the Bering Strait to the western most of the Aleutian Islands or a community located on an island within the Bering Sea, which the Secretary of the Interior has certified pursuant to Section 11(b)(2) or (3) of Pub. L. No. 92-203 as Native villages are defined in Section 3(c) of Pub. L. No. 92-203;~~

~~2. be unlikely to be able to attract and develop economic activity other than commercial fishing that would provide a substantial source of employment;~~

~~3. its residents have traditionally engaged in and depended upon fishing in the waters of the Bering Sea coast;~~

~~4. has not previously developed harvesting or processing capability sufficient to support substantial participation in the commercial groundfish fisheries of the BSAI because of a lack of sufficient funds for investing in harvesting or processing equipment; and~~

~~5. has developed a community development plan approved by the Governor, after consultation with the Council.~~

~~Also, Akutan is included in the list of eligible CDQ communities.~~

3.7.4.2 Fixed Gear Sablefish Allocation

The NMFS Regional Administrator shall hold 20 percent of the annual fixed-gear total allowable catch of sablefish for each management subarea in the BSAI for the western Alaska sablefish community quota. The portions of fixed-gear sablefish TACs for each management area not designated to CDQ fisheries will be allocated as quota share and IFQs and shall be used pursuant to the program outlined in Section 3.7.1.

3.7.4.3 Pollock Allocation

Ten percent of the pollock TAC in the BSAI management area shall be allocated as a directed fishing allowance to the CDQ program. ~~This quota shall be released to communities on the Bering Sea coast which submit a plan, approved by the Governor of Alaska, for the wise and appropriate use of the quota.~~

3.7.4.4 Pacific cod Allocation

The Magnuson-Stevens Act requires that 10.7 percent of the Pacific cod TAC in the BSAI management area shall be allocated to the CDQ Program.

3.7.4.5 Other Groundfish Allocations

Section 305(i)(1)(B) of the Magnuson-Stevens Act governs allocations of groundfish to the CDQ Program. The Magnuson-Stevens Act requires that 10.7 percent of the TAC for each species in a directed groundfish fishery in the BSAI, except pollock and sablefish, shall be allocated to the CDQ Program. The Magnuson-Stevens Act also requires that 7.5 percent of the trawl allocation of the sablefish TAC shall be allocated to the CDQ Program.

3.7.4.6 Prohibited Species Allocations

The following allocations of the PSC limits will be made to the CDQ Program:

Draft proposed changes to Section 3.7.4 of the BSAI FMP for inclusion as a housekeeping amendment in BSAI Am. 94 (trawl sweeps modification)

Halibut: In 2008 and 2009, 343 mt of mortality.
In 2010 and thereafter, 393 mt of mortality.

Crab: 10.7 percent of each crab PSC limit in the BSAI.

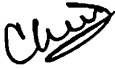
Chinook salmon: 7.5 percent of the Chinook salmon PSC limit in the BSAI.

Non-Chinook salmon: 10.7 percent of the non-Chinook salmon PSC limit in the BSAI.

PSC allocations to the CDQ Program are not allocated by gear or target fishery.

MEMORANDUM

TO: Council, SSC and AP Members

FROM: Chris Oliver 
Executive Director

DATE: May 28, 2009

SUBJECT: Trawl sweep gear modification requirement

ESTIMATED TIME 4 HOURS ALL D-2 ITEMS
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ACTION REQUIRED

- (a) Initial review of analysis of bottom trawl gear sweep requirements

BACKGROUND

In June 2008, the Council initiated an analysis to require elevating disks on trawl sweeps on bottom trawl vessels targeting flatfish in the Bering Sea. An initial review draft of the analysis was mailed to the Council in May; the executive summary of this analysis is attached as Item D-2(a)(1).

In addition to evaluating the requirement for elevating disks on trawl sweeps, the analysis also includes an alternative under which a small subarea of the Northern Bering Sea Research Area would be opened to fishing by vessels using the modified trawl gear. Additionally, an option is analyzed to adjust the boundaries of the St. Matthew Island Habitat Conservation Area (HCA), to ensure adequate protection of blue king crab. The St. Matthew HCA is adjacent to the area that may be reopened to modified trawl gear.

The Council requested the Crab Plan Team review the boundaries of the St. Matthew HCA to determine whether the boundary adequately protects blue king crab, and if not, what adjustments would be needed to allow for adequate protection. The Crab Plan Team met on this issue on May 15, and consequently, its input was not included in the initial review draft mailed to the Council. The Plan Team felt that further evaluation of the HCA boundary compared to stock distribution for both blue king crab and snow crab would be beneficial, and offered to take up the issue again at its September Plan Team meeting, prior to the Council's final action on this agenda item. The Plan Team's comments relating to this agenda item are included in the Plan Team minutes with the action memo material for Item C-3(d).

The proposed FMP amendment resulting from this analysis would also address three housekeeping changes to the FMP: a) remove reference to the Crab and Halibut Protection Area, which was effectively superseded by the Nearshore Bristol Bay closure, b) renumber figures in the FMP sequentially, and correct cross-references; and c) adjust the northern boundary of the Northern Bering Sea Research Area to conform with the boundary for NMFS Statistical Area 514. These housekeeping changes are described in the initial review analysis.

Executive Summary

ES.1 Introduction

This document analyzes a proposed gear modification to require non-pelagic trawl vessels targeting flatfish in the BS to use elevating devices on trawl sweeps to raise them off the seafloor. The action follows from BSAI Amendment 89, Bering Sea Habitat Conservation Measures. The analysis also evaluates changes to the southern boundary of the Northern Bering Sea Research Area (NBSRA) to create an area where anyone fishing with non-pelagic trawl gear must use the modified trawl sweeps required by regulation, and changes to the boundary of the St Matthew Island Habitat Conservation Area to be consistent with the Council's intent to protect blue king crab habitat. Finally, the document addresses certain housekeeping amendments to the Fishery Management Plan for Groundfish of the Bering Sea and Aleutian Islands Management Area (BSAI FMP), which are required to correct typographical and non-substantive errors.

ES.2 Purpose and Need

The purpose of this analysis is to supplement the information provided in the BSAI Amendment 89 Bering Sea Habitat Conservation Measures EA/RIR/IRFA (NMFS 2008a), with respect to gear modification in the Bering Sea flatfish nonpelagic trawl fishery. The purpose of the action is to provide additional protection to Bering Sea bottom habitat from the potential adverse effects of nonpelagic trawl gear used for flatfish fishing. This would be achieved by modifying nonpelagic trawl gear used for flatfish fishing by raising the majority of the gear off the bottom. Studies have shown that elevating the trawl sweep can reduce impacts on benthic organisms, such as basketstars and sea whips. The Council endorsed this action in their final recommendation on Bering Sea habitat conservation in June 2007, but was unable to approve specific details of the gear modification component. Further research was needed in order to identify the appropriate modification that would meet the Council's desired performance standard and implementation issues needed to be resolved. Field testing of the modification has now been completed and industry workshops were held, demonstrating that the modification is workable in the fishery. The bottom habitat is an important part of the entire Bering Sea marine ecosystem. This action is needed to ensure ecosystem-based management is incorporated into flatfish fisheries management in the Bering Sea.

As part of the June 2007 motion, the Council also stated that a portion of the now closed (under Amendment 89) Northern Bering Sea Research Area may be reopened to non-pelagic trawl fishing. The Council linked the reopening of this area, colloquially referred to as the "wedge", to the implementation of the proposed gear modification requirements for the flatfish fishery. The flatfish industry had identified the area in question, the "wedge", as important to the fishery due to purported high concentrations of yellowfin sole and low concentrations of other bycatch species. The purpose of reopening the "wedge" is to allow for efficient harvest of flatfish species while providing protection to this minimally fished area by requiring modified gear. Implementing the modified gear requirement would reduce potential impacts on bottom habitat that might result from opening this area. This action is needed to ensure fishers can efficiently harvest flatfish as flatfish stocks are likely to shift locations in the Bering Sea.

The Council also recommended analysis of the eastern boundary of the St. Matthew Island Habitat Conservation Area. This boundary may have been established by Amendment 89 west of what was intended by the Council for protection of blue king crab habitat. The revision of this boundary may be needed to ensure the St. Matthew Island Habitat Conservation Area protects blue king crab habitat, based on the best available scientific information.

To allow for efficient updating of the FMP, the action would also include housekeeping amendments to address typographical or non-substantive errors. Some of these errors were introduced with Amendment 89 to the FMP. These corrections are needed to improve the readability of the FMP and to ensure the document clearly implements the Council's intent for fisheries management in the Bering Sea subarea.

The Council formulated the following problem statement to initiate this analysis:

Research has shown that sweep modifications can reduce gear contact with the sea floor and may not have negative effects on catch rates. Modifications appear to meet the Council's intent to consider practicable measures to reduce potential adverse effects of non-pelagic trawl fishing on bottom habitat. The "wedge" is reported to contain high concentrations of flatfish and low concentrations of other bycatch species. Re-opening of the "wedge" was linked to implementation of sweep modifications in final action on Amendment 89. In addition, there may be some associated typographical, formatting, and description errors in the FMP that may not meet the Council's intent.

ES.3 Alternatives

The alternatives, as adopted by the Council in February 2009, are as follows:

- Alternative 1: Status quo
- Alternative 2: Require non-pelagic trawl vessels targeting flatfish in the BS to use elevating devices on trawl sweeps to raise them off the seafloor
- Alternative 3: Require non-pelagic trawl vessels targeting flatfish in the BS to use elevating devices on trawl sweeps to raise them off the seafloor, and adjust the southern boundary of the Northern Bering Sea Research Area (NBSRA) to exclude an area that would be designated as a "Modified Gear Trawl Zone". Anyone fishing with non-pelagic trawl gear in this area must use the modified trawl sweeps required by regulation. The polygon would be delineated on the north by a line at 61° W. latitude, to the east at 168° W. longitude, to the south by the existing NBSRA boundary, and to the west by the St Matthew HCA boundary (which may be revised under the option listed below).
- SMIHCA Option: Adjust the St Matthew HCA boundary to be consistent with the Council's intent to protect blue king crab habitat, based on the best available information. This option can be adopted under any of the three alternatives listed above.

Housekeeping changes:

- a. Remove reference to the Crab and Halibut Protection Zone in the BSAI FMP
- b. Renumber figures and tables in the FMP and correct cross references.
- c. Adjust the coordinates for the northern boundary of the Northern Bering Sea Research Area to meet the southern boundary of Statistical Area 400 for the Chukchi Sea.

ES.4 Impacts of the Alternatives

The alternatives were analyzed for their impacts on habitat, target and non-target species, marine mammals, seabirds, and the ecosystem, and economic and socio-economic impacts. The impacts on the socio-economic environment are analyzed in the Regulatory Impact Review (Section 7) and the Initial Regulatory Flexibility Analysis (Section 0), and are summarized in the following section.

Habitat

The issues of primary concern with respect to the effects of fishing on benthic habitat are the potential for damage or removal of fragile biota within each area that are used by fish as habitat and the potential reduction of habitat complexity, benthic biodiversity, and habitat suitability. Based on the information available to date, the predominant direct effects caused by nonpelagic trawling include smoothing of sediments, moving and turning of rocks and boulders, resuspension and mixing of sediments, removal of seagrasses, damage to corals, and damage or removal of epibenthic organisms. Trawls affect the seafloor through contact of the doors and sweeps, footropes and footrope gear, and the net sweeping along the seafloor. Ninety percent of the area impacted by flatfish trawling is due to contact between the seafloor and the sweeps.

The EFH EIS concluded there were indiscernible effects for the status quo from the current fishing patterns on benthic biodiversity and habitat complexity (NMFS 2005), and no new information indicates to the contrary. Therefore, Alternative 1 is rated insignificant.

The trawl sweep modification under Alternatives 2 and 3 may have beneficial effects on the amount of biological structure in the Bering Sea compared to the status quo, due to the reduction in the amount of contact between the trawl sweeps and the sea bed. The trawl sweep modification has been tested to be effective in reducing trawl sweep impact effects to basketstars, sea whips (a long-lived species of primary concern), sponges, and siphons. The gear modification would reduce potential destruction of benthic species and potentially preserve benthic biodiversity and likely would provide some benefit to non-living substrates.

The extent of this protection is dependent on the benthic diversity in the area and the intensity of fishing. Because the areas have been previously fished, any protection is not likely to result in substantial beneficial effects. Some contact with living habitat species would continue from the elevating devices contacting the bottom, however, fishery-wide adoption of devices to reduce seafloor contact with trawl sweeps is expected to be positive. Because potential recovery of some living habitat species after exposure to nonpelagic trawling may occur, and trawling will continue in areas already impacted, the overall impacts on habitat complexity, benthic biodiversity, or habitat suitability is not expected to be a substantial change from status quo.

Alternative 3 would additionally reopen the Modified Gear Trawl Zone to nonpelagic trawling, which is an area that is currently part of the NBSRA. Alternative 3 is more likely to adversely impact habitat complexity, however the use of modified gear will mitigate the potential impact as compared to conventional nonpelagic trawl gear. Because the sediments in the Modified Gear Trawl Zone appear to be primarily sand and gravel, fishing in the Zone is unlikely to result in substantial changes to the community structure or habitat suitability. Therefore, the effect of Alternative 3 on habitat is likely insignificant.

The St. Matthew Island HCA option could increase the area closed to nonpelagic trawling, providing more protection to bottom habitat. Little nonpelagic trawling is currently occurring in the expanded closure area under the status quo, either because it is already part of the NBSRA, or because it is not suitable for nonpelagic trawling. Therefore this option would not result in a substantial change in mortality or damage to living substrate, community structure, or benthic biodiversity.

Target and non-target species

The effects of this action on target species are limited to those effects that may occur on habitat that support target species and their prey. All fishing done under the alternatives would be done within the

annual harvest specifications and overall harvest of target, non-target and prohibited species would be constrained by the target fishery harvest limits and by prohibited species catch measures currently applied. Based on experimental testing of the gear, the trawl sweep modification under Alternatives 2 and 3 are not expected to have any net decrease in the target catch rates compared to that of status quo conditions. The catch of target flatfish species with the modified gear was not significantly different than the catch of unmodified gear at a clearance that elevated the sweeps 2.5 inches off the seabed between disks. The proportion of non-target and PSC species removed is not expected to be different under the alternatives. Unobserved bycatch mortality of invertebrate species that may be the target of other fisheries was reduced to nearly zero compared to conventional trawl sweeps, therefore using the gear may result in a positive impact on crab stocks by reducing a source of unobserved mortality. As catch of target species is expected to remain the same under all alternatives and options, insignificant effects on stock biomass, fishing mortality, and prey species availability are anticipated.

Alternative 3 would allow trawling with modified gear in an area that is currently closed and would have more impact on target and non-target fish resources in the Modified Gear Trawl Zone than with Alternatives 1 and 2. Because the Modified Gear Trawl Zone is a limited portion of the Bering Sea subarea and because of the modified gear reducing potential impacts, it is not likely Alternative 3 would have significant impacts on the bottom habitat in this area that supports target species and their prey.

The expansion of the ST. Matthew Island HCA under the option may provide additional protection to target species that may occur in this area from the potential effects of bottom trawling, however because the area is largely unfished by nonpelagic gear at the present time, any effect is insignificant.

Marine mammals

The BSAI supports one of the richest assemblages of marine mammals in the world. Twenty-five species are present from the orders Pinnipedia (seals, sea lion, and walrus), Carnivora (sea otter and polar bear), and Cetacea (whales, dolphins, and porpoises). Direct and indirect interactions between marine mammals and groundfish harvest activity may occur due to overlap of groundfish fishery activities and marine mammal habitat. Fishing activities may either directly take marine mammals through injury, death, or disturbance, or indirectly affect these animals by removing prey important for growth and nutrition or cause sufficient disturbance that marine mammals avoid or abandon important habitat. Fishing also may result in loss or discard of fishing nets, line, etc. that may ultimately entangle marine mammals causing injury or death.

Alternative 1, and the trawl sweep modification under Alternatives 2 and 3, would not change the timing or location of fishing activities in any way that may change the potential interaction of nonpelagic fishing vessels with marine mammals. Because the potential for interaction remains unchanged, no change in incidental takes or disturbance of marine mammals are expected. The gear modifications may result in protecting foraging resources in those areas where marine mammal foraging and fishing overlaps. Because of the widespread occurrence of the marine mammals and the limited locations of nonpelagic trawling, it is not likely that any protection of benthic habitat in fishing locations would result in an improvement in overall foraging for marine mammals. Because the overall amount of harvests are not likely to change under these alternatives, no difference in the overall direct competition for prey species is expected.

Alternative 3 would allow for fishing in the Modified Gear Trawl Area, which is currently closed to nonpelagic trawling. By allowing nonpelagic trawling in a closed area, the potential for interaction with marine mammals would increase for those marine mammals that may occur in this area at the same time nonpelagic trawling may occur, which may increase potential for incidental takes and disturbance. These effects are not likely a concern for strongly ice dependent marine mammals (e.g., ringed seals and female

and juvenile walrus) which are less likely to be in the area concurrent with nonpelagic trawl fishing. It is possible that northern fur seals use the Modified Gear Trawl Area for foraging and may encounter nonpelagic trawl vessels in the opened area.

If marine mammals that interact with the nonpelagic trawl fishery occur in the Modified Gear Trawl Zone, this opening may increase the potential for incidental takes and disturbance, however these are more likely dependent on the amount of overall fishing as much as the location of the fishing activity. Because the overall amount of fishing is likely to remain the same in the Bering Sea, it is not likely that opening the Modified Gear Trawl Area under Alternative 3 would result in a substantial increase in the amount of incidental takes or disturbance of fur seals, Steller sea lions, harbor seals, or any other marine mammal that may occur in this area.

Opening the area would allow for direct competition between the flatfish and Pacific cod fishery and beluga whale, resident killer whales, ribbon seals, and Steller sea lions, if they occur in the area. It appears that ribbon seals are not as likely to be in this area during the fishing season as bearded and spotted seals. Because of the modified gear requirement, the potential indirect effect on prey for spotted and bearded seals and walrus is likely not expected to be substantial.

The option to adjust the boundary of the St. Matthew Island HCA would provide protection from incidental takes and disturbance to those marine mammals that occur in the waters in the new closed area and that are likely to interact with nonpelagic trawl fisheries. This would also be beneficial to marine mammals that may use this area for foraging and for marine mammals that depend on other marine mammals that forage in this area (e. g., polar bears dependent on ice seals and walrus). Because of the limited area and the widespread occurrence of the benthic dependent mammals, this closure is not likely to result in substantial improvements in overall prey availability. Because the overall level of fishing effort would not change, no change overall in the incidental takes and disturbance of marine mammals in the Bering Sea is likely.

Seabirds

Many seabird species use the marine habitat of the Bering Sea, including several species of conservation concern. Some species are occasionally taken by cable or vessel strikes or become entangled in trawl nets, and some species depend on benthic habitat that is disrupted by non-pelagic trawling. However, Alaska Fisheries Science Center estimates that seabird takes are few and infrequent in relation to seabird population total estimates. Moreover, recent modeling suggests that even a large increase in incidental takes of short-tailed albatross by interactions with trawl cables would have negligible effects on the recovery of the species. The spatial and temporal effects of non-pelagic trawling on benthic habitat are not yet well understood, although undisturbed areas seem to produce more clam species on which eider species are dependent.

The impacts on seabirds from each of the alternatives, both positive and negative, would be insignificant. Under Alternative 1, seabird takes and disruptions to benthic habitat and prey availability are at low levels and are mitigated (to some degree) by current spatial restrictions on the trawl fisheries in the Bering Sea. The trawl sweep modification requirement under Alternatives 2 and 3 could lessen impacts to benthic habitat, thereby increasing prey availability to the species which are dependent on it for at least part of the year. It is unknown what additional effort might occur in the Modified Gear Trawl Zone, but is likely to be insignificant to seabird populations. The option to adjust the St Matthew HCA boundary may decrease effort in the area, increasing prey availability, and reducing vessel strikes.

Ecosystem

Three primary means of measurement of ecosystem change are evaluated: predator-prey relationships, energy flow and balance, and ecosystem diversity. Insignificant effects on predator-prey relationships are expected for Alternative 2 and 3, and the Option. No substantial changes would be anticipated in biomass or numbers in prey populations. No increase in the catch of higher trophic levels, nor changes in the risk of exotic species introductions are expected because there would be no change in fishing activities that would result in these types of effects. No large changes would be expected in species composition in the ecosystem. The trophic level of the catch would not differ much from the status quo, and little change would be expected in the species composition of the groundfish community, or in the removal of top predators. Alternatives 2 and 3 likely would have a slight positive effect on predator-prey relationships because the gear modification would result in less contact with the seafloor, and may lead to more prey availability. This effect is not likely to be observable because predator-prey relationships are not well documented in the northern portion of the Bering Sea. Therefore, Alternatives 2 and 3 would have an insignificant effect on predator-prey relationships. The areas included in the Modified Gear Trawl Zone component of Alternative 3, and the St Matthew Island HCA Option, are very localized and therefore any effect on predator-prey relationships is likely to be isolated and not observable on regional basis.

The amount and flow of energy in the ecosystem under the alternatives and option would be the same as the status quo with regard to the total level of catch biomass removals from groundfish fisheries. No substantial changes in groundfish catch or discarding would be expected.

A net change in nonpelagic trawling would not occur along the Bering Sea shelf and slope by either alternative or the option. The gear modification identified in Alternatives 2 and 3 may lessen the impact of nonpelagic trawling and therefore may be more protective of benthic habitat in general but is not expected to have observable effects on diversity. Thus, species level diversity would remain the same relative to the status quo, and is rated as insignificant for Alternatives 2 and 3. The effects of the Option are localized and occur in areas of high waves and currents so it likely is not possible to observe changes to diversity that may be related to the additional closure near SMIHCA.

ES.5 Regulatory Impact Review

Table 1 provides an overview of the costs and benefits of the Alternatives and the option.

Table 1 Comparison of alternatives for economic and social impacts

	Alternative 1	Alternative 2	Alternative 3	SMIHCA option
Description	no action (status quo)	require vessels targeting flatfish in the Bering Sea to use modified sweeps	require vessels targeting flatfish in the Bering Sea to use modified sweeps AND adjust boundary of the NBSRA to create a "Modified Gear Trawl Zone" where nonpelagic trawl vessels must use modified sweeps	Adjust the St Matthew Island HCA boundary to ensure protection of blue king crab habitat
Protection of habitat: value to commercial fishermen, value to other users, non-use value	Baseline	Use of the gear will reduce adverse impacts to benthic habitat. Benthic communities will change somewhat, but not as greatly as they would in the absence of this gear requirement. Reduction in impacts is expected to improve the productivity of fish stocks beyond what they would have been under the status quo. This may increase harvestable surpluses beyond what they would have been, and improve catch per unit effort.	The same considerations with respect to the trawl sweep modification apply here as under Alternative 2. However, opening the Modified Gear Trawl Zone, despite the requirement for the gear modification, will adversely impact the benthic habitat within the area. Thus the protection benefits from this action are less than those under Alternative 2.	Expanding the St Matthew HCA would provide some incremental protection for benthic habitat by closing further area to nonpelagic trawling
		Persons may have non-use values for the marginal or incremental change in benthic habitat. No estimates of this are available; there is no scientific information that this is non-trivial.		same
Crab and crab fisheries	Baseline	The use of the gear will result in less crab bycatch mortality, which may improve the sustainability of crab stocks and increase the catch per unit effort in crab fisheries.		May improve sustainability of crab stocks.
Cost of gear	Baseline	Estimated to be about \$3000-\$3500 annually. This could be greater or less depending on the type of gear and length of sweeps in use.		n/a
		Annual cost of the modified gear may be offset if using the elevated disks increases the useful life of trawl sweeps, lengthening the time before replacement of the gear.		
		There may be a one-time cost for modifying the vessel to accommodate the modified gear. Estimates of this cost may range between zero and \$800,000, depending on the vessel and its existing configuration. Vessels differ from each other so much that it is not possible to provide an average or aggregate cost.		
Cost of fishing with modified gear	Baseline	It may take longer to set and retrieve nets. Industry sources believe that this may be a cost during transitional years, as learning takes place and gear improvements are implemented.		n/a
		Research shows little or no difference in catchability of the gear using 8" disks raising the sweep 2.5" off the seafloor. No catchability study is available using 10" disks raising the sweep 2.5" off the seafloor, but the result is expected to be similar.		
Management and enforcement	Baseline	Enforcement personnel will need to verify that the modified gear meets the regulatory requirements when conducting regular vessel inspections.	The creation of the Modified Gear Trawl Zone should not create any enforcement burden beyond that of enforcing the modified trawl sweeps.	No additional management or enforcement required.

ES.6 Initial Regulatory Flexibility Analysis

In 2007, all of the catcher processors targeting flatfish in the Bering Sea exceeded the \$4.0 million threshold, when considering their combined groundfish revenues, and would be considered large entities for purposes of the RFA. None of the four catcher vessels who participated in 2007 met the threshold, based on their combined groundfish revenues, and these vessels are considered small entities for purposes of the RFA. It is likely that some of these vessels are also linked by company affiliation, which may then qualify them as large entities, but information is not available to identify ownership status of all vessels at an entity level. Therefore, the IRFA may overestimate the number of small entities directly regulated by the proposed action. At the time of the preparation of this draft IRFA, the Council has not identified a preferred alternative. This section will be re-evaluated once the Council has taken further action.

ES.7 Organization of the document

There are four required components of an environmental assessment. The need for the proposal is described in Section 1.2, and the alternatives in Section 2. Section 5 discusses the environmental impacts of the proposed action and alternatives. A list of agencies and persons consulted is included in Section 13.

Also included in the document is a Regulatory Impact Review (Section 7), which discusses economic impacts of the action, and an Initial Regulatory Flexibility analysis (Section 0), which evaluates the impact of the action on small businesses. Sections 9 and 10 discuss the alternatives with respect to other analytical considerations, and Section 11 describes the housekeeping amendments that are part of this action.