AGENDA C-5(a)
OCTOBER 2009

MEMORANDUM

TO: Council, SSC and AP Members

FROM: Chris Oliver for
Executive Director

DATE: September 24, 2009

SUBJECT: Trawl sweep gear modification requirement

ESTIMATED TIME
6 HOURS
ALL C-5 ITEMS

ACTION REQUIRED

(a) Final action on trawl sweep requirements for the Bering Sea flatfish trawl fishery

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. A public review draft of the analysis was mailed to the Council in early September; the executive summary of this analysis is attached as Item C-5(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 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 September 15th, and consequently their input was not included in the public review draft mailed out to the Council. A summary of their discussion, and their recommendation to move the St Matthew HCA boundary eastward to encompass the territorial sea around St Matthew Island, was mailed to the Council in late September, and is attached as Item C-5(a)(2). The Plan Team minutes are included in the materials for agenda item C-4(e).

The proposed amendment resulting from this analysis would also address four housekeeping changes to the FMP: a) remove reference to the Crab and Halibut Protection Area, which was effectively superseded by the Nearshore Bristol Bay closure, b) renumber figures in the FMP sequentially, and correct cross-references; c) adjust the northern boundary of the Northern Bering Sea Research Area to conform with the boundary for NMFS statistical area 514; and d) update the CDQ program eligibility list in the FMP to be consistent with the reauthorized Magnuson-Stevens Act. These housekeeping changes are described in the analysis.

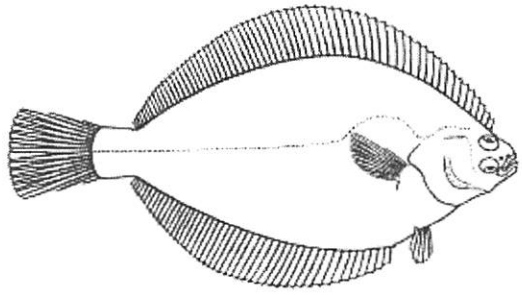
Item C-5(a)(1)
October 2009

DRAFT FOR PUBLIC REVIEW

Proposed Amendment 94 to the Fishery Management Plan for Groundfish of the Bering Sea and Aleutian Islands Management Area to

Require Trawl Sweep Modification in the Bering Sea Flatfish Fishery, Establish a Modified Gear Trawl Zone, and Revise Boundaries of the Northern Bering Sea Research Area and Saint Matthew Island Habitat Conservation Area

Environmental Assessment/ Regulatory Impact Review/ Initial Regulatory Flexibility Analysis



August 2009

Lead Agency: National Marine Fisheries Service
National Oceanic and Atmospheric Administration
Alaska Region

Responsible Official: Robert D. Mecum
Acting Administrator, Alaska Regional Office
National Marine Fisheries Service

For Further Information Contact: Diana Evans, North Pacific Fishery Management Council, or
Melanie Brown, NMFS Alaska Regional Office

Abstract: This Environmental Assessment/Regulatory Impact Review/Initial Regulatory Flexibility Analysis analyzes proposed Amendment 94 to the Fishery Management Plan for Groundfish of the Bering Sea and Aleutian Islands Management Area (FMP) and regulation revisions to require gear modification for nonpelagic trawl vessels targeting flatfish in the Bering Sea subarea. The regulations would require elevating devices on trawl sweeps to raise them off the seafloor to reduce the potential impact on bottom habitat. The action follows from Amendment 89, Bering Sea Habitat Conservation Measures. This analysis also evaluates changes to the southern boundary of the Northern Bering Sea Research Area to create an area where anyone fishing with nonpelagic trawl gear must use modified trawl sweeps and evaluates changes to the eastern boundary of the Saint 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 FMP, which are required to correct typographical and non-substantive errors and to ensure consistency with the Magnuson-Stevens Fishery Conservation and Management Act.

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Executive Summary

ES.1 Introduction

This document analyzes a proposed gear modification to require nonpelagic trawl vessels targeting flatfish in the Bering Sea (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 nonpelagic trawl gear must use the modified trawl sweeps required by regulations, and evaluates changes to the boundary of the St. Matthew Island Habitat Conservation Area (SMIHCA) to be consistent with the North Pacific Fishery Management Council's (Council) 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. Because 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 nonpelagic 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 "wedge" as important to the fishery due to purported high concentrations of flatfish species 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 nonpelagic 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 nonpelagic trawl vessels targeting flatfish in the BS to use elevating devices on trawl sweeps to raise them off the seafloor

Alternative 3: Require nonpelagic 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 nonpelagic 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 Habitat Conservation Area (SMIHCA) eastern 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 are as follows:

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 northern boundary of the Northern Bering Sea Research Area northwards to abut at Bering Strait; and
d. Update the Community Development Quota (CDQ) eligibility list to be consistent with the Magnuson-Stevens Act.

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 for their 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 8) 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 Environmental Impact Statement for Essential Fish Habitat Identification and Conservation in Alaska (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 sea whips (a long-lived species of primary concern). Tests for reduced impacts on basketstars, sponges, and polychaete siphons were positive in direction, but non-significant. Also, the demonstrated reductions in mortality to *C. bairdi* and *C. opilio* crabs likely indicate that any mortality of other, smaller epibenthos (such as other crab, sea stars, or shrimp) would also be reduced. 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 sensitivity of the benthic fauna in the area and the intensity of fishing. While some contact with living habitat species would continue from the elevating devices contacting the bottom, the fishery-wide adoption of devices should reduce seafloor contact with trawl sweeps. The Bering Sea shelf consists primarily of sand and mud substrates, supporting low-profile living and non-living structures. These structures can be protected by relatively small increases in clearance between the gear and the seafloor, such as the proposed trawl sweep modification. The effects of the sweep modification proposed under Alternatives 2 and 3 on habitat complexity are expected to be positive, as the modification will reduce damage and/or mortality to living and non-living habitat. Effects on benthic diversity and habitat suitability are also expected to be beneficial. Based on evaluation criteria used in previous analyses, the current effects of fishing with conventional trawl sweeps are rated as insignificant[1], so the trawl sweep modification does not constitute a significant change from the status quo under these criteria, however the effect of requiring the gear modification is expected to be positive for habitat.

[1] ~~Alaska Groundfish Fisheries Pro~~grammatic Supplemental Environmental Impact Statement (NMFS 2004) and the Environmental Impact Statement for Essential Fish Habitat Identifcation and Conservation in Alaska (NMFS 2005).

Alternative 3 would additionally reopen the Modified Gear Trawl Zone (MGTZ) 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 mud, 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 SMIHCA 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, because it is already part of the NBSRA. Therefore this option would not result in a substantial change in mortality or damage to living substrate, community structure, or benthic biodiversity, and therefore has insignificant effects.

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. Overall harvest of target, non-target, and prohibited species would be constrained by the target fishery harvest limits and by prohibited species catch (PSC) 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 unmodified gear was not significantly different than the catch of modified 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 currently unfished by nonpelagic gear, 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 lions, and walruses), Carnivora (sea otters and polar bears), 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 equipment such as fishing nets and line 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 overlap. 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 is not likely to change under these alternatives, no difference in the overall direct competition for prey species is expected and effects are therefore insignificant.

Alternative 3 would allow for fishing in the Modified Gear Trawl Zone, which is currently closed to nonpelagic trawling. By allowing nonpelagic trawling in this area, the potential for interaction with marine mammals present during trawling would increase, 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 Zone for foraging and may encounter nonpelagic trawl vessels in the opened area.

If marine mammals that interact with the nonelagic trawel fishery occur in the Modified Gear Trawl Zone, opening this area 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 Zone 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. The effects are therefore insignificant.

Opening the area would allow for direct competition between the flatfish 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 substantial and are therefore insignificant.

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 in the incidental takes and disturbance of marine mammals in the Bering Sea is likely and effects are therefore insignificant.

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 nonpelagic 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 nonpelagic 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 positive and negative impacts on seabirds from each of the alternatives 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 eastern boundary would retain the status quo that does not allow non-pelagic trawl fishing in the area.

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 SMIHCA 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 SMIHCA Option are very localized; 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 discard would be expected so any effects on amount and flow of energy are insignificant.

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 SMIHCA 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 ES-1 provides an overview of the costs and benefits of the alternatives and the option.

Table ES-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, as specified in regulation	Require vessels targeting flatfish in the Bering Sea to use modified sweeps, as specified in regulation, **AND** adjust boundary of the NBSRA to create a "Modified Gear Trawl Zone" where all nonpelagic trawl vessels must use modified sweeps	Adjust the St. Matthew Island HCA boundary eastwards.
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 of nonpelagic trawling may provide an incremental improvement to the ecological services provided by that habitat beyond what they would have been under the status quo. Specific economic benefits, however, cannot be empirically measured.	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.	The area in question is already closed to nonpelagic trawl fishing under the status quo as part of the Northern Bering Sea Research Area (NBSRA). Extending the boundary would make the closure permanent, and the area would not be subject to opening under Alternative 3 or for experimental fishing under the NBSRA research plan.
		Persons may have non-use values for incremental change in benthic habitat. No estimates of this are available.		
Crab and crab fisheries	Baseline	Proper, consistent, and comprehensive use of the gear is expected to result in less crab mortality, which may improve the sustainability of crab stocks and increase the catch per unit effort in crab fisheries.		Same as status quo. Some long-term benefit to crab may accrue if the area would otherwise have been reopened to fishing.
Cost of gear	Baseline	Estimated to be about $3,000–$3,500 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 and/or reducing the net wear and tear on the equipment.		
		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

Discussion at and background materials for the Crab Plan Team, September 2009

Bering Sea Flatfish Trawl Sweep Modification analysis, including an option to revise the boundaries of the Northern Bering Sea Research Area and the St Matthew Island Habitat Conservation Area

Discussion and recommendation

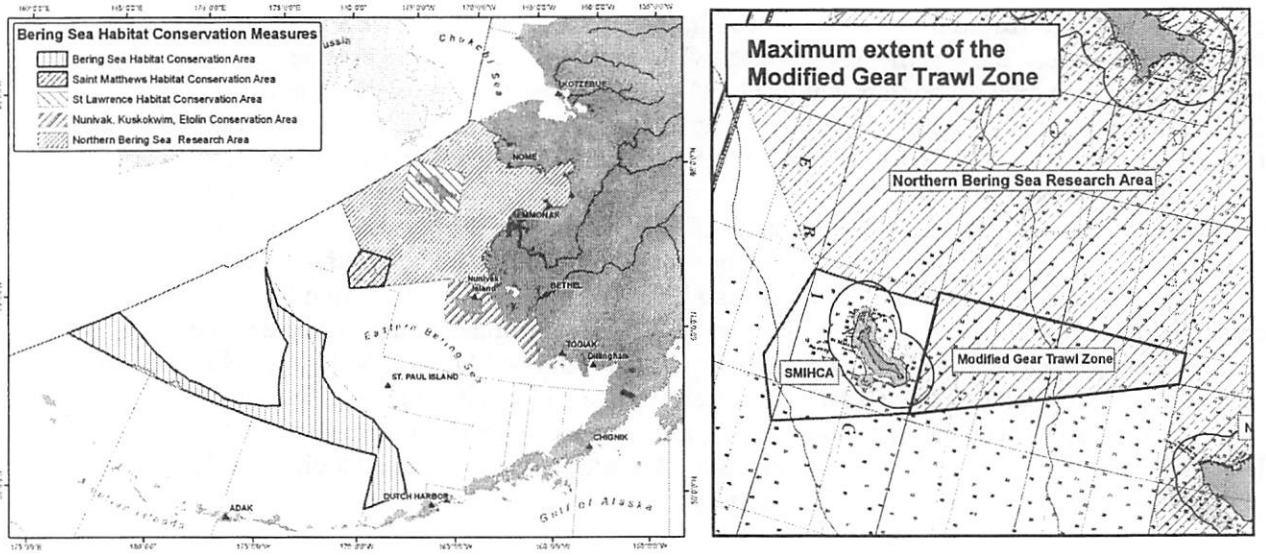
The Crab Plan Team received presentations from Diana Evans and Craig Rose about the trawl sweep modification analysis, and its associated considerations of revisions to the St Matthew Island HCA and Northern Bering Sea Research Area boundaries. Craig presented a brief overview of the most recent research (from August 2009) showing that the trawl sweep modification reduces injury and mortality in unobserved red king crab encounters with the trawl sweeps. Robert Foy presented information from the NMFS trawl survey on blue king crab, Tanner crab, and snow crab distribution in the St Matthew Islands HCA area and to the east, in the Modified Gear Trawl Zone. Bob noted that while there were some blue king crab found in the survey stations east of the current boundary of the St Matthew HCA, the numbers were low, especially compared to the abundance of crab just outside the boundary to the south. For other crab species, there are consistently very few Tanner crab to the east, but in 2009 there were some high catches of snow crab at survey stations to the east. Diana also presented information from the survey on flatfish distribution in these areas. John Gauvin provided public comment, identifying that the timing for fisheries likely to occur in the Modified Gear Trawl Zone would be May to June for the yellowfin sole fishery, and July for flathead sole (Bering flounder). He also noted that the Bering Sea sediment map, included in the trawl sweep modification analysis, indicated a change in sediment type east of St Matthew Island that may correspond with the relatively low abundance of flatfish immediately east of the island, and their higher abundance at the next survey station to the east.

With respect to the trawl sweep modification research, the team had some discussion trying to ascertain the magnitude of unobserved mortality, occurring from crab encounters with the trawl sweep and footrope, relative to observed crab bycatch in trawl nets. Moving on to the Council's question of whether the St Matthew HCA boundary was appropriate for protecting blue king crab, the team discussed how important it may be to protect the small population to the east from the effects of trawling. **The team recommended moving the eastern boundary of the St Matthew HCA eastward to encompass the territorial sea around St Matthew Island, 12 miles east of the island. The new boundary line would be parallel to the current boundary.** The team commented that this would move the boundary approximately halfway to the next survey station grid, between survey stations 23 and 22, and would thus cover some additional proportion of the observed survey distribution and occurrence of blue king crab in this region.

The team noted that other areas to the south and west of the St Matthew Island HCA are also important areas for crab populations and habitat, but did not comment on other changes to the HCA boundaries. The team may agenda this item for review and discussion at a future date.

Background material, sent in advance to the Crab Plan Team[1]

The St Matthew Island Habitat Conservation Area (SMIHCA) was created by the Council in 2007, as part of BSAI Groundfish Amendment 89, and implemented in regulation in 2008. The area is closed to nonpelagic trawling, in order to protect habitat for blue king crab. Amendment 89 also created the Northern Bering Sea Research Area (NBSRA), which is also closed to nonpelagic trawling, but in which experimental fishing may be allowed to occur at some time in the future, once a research plan has been developed for the area. The Crab Plan Team was consulted during the development of Amendment 89 (see Appendix 1 for the excerpted minutes from 2006 and 2007, when Amendment 89 was discussed by the Crab Plan Team.)



The Council is reviewing an action to require the use of elevating discs on trawl sweeps in the Bering Sea flatfish trawl fisheries, in order to reduce contact with the seafloor. As part of this action, the Council is also considering whether to reopen an area of the NBSRA to nonpelagic trawling. This area would be known as the Modified Gear Trawl Zone, and only elevated sweeps would be allowed to be used in this area. As discussed previously with the Crab Plan Team, the use of modified sweeps is expected to reduce unobserved mortality of crab as compared to the use of conventional sweeps. During their discussions on this issue, there has been some debate as to whether the SMIHCA boundaries, as they ended up in regulation, are exactly where the Council intended them to be. Consequently, **the Council has asked the Crab Plan Team to provide their recommendations as to whether the current boundaries for the St Matthew Island Habitat Conservation Area are adequate for protection of blue king crab.** The Council has determined that the proposed Modified Gear Trawl Zone will abut the SMIHCA, but the Council is requesting input from the Crab Plan Team to see whether the eastern boundary of the SMIHCA is appropriate, or whether it needs to be adjusted slightly to the east. Any adjustments to the eastern boundary of the SMIHCA, as recommended by the Plan Team and adopted by the Council, will be incorporated into the trawl sweep modification analysis currently before the Council. The Crab Plan Team has indicated, however, that in response to the Council's request, they may wish to make recommendations as to the appropriateness of the other boundaries for the SMIHCA, particularly the southern boundary. If so, the Council will respond to any recommendations for adjustment of any but the

[1] Note, with the exception of the Crab Plan Team's previous minutes on this issue, the background material was summarized from information contained in the public review draft of the analysis. The content of Appendix 2, however, which provides maps of the NMFS survey distribution of crab, has been replaced in this version with the maps presented at the September 2009 Crab Plan Team meeting, which included data from the 2009 survey.

eastern boundary of the SMIHCA in a separate action, as further analysis will be required, and different stakeholders will be affected.

The full analysis for the trawl sweep modification analysis is available on the Council website, at www.alaskafisheries.noaa.gov/npfmc/ecosystem/TrawlSweepMod909.pdf. Some excerpts from that analysis are included here for the convenience of Crab Plan Team members. Also, some detailed information from the NMFS trawl survey about the distribution of blue king crab, which was also presented to the Crab Plan Team in May 2009.

Excerpts from Crab Plan Team minutes on the Council's Bering Sea Habitat Conservation action

September 2007

Habitat: Herman Savikko provided an overview of habitat protection changes resulting from Council actions in June. Actions by the Council are intended to freeze the footprint of trawl effort in the Bering Sea, establish gear modification requirements to keep gear off of the bottom, and to establish the Northern Bering Sea Research Area (NBSRA) (north of St Matthew) which will be closed to bottom trawling until additional research is completed evaluating experimental gear. Additional protection measures may also be considered. The CPT requests additional information on the development of the research area and the appropriate means to provide the Team's input into the development process.

May 2007

Bering Sea Crab EFH measures considered by Council
The team was informed of measures under consideration by the Council in conjunction with Bering Sea Habitat Conservation. Understanding that the Council intends to take final action at the June 2007 meeting, the team took the following motion (unanimous): *The CPT recommends that the NPMFC carefully consider all available information on king and opilio crab abundance and location when developing the Bering Sea Habitat Conservation plan. The CPT supports studying this northern area to evaluate to what extent this area represents important crab habitat and the CPT supports studies on the impact of bottom trawling on crab habitat and stocks. Further, should the Council move forward with development of a Northern Research Area management plan, the CPT requests participation and consultation in the development of this plan as it relates to protection measures for crab habitat and an analysis of this in conjunction with existing crab bycatch limitation zones.*

September 2006

Crab bycatch/EFH considerations
Cathy Coon (Council staff) presented an overview of Crab bycatch and EFH considerations for St. Matthew blue king crab and EBS snow crab. This presentation is a follow up of a presentation to the CPT in May 2006 of a discussion paper prepared for the Council's June 2006 meeting. In June, the Council requested that the CPT consider additional crab protection areas for these two species and to make recommendations to the Council for the October Council meeting. Cathy reviewed the bycatch information by sex and size category of crab for various trawl fisheries. Lou Rugolo noted that it would be useful to be able to extrapolate the observed bycatch proportional to the total (actual) bycatch by fishery to see to what extent it is representative of the reported extrapolated numbers.

The team discussed the bycatch numbers by species and to what extent the numbers of bycatch represent a conservation concern to the species. Forrest Bowers noted that these two species do not seem to represent a bycatch problem but other species (eg AI red king crab, Tanner crab) might have a larger problem with bycatch. Cathy explained that for the Council's consideration this is a habitat-related concern rather than specifically a bycatch concern. In evaluating the sampled hauls for the yellowfin sole fishery the majority of the sampled PSC catch in the St. Matthew area did not show a larger concentration of snow crab than for other regions. It was discussed that the concern for snow crab stocks would not likely be concentrated around the St. Matthew area thus any habitat considerations for bycatch should be broadened to examine a larger area. Gretchen Harrington commented that nothing in the analysis presented thus far indicates that additional measures are necessary for crab stocks at this time. Wayne

Donaldson noted that despite the potential bycatch concern by the northern extension of the trawl fleet this region is still captured in the COBLZ and thus managed under existing bycatch measures.

The team made several suggestions for evaluation if further study is initiated. Forrest Bowers suggested evaluating the mature females overlaid with bycatch by fishery in the northern region. Doug Pengilly noted that, from the maps that were shown, where the bycatch of blue king crab was occurring did not appear to be from the component of the St. Matthew stock that is believed to be important for mature females and hence does not appear to represent a reproductive concern. Jack Turnock agreed that if the fishery were shifting further north and bycatch of large males increased as a result of the change in fishery location that would be of concern but this does not appear to be the case at this point. Ginny Eckert noted that evaluating information on an annual basis would be more informative to evaluating trends than aggregating several years together in the figures as displayed currently. More information would also be necessary to interpret the population impact of the bycatch.

Siddeek commented that the length frequency tables in the bycatch are very informative for evaluating size distribution of the population in the bycatch. More information spatially and temporally is necessary to evaluate seasonal movement of different sex and size categories. Doug Pengilly commented that the relative percentage of bycatch by size category might indicate that certain size categories are preferentially impacted above the overall intent of the bycatch limit (0.1133% of the total population estimate). Ginny Eckert suggested that any further spatial evaluation should differentiate between warm years and cold years. Further spatial evaluations should also overlay of trawl intensity in a given year with population information. The team discussed that there may be hot spots in need of further protection, but current evidence does not show this at this point.

Gretchen noted that the rebuilding plan for snow crab did consider this but found that the hot spots moved from year to year and thus further protecting them were not feasible. Doug suggested that for the snow crab stock, further evaluating the data prior to and following the 1999 stock crash would be informative.

The rock sole fishery results might be more informative if the data could be split to better represent the portion of blue king crab for the St. Matthew population. Blue king crab figures would be more informative if they focused upon the time period following the rebuilding plans. The team discussed that the area around the Pribilofs might be important to evaluate for blue king crab for the P. cod pot fishery which seems to show signs of expanding. Juvenile blue king crabs are very vulnerable to groundfish pot gear given the lack of escape mechanisms on this gear. It also would be useful to determine if Pribilof Islands blue king crab are being caught outside of the trawl closure area presently or in recent years.

The team discussed that other species such as AI RKC (specifically for Atka mackerel fishery impacts) would benefit from further bycatch considerations as well as Pribilof Islands blue king crab given their patchy distribution and the potential for isolated bycatch incidences to severely impact the stock. EBS Tanner crab may also be of concern given the increase in recent Tanner crab bycatch by the trawl fishery.

Given the presentation of information to the team at this meeting, the team did not see any indications that bycatch of snow crab or St. Matthew blue king crab raised any concerns at this point for additional crab habitat measures.

May 2006

Bering Sea crab EFH measures considered by Council

Diana Stram presented an overview of a discussion paper for the June Council meeting regarding the possible need for habitat protection measures for St. Matthew blue king crab and EBS snow crab stocks.

This paper was in response to a Council motion requesting a review of existing measures for these stocks and potential fishery interactions. The team's comments were solicited regarding completeness of the measures outlined in the paper, additional information available on habitat requirements for these crab species, display of maps of ovigerous females, and any insight regarding the efficacy of existing measures and the perceived need for additional measures at this time.

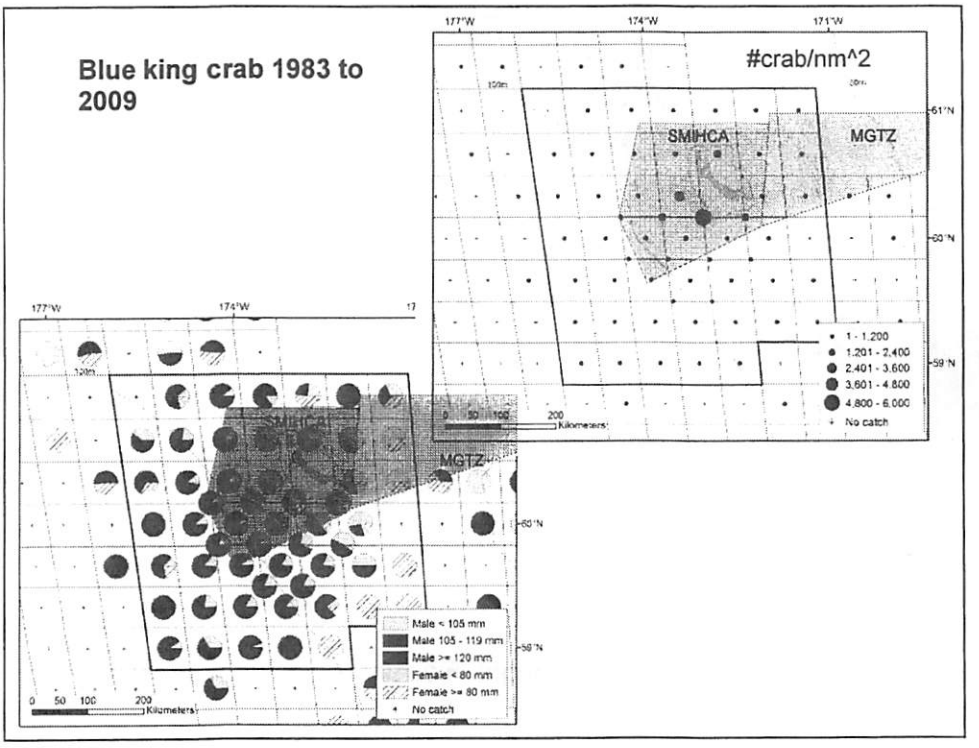
Team members offered the following comments regarding the information presented and suggestions for additional information to be analyzed in order to evaluate the need for any additional measures at this time:

- No new information is available since the rebuilding plans were crafted regarding habitat requirements and vulnerability
- Changes in bycatch would be the most pertinent new information to analyze, particularly the composition by sex and life history stage of the bycatch by trawl fisheries
- Areas to the north of the Pribilofs have had increased effort in yellowfin sole trawl fishery in recent years. There is some potential that this might affect the migration and reproduction of snow crab. Again the composition of these fisheries contribution to bycatch would be useful to analyze
- Longline fisheries (particularly halibut fishery) contribution to blue king crab bycatch should be considered
- Timing and catch composition in trawl and fixed gear fisheries should be considered

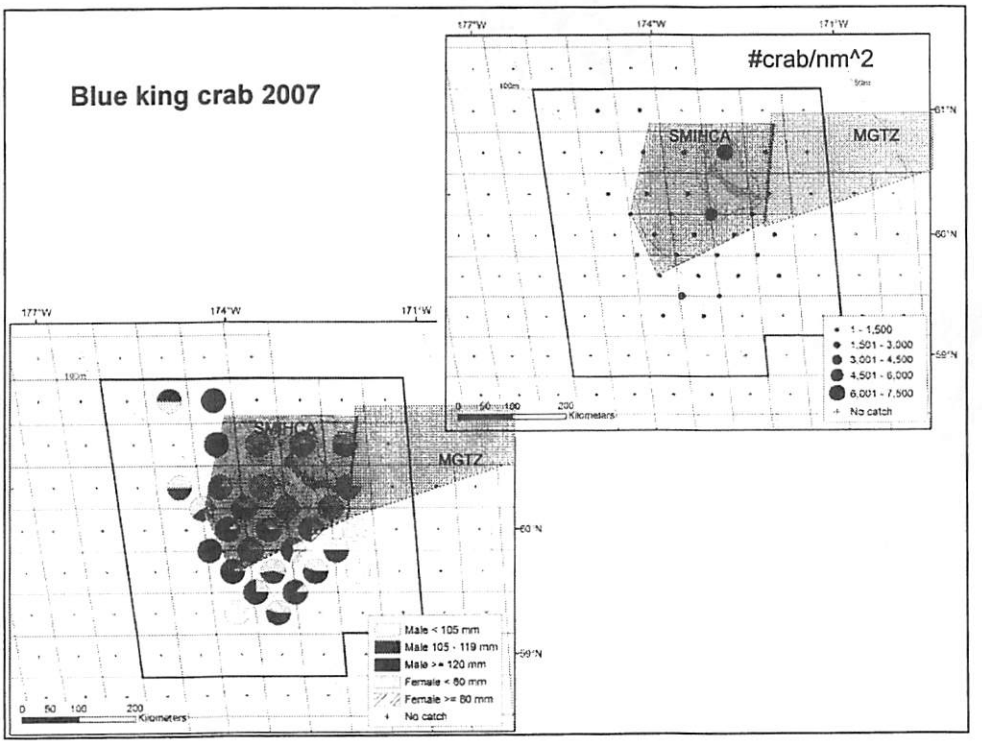
Information from the NMFS trawl survey on distribution of blue king crab

NMFS Source: B. Foy, NMFS AFSC.

NMFS trawl survey stations at which blue king crab were caught, 1983–2009, around St. Matthew Island Habitat Conservation Area (SMIHCA) and the proposed Modified Gear Trawl Zone (MGTZ; right).

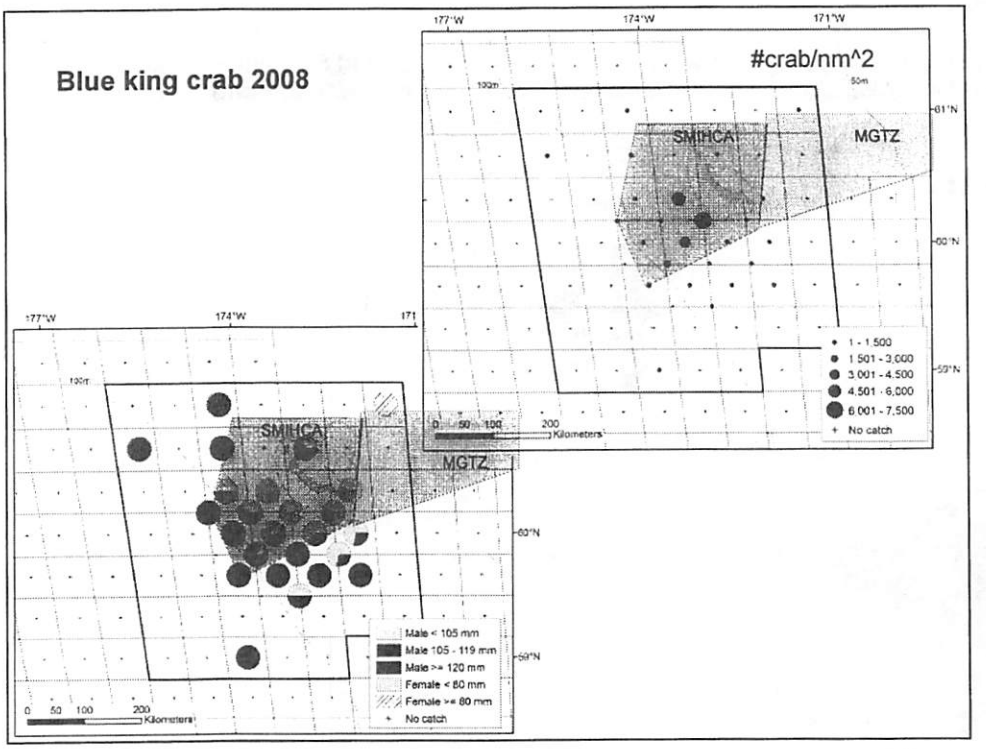


NMFS trawl survey stations at which blue king crab were caught in 2007

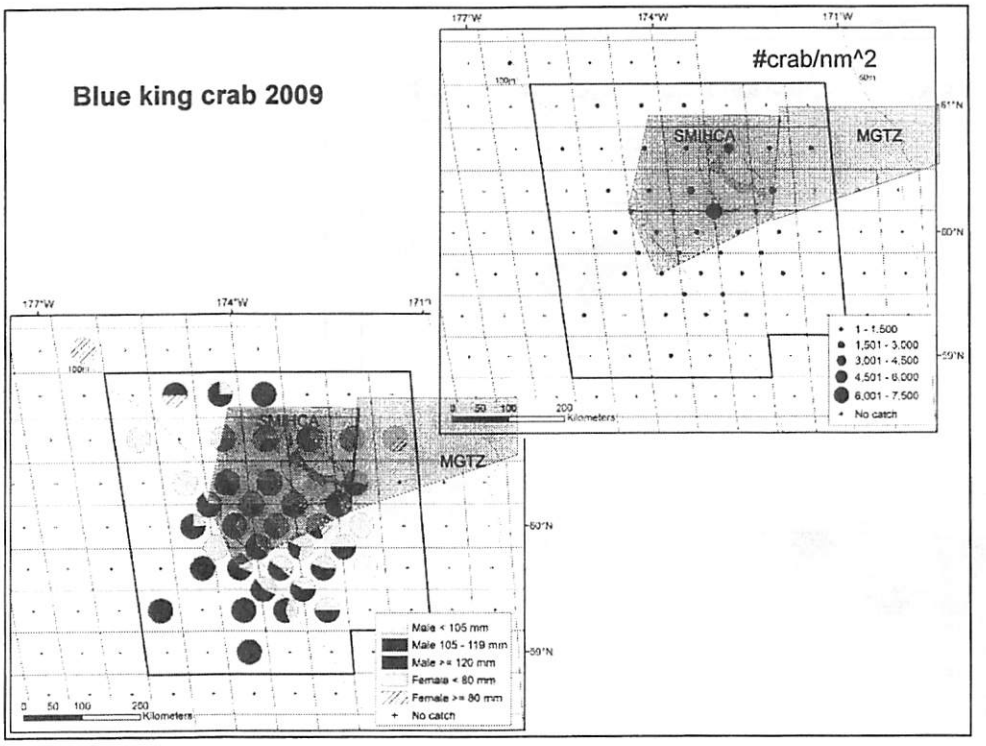


Appendix 2
NMFS trawl survey distribution of blue king crab

NMFS trawl survey stations at which blue king crab were caught in 2008

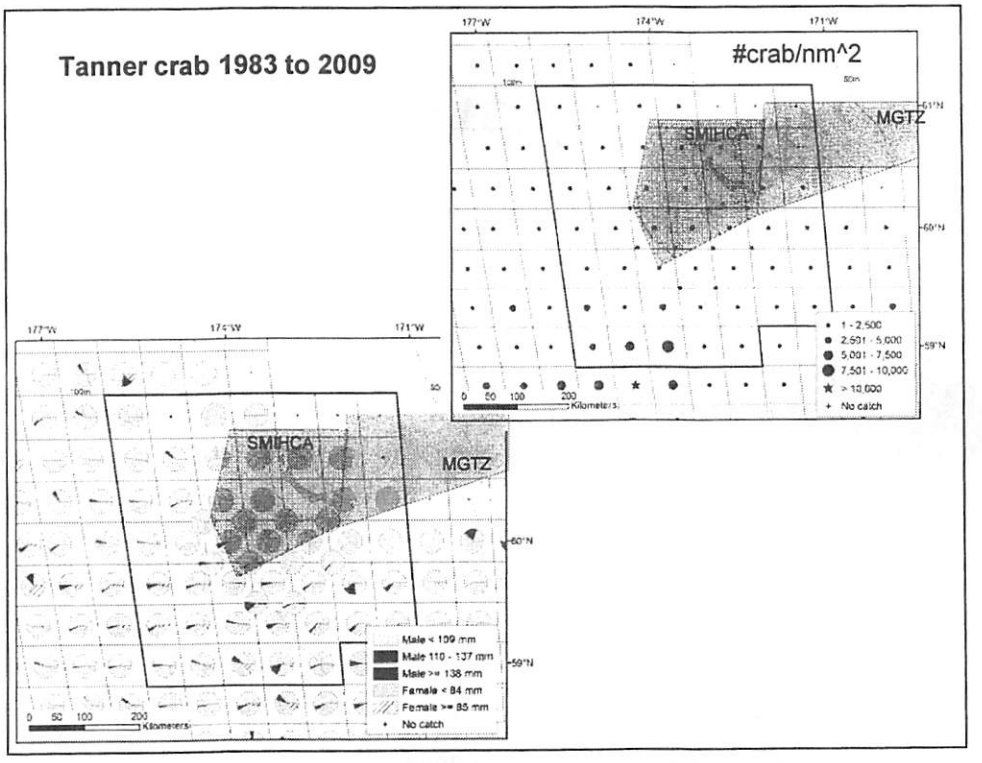


NMFS trawl survey stations at which blue king crab were caught in 2009

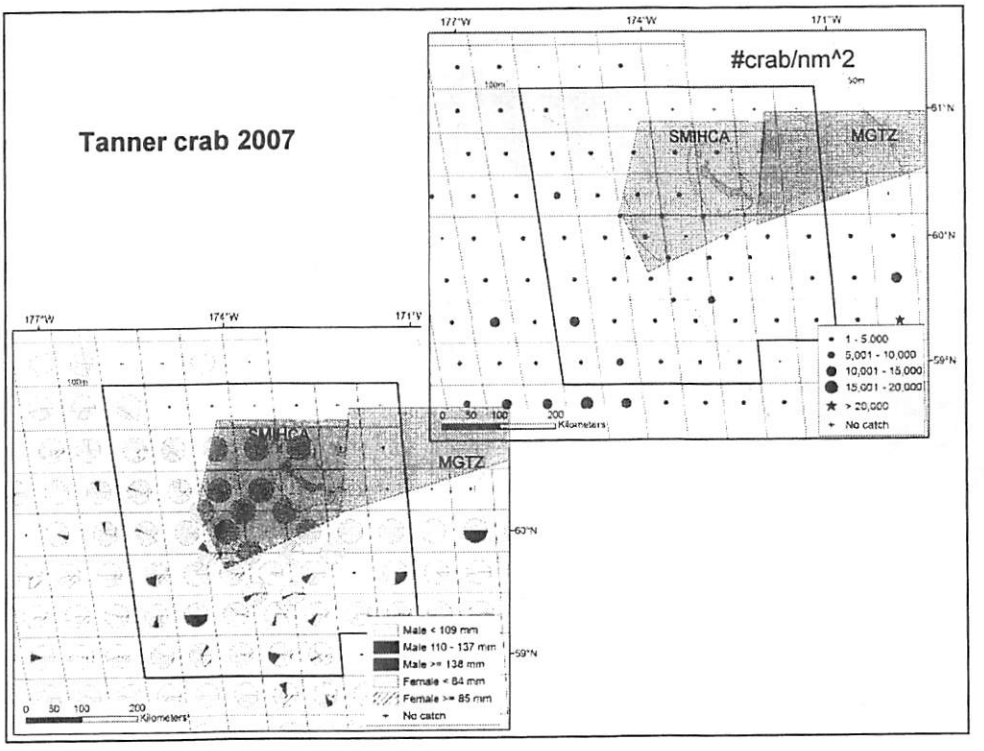


Appendix 2
NMFS trawl survey distribution of blue king crab

NMFS trawl survey stations at which Tanner crab were caught, 1983–2009, around St. Matthew Island Habitat Conservation Area (SMIHCA) and the proposed Modified Gear Trawl Zone (MGTZ; right).

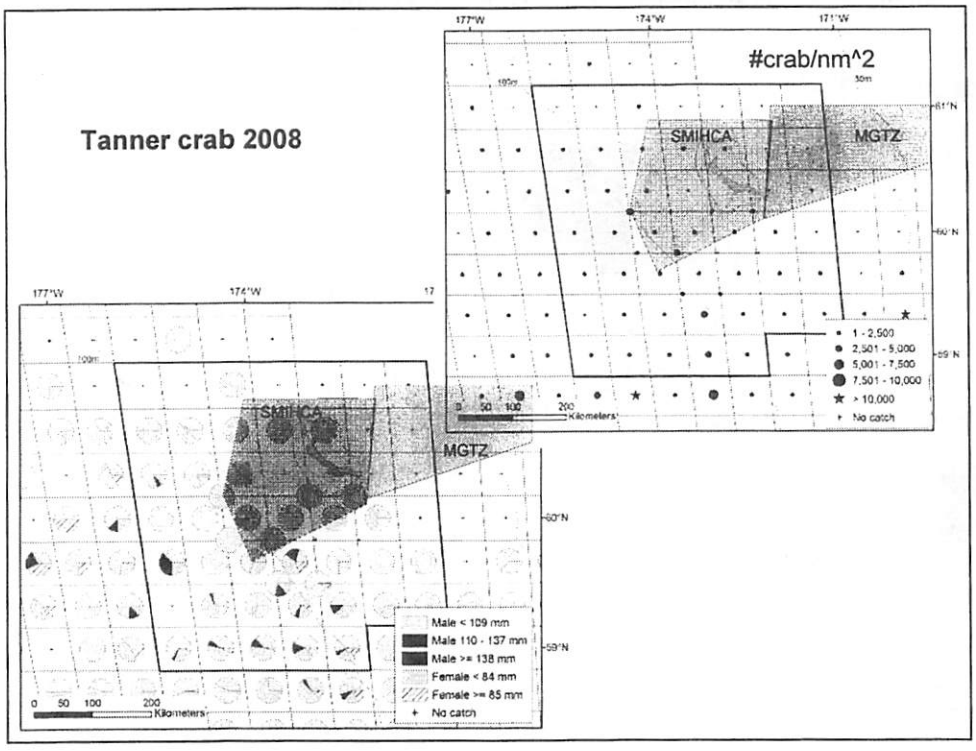


NMFS trawl survey stations at which Tanner crab were caught in 2007

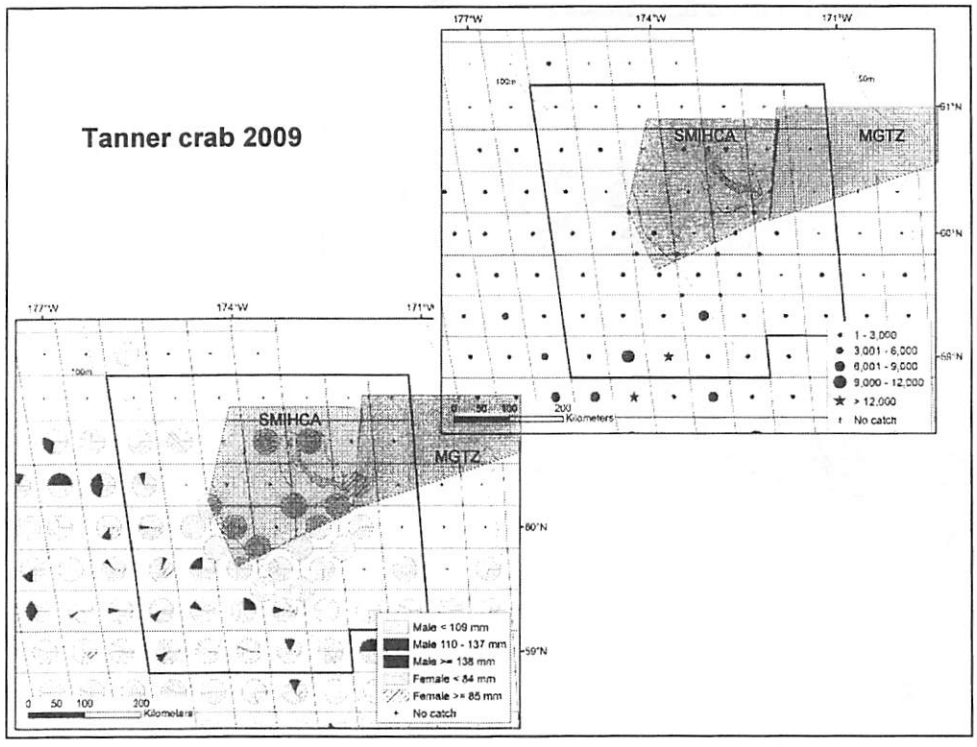


Appendix 2
NMFS trawl survey distribution of blue king crab

NMFS trawl survey stations at which Tanner crab were caught in 2008

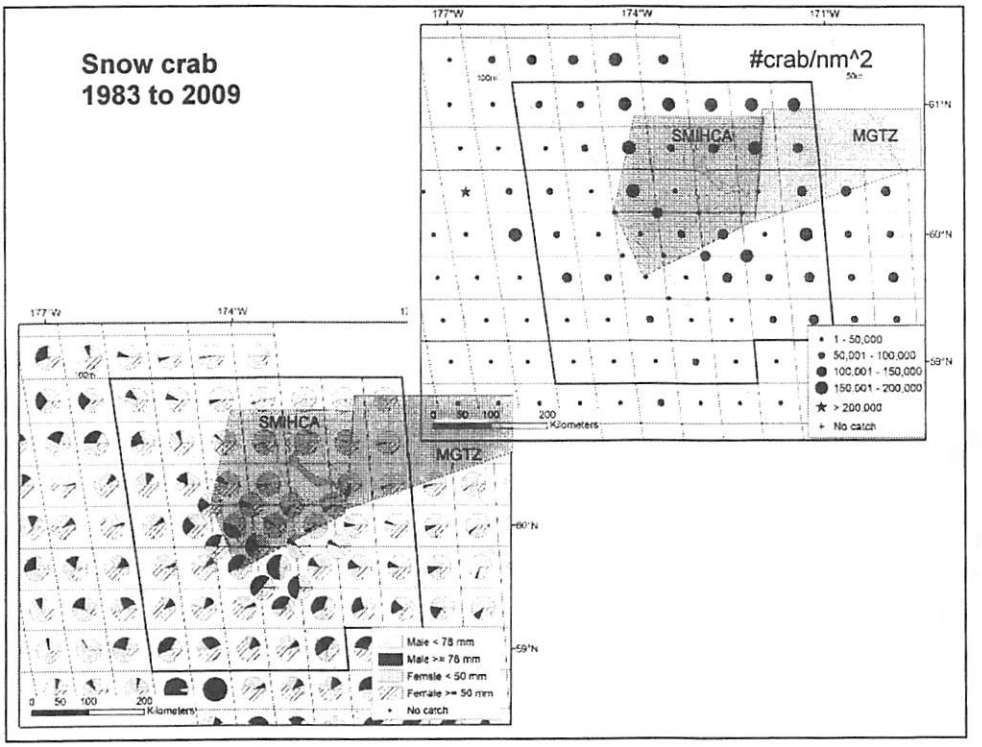


NMFS trawl survey stations at which Tanner crab were caught in 2009

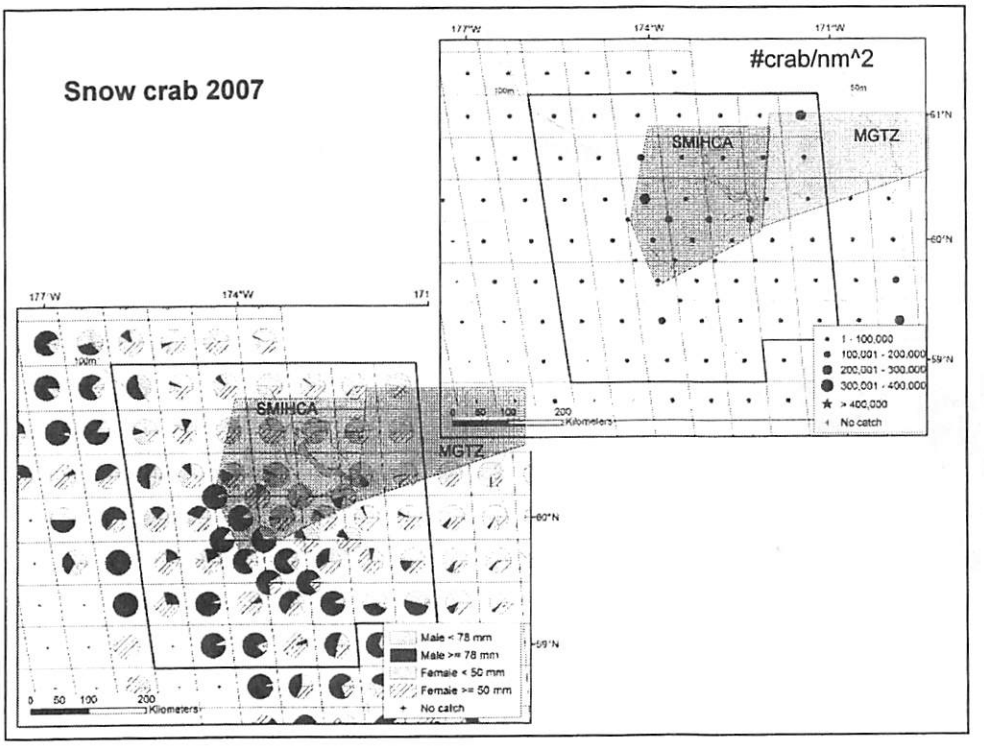


Appendix 2
NMFS trawl survey distribution of blue king crab

NMFS trawl survey stations at which snow crab were caught, 1983–2009, around St. Matthew Island Habitat Conservation Area (SMIHCA) and the proposed Modified Gear Trawl Zone (MGTZ; right).



NMFS trawl survey stations at which snow crab were caught in 2007



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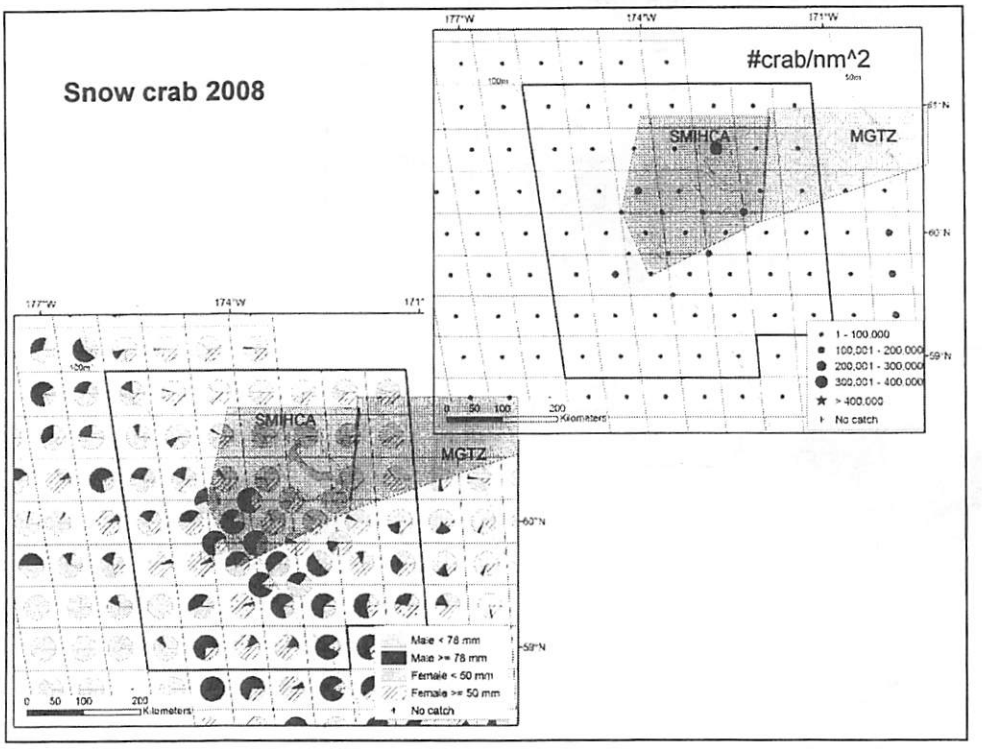
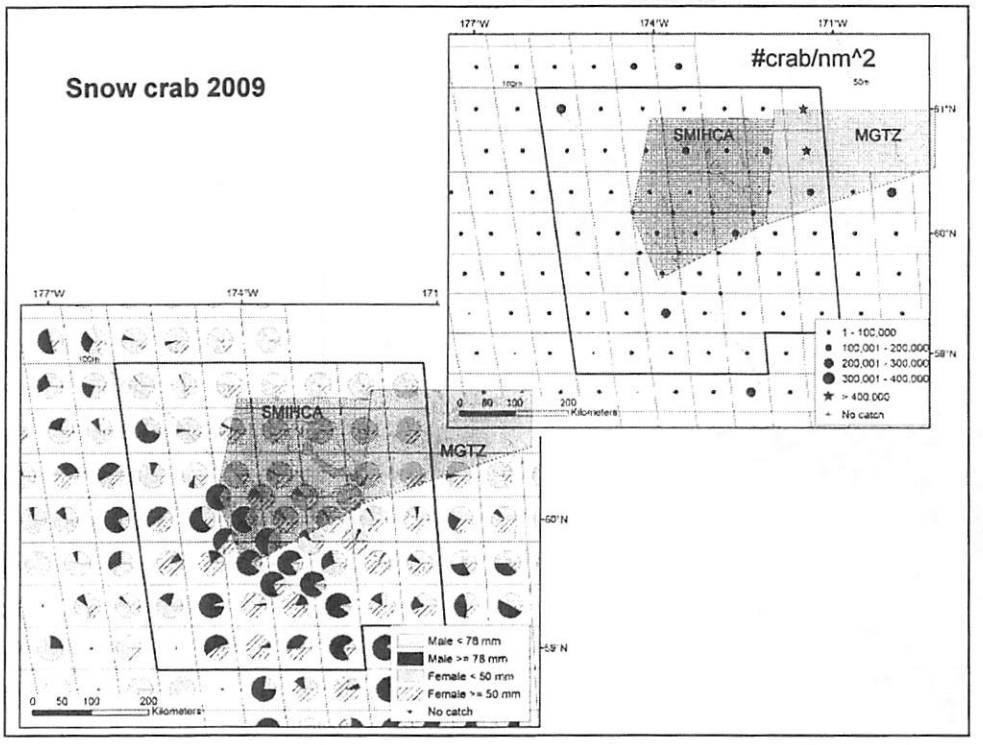
NMFS trawl survey distribution of blue king crab

NMFS trawl survey stations at which snow crab were caught in 2008

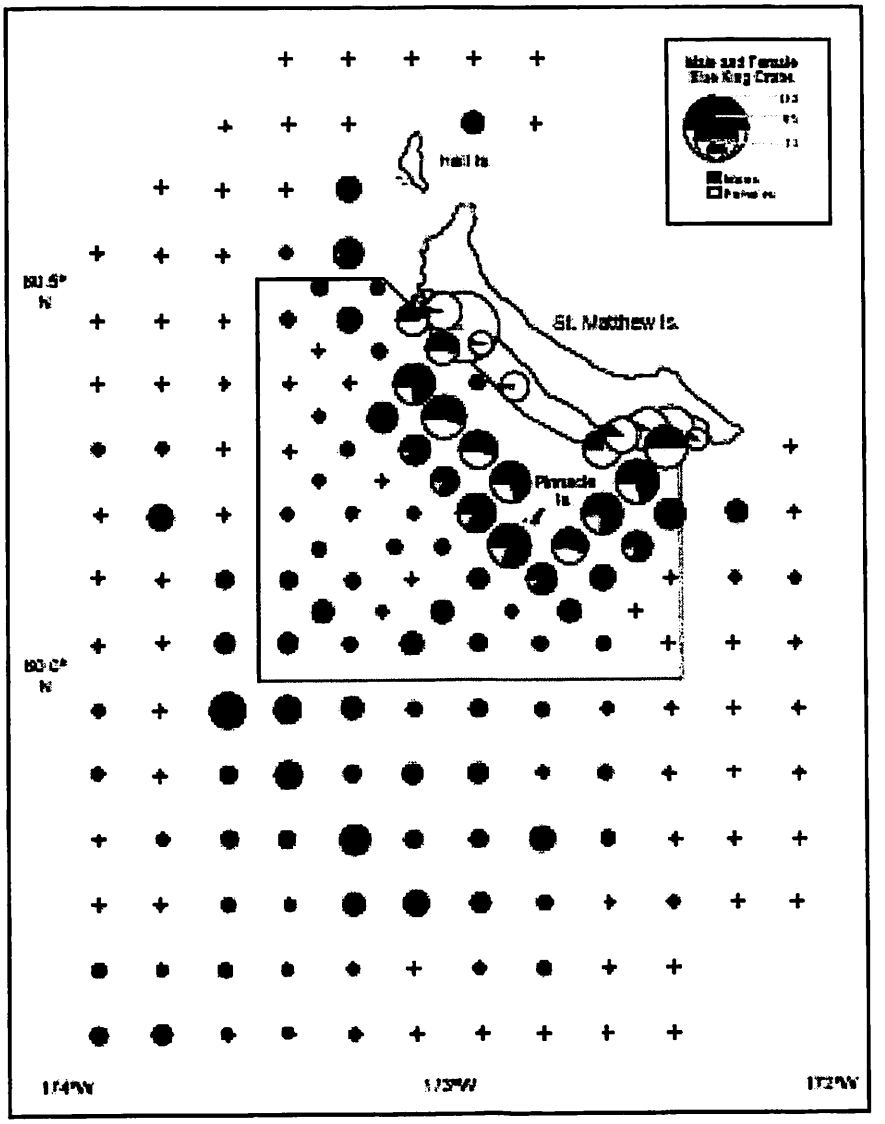


NMFS trawl survey stations at which snow crab were caught in 2009



Information from the ADFG survey on distribution of blue king crab

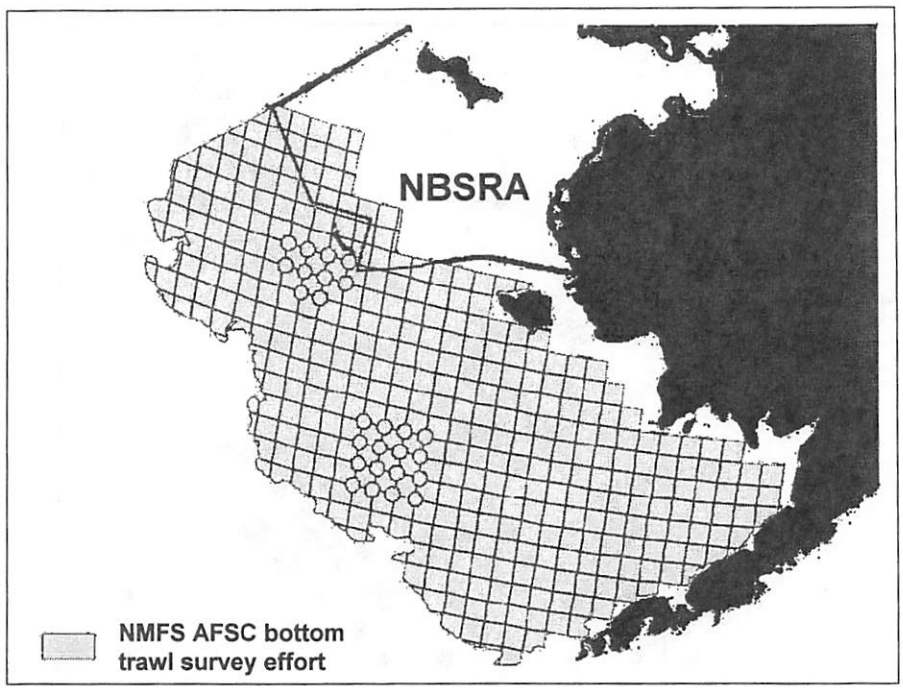
Figure 0-1 **Male and female blue king crab catch per unit effort (CPUE) by station in the 2007 St. Matthew Island survey.**



Source: Watson 2008.

Information from the NMFS trawl survey on distribution of groundfish

Figure 0-1 **Stations of the NMFS trawl survey, and the boundary of the Northern Bering Sea Research Area (NBSRA; top); and specific stations in the proposed Modified Gear Trawl Zone (MGTZ; bottom).**



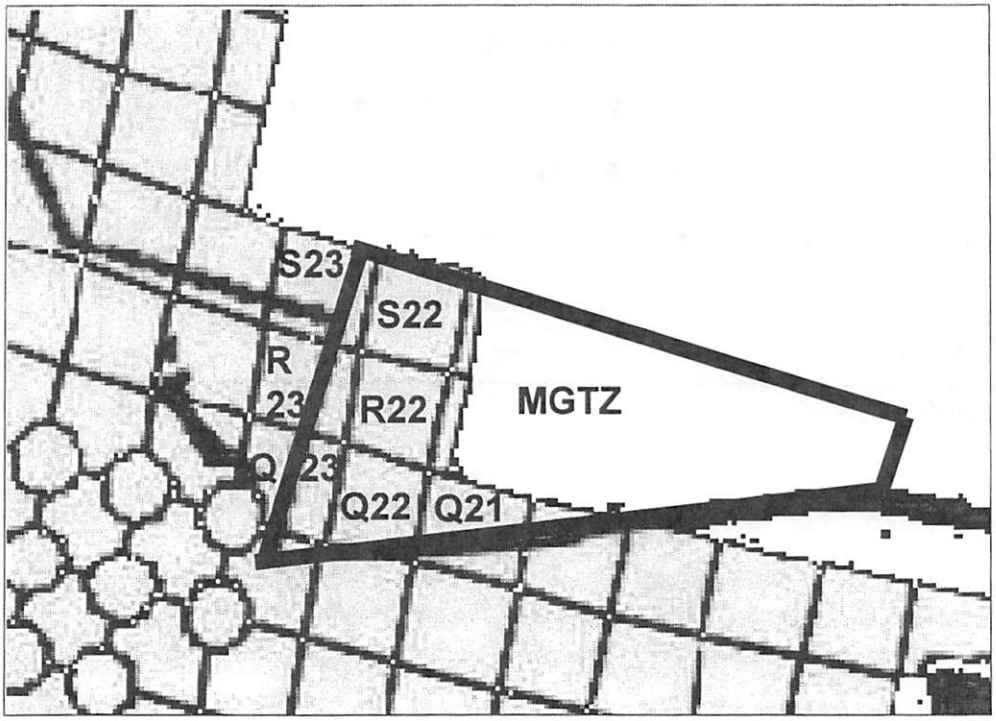


Table 0-1 **NMFS trawl survey catch per unit effort of selected groundfish target species and Pacific halibut, by station in the Modified Gear Trawl Zone (MGTZ), average for 2005–2008, and relative abundance of species at the station compared to elsewhere in the eastern Bering Sea.**

Species		Stations within MGTZ				Stations straddling western border of MGTZ		
		Q-21	Q-22	R-22	S-22	Q-23	R-23	S-23
yellowfin sole	CPUE (kg/haul)	28.1	74.3	16.7	11.0	7.7	0.9	0.8
	relative abundance[1]	medium	high	medium	low	low	low	low
Alaska plaice	CPUE (kg/haul)	67.6	28.7	11.2	15.4	12.1	5.4	6.6
	relative abundance[1]	high	high	medium	high	medium	medium	medium
Bering flounder	CPUE (kg/haul)	2.7	1.8	3.7	5.4	0.1	0.4	0.6
	relative abundance[1]	high	high	high	high	low	low	medium
northern rock sole	CPUE (kg/haul)	2.0	1.3	2.9	1.4	2.1	0.5	0.2
	relative abundance[1]	low	low	low	low	low	low	low
Pacific halibut	CPUE (kg/haul)	0.2	--	--	--	0.0	--	0.1
	relative abundance[1]	low	--	--	--	low	--	low
Pacific cod	CPUE (kg/haul)	0.6	0.7	0.4	0.3	5.2	0.0	0.0
	relative abundance[1]	low	low	low	low	low	low	low
walleye pollock	CPUE (kg/haul)	4.3	3.5	3.6	7.2	2.4	0.1	0.6
	relative abundance[1]	low	low	low	low	low	low	low

Source: NMFS AFSC, http://www.afsc.noaa.gov/RACE/groundfish/survey_data/default.htm.

[1]Three tiers of relative abundance are determined for each species at each station in the eastern Bering Sea based on data from the trawl surveys from 1982 to 2008 (see above website for details).

Note: "--" = none caught

AGENDA C-5(a)
Supplemental
OCTOBER 2009

Fishery research bypasses peer review

GEORGE PLETNIKOFF

September 17, 2009 at 10:56AM AKST

One of the biggest issues that will be brought before the North Pacific Fishery Management Council during its quarterly meeting Oct. 1 through Oct. 9 at the Hilton Hotel in downtown Anchorage has a really long title.

It is "Proposed Amendment 94 to the Fishery Management Plan for Groundfish of the Bering Sea and Aleutian Islands Management Area to Require Trawl Sweep Modification in the Bering Sea Flatfish Fishery, Establish a Modified Gear Trawl Zone, and Revise Boundaries of the Northern Bering Sea Research Area and Saint Matthew Island Habitat Conservation Area 1."

Wheww. That is lengthy.

The long and the short of it are this. The yellow fin sole and other flatfish fishery wants more area in the Bering Sea to fish in. This because they say that the fish they want to catch is moving north due to climate change in the Southern Bering Sea.

Greenpeace has a different opinion.

And they want to use a "modified gear change to their fishing gear" that a scientist from the National Marine Fisheries Service says "will lower the substrate destruction in this fish prosecution."

This is the "modification" that they are talking about. They are putting rollers on the cable that drags along the bottom of the ocean to lift that cable two inches off the bottom so "other life on the bottom" will not be disturbed. Presumably, that means the huge trawl net held together by the cables won't drag on the Bering Sea floor as much. But it will still drag some. And to what degree it will lessen the destruction of the ocean floor is unknown.

Now we must ask some questions about this proposed change in the Bering Sea Fishery Management Plan. One is: Why wasn't there any peer review done of the research that supports the gear modification and the opening of habitat that was previously designated a no-trawl zone by the council?

The second question has to do with the NPFMC proposing to open a northern research area right next to St. Matthew Island. The area would benefit these hard-bottom trawlers and would be about the size of Rhode Island. The question is: Are there any other oversight issues and federal and state agencies that need to be consulted?

And finally: Do the people who are to be most affected by this change — Bering Sea communities who depend on ocean resources — need notification and consultation before a final rule is made?

Based on my research, a peer-review process is required by statute. It should have been done before the findings supporting the modified gear and expanded fishing area were made public.

According to a news release in 2003 from the Office of Management and Budget, whenever any federal agency is involved in any research, "...all significant regulatory-science documents will be subjected to peer review by qualified specialists in appropriate technical disciplines."

In a discussion I had with the researcher, I was told there had been no peer review.

Also the Data Quality Act passed by Congress requires federal agencies to issue guidelines ensuring the quality, utility, objectivity and integrity of information that they disseminate and provide.

I am wondering if this has been done.

It is time for the owners of this most precious resource, We The People, to ensure that how these resources are used to line the pockets of a few multinational big business companies do so while following the laws we all have to follow. And to ensure that any federal agency responsible for any research done to seemingly support these big business companies, do the same.

George Pletnikoff is Unangan, born and raised on St. George Island, and now works for Greenpeace as an oceans campaigner.

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September 26, 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 C-5(a) Bottom trawling in the Northern Bering Sea and trawl gear modifications

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

We appreciate the opportunity to comment on the Council's proposal to expand the flatfish trawl fishery into the Northern Bering Sea Research Area (NBSRA). There is currently insufficient science to justify such an expansion and no compelling reason to deviate from the Council and National Marine Fisheries Service (NMFS) timeline for a research plan to be in place before any trawling occurs in the NBSRA. While we support improvements in the trawl fishery, those changes are unrelated to opening the NBSRA ahead of the necessary science. Accordingly, the Council should not adopt Alternative 3, which would remove a 3,500 square mile area from the NBSRA for the purposes of commercial trawling.

In addition, the Council should follow the recommendations of the Crab Plan Team to increase the size of the St. Matthew Island Habitat Conservation Area and extend the boundary to the east. Many of our crab stocks are in need of rebuilding, and any and all precautionary essential habitat protection for crab species is warranted.

Under the Council's action and final federal regulation, the NBSRA, including the 3,500 square mile 'wedge' between St. Matthew Island and Nunivak, is appropriately closed to bottom trawling. *See* 50 C.F.R. § 679.22(a)(17) ("No federally permitted vessel may fish with nonpelagic trawl gear in the Northern Bering Sea Research Area . . . ."). As the Council and NMFS have made clear, the NBSRA is closed to allow for study of the impacts of nonpelagic trawling in the area and to protect bottom habitat while those studies are conducted. *See* 73 Fed. Reg. 43362 (July 25, 2008) (stating that the NBSRA is closed "to nonpelagic trawling as a precautionary measure to prevent the potential adverse effects of nonpelagic trawling on portions of bottom habitat"); 73 Fed. Reg. 12357, 12360 (March 7, 2008) (stating that the NBSRA would be closed "to commercial nonpelagic trawling to provide a controlled area to study the potential effects of nonpelagic trawling on bottom habitat"). It has been clear that nonpelagic trawling is prohibited in the NBSRA pending completion of a research plan:

> The proposed rule would allow nonpelagic trawling within the NBSRA only within the scope of a nonpelagic trawling effects research plan. The Council intends that a research plan would be developed, in cooperation with the Alaska Fisheries Science Center, NMFS, that addresses potential protection measures for species that may depend on bottom habitat, including king and snow crabs,

marine mammals, Endangered Species Act listed species, and subsistence marine resources for Western Alaska communities.

73 Fed. Reg. at 12360. While we do support the suggested trawl gear modification as a requirement for every vessel targeting flatfish, that modification does not justify expanding the bottom trawl fishery into previously relatively unexploited habitat. The slight positive benefits to habitat that might accrue from the change in gear are not related to expanding bottom trawling into the NBSRA. Moreover, even using the modified gear, there will still be impacts from the footrope and doors of the trawl contacting the seafloor.

Further, as we have made clear, there is a lack of a NMFS trawl survey within most of the 3,500 square mile wedge area. Without such 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.

The North Pacific Research Board (NPRB) and the National Science Foundation (NSF) have only just completed the first year of a six-year study to study the effects of climate change on the Bering Sea ecosystem. Studies validate that the Northern Bering Sea is a much more benthic-driven system, with infauna and epifauna providing much of the production that supports the food web (Figure 1).

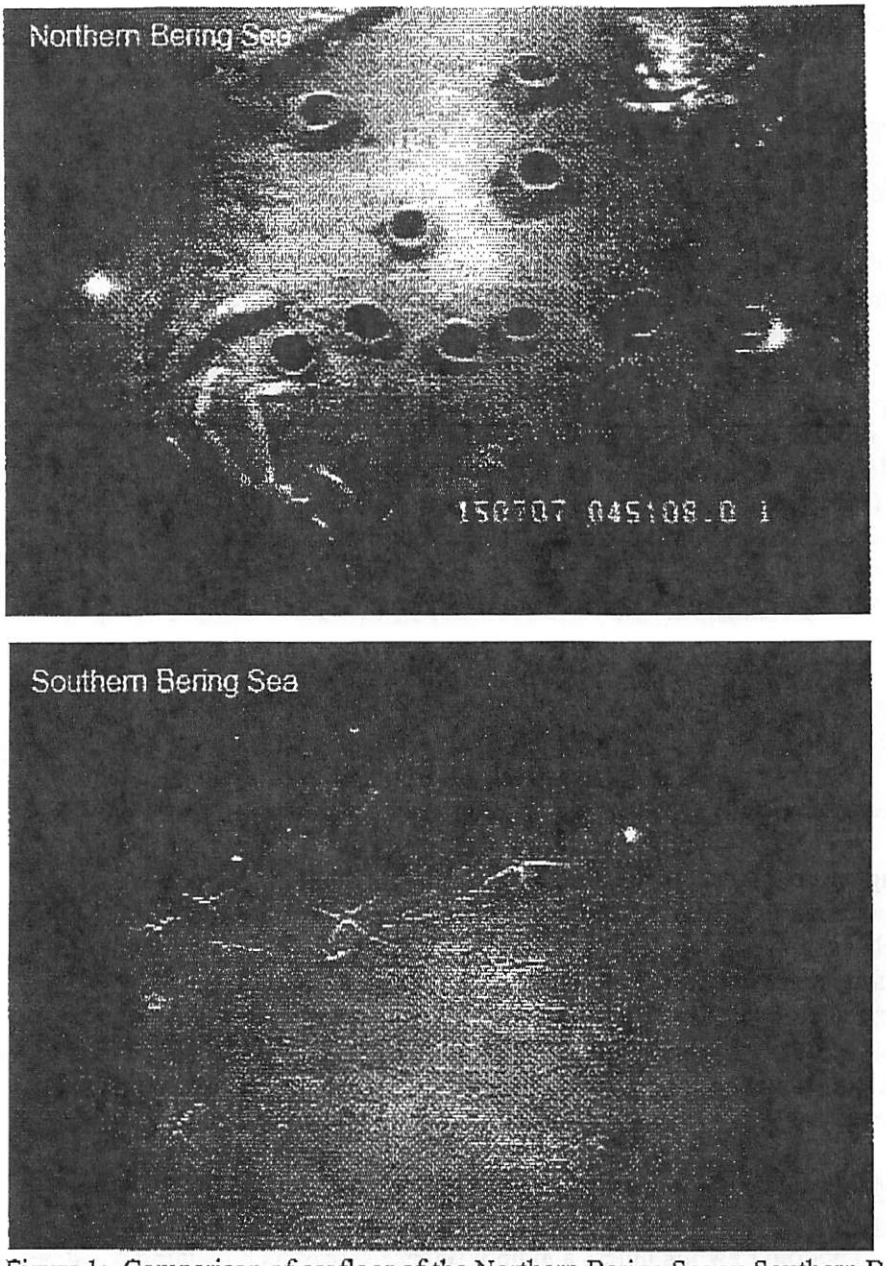

Figure 1: Comparison of seafloor of the Northern Bering Sea vs Southern Bering Sea

The Pacific walrus (*Odobenus rosmarus divergens*) is a species completely reliant on benthic production of the Northern Bering Sea. Studies have shown that they eat a variety of prey, including dozens of marine species ranging from annelid worms to fish, but they are known to mainly feed on the bivalves *Mya truncata*, *Serripes groenlandicus*, *Hiatella arctica*, and Tellinid clams (FWS 1994). Advancing the bottom trawl industry in the North would increase overlap of the fishery with Pacific walrus. In continental shelf waters, at least a portion of the walrus population is continually foraging for food throughout the year, almost exclusively at depths shallower than 80 meters (Fay and Burns 1988). Juvenile and lactating female walrus must feed

continually throughout the year, and males and non-lactating females feed less frequently (FWS 1994).

Bottom trawling can potentially change the physical characteristics of the seabed, which is an added stress to the benthic community (McConnaughey et al. 2000). The clams which walruses primarily feed on could directly threatened by bottom trawling.

Little is known and very few studies have been conducted regarding *Mya truncata*, *Serripes groenlandicus*, *Hiatella arctica*, and Tellinid clams. *Mya truncata* is a thin shelled clam which normally grows to be approximately seven cm long. Five pounds of pressure will break the shell of *Mya truncata* (Oliver et al. 1983) a favorite food of walrus in the northern Bering Sea. With trawl gear weighing up to thousands of pounds, *Mya truncata* could incur serious damage from a trawl fishery. *Serripes groenlandicus* is smaller than *Mya truncata*, also has a thin shell, and lives at a depth of 4-110 meters. *Serripes groenlandicus* can withstand up to 7.2lbs of pressure before its shell breaks (Oliver et al. 1983). *Hiatella arctica* has the thickest shell, which can reach a thickness of 3-4cm. *Hiatella arctica* lives at a depth from 0-45 meters (Marlin). Although it has a thicker shell than the other clam species, *Hiatella arctica* does not always burrow, and will often nestle around rocks on the seabed surface (Marlin), which makes it vulnerable to bottom trawling.

Like the Pacific walrus, bearded seals (*Erignathus barbatus*) also live in the Northern Bering Sea Research Area. Unlike many other species of seals, bearded seals depend heavily on a benthic diet (Dehn et al. 2007). Bottom trawling could negatively affect the bearded seal's diet, and could also possibly create competition between the bearded seal and Pacific walrus for prey.

There is still underlying uncertainty about the effects of trawling in the Bering Sea. Any increase in the use of bottom trawls and any significant increase or redistribution of fishing effort requires a credible analysis of habitat impacts. Existing analyses are not sufficient for this purpose. The model used to analyze habitat impacts in the Essential Fish Habitat EIS (NMFS 2005) and referenced extensively in the EA/RIR/IRFA for the current action assumed bottom trawl catches of only half of what they are today. The EFH analysis therefore cannot be used to address impacts to seafloor habitat because it underestimates future effort, area swept, and total habitat damaged by trawls.

The Council should separate the issues of trawl gear modification from the research plan for the NBSRA. 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,

Jim Ayers,
Vice President, Oceana

PUBLIC TESTIMONY SIGN-UP SHEET

Agenda Item: C-5(a) TRAWL Sweeps

	NAME *(PLEASE PRINT)*	TESTIFYING ON BEHALF OF:
1	Mike Seymour	FCVT
2	JOHN GAUVIN	Best Use Cooperative
3	David Bill	Young Ebbers Group
4	Dorothy Childers	Audrc
5	Jon Warrenchuk	Oceana
6	Lori Swanson	GFF
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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.

Handout - David Bill
C5(a)

BERING SEA ELDERS ADVISORY GROUP
c/o Native Village of Kwigillingok
PO Box 49
Kwigillingok, AK 99622

October 7, 2009

Eric Olson, Chair
North Pacific Fishery Management Council
605 W. 4th Avenue
Anchorage, AK 99501

Doug Mecum, Regional Administrator
National Marine Fisheries Service
PO Box 21668
Juneau, AK 99802

Re: Modified trawl gear in the NBSRA – Agenda Item C-5(a)

Dear Chairman Olson, Mr. Mecum and Members of the NPFMC,

The Bering Sea Elders Advisory Group is made up of 37 Tribal governments and is focused on promoting Tribal participating in fishery management decisions regarding the Northern Bering Sea Research Area (NBSRA).

The northern bottom trawl boundary was an important step taken in 2007 by the North Pacific Fishery Management Council to prevent movement of this fleet into new waters where they have not previously operated.

We believe it is too early to open the NBSRA between St. Matthew Island and Nunivak Island. The purpose of the NBSRA is to develop a plan based on science and traditional knowledge that will protect marine mammals, crab, endangered or threatened species and the subsistence needs of our villages. We appreciate your commitment to a thorough process that uses scientific research and our traditional knowledge to make the best plan for the future. Deciding to open the area between St. Matthew and Nunivak Island without going through that thorough process is not right. This decision affects all the Tribes who rely on the ocean, the sea mammals, halibut and all other life that migrates through these waters or uses the winter sea ice. There should not be decisions made about the northern Bering Sea region without government-to-government consultation between NMFS and affected Tribes. This is our way of life.

The Elders Group and participating Tribes are preparing information to provide the National Marine Fisheries Service and NPFMC for your future decisions about the

NBSRA. We believe all decisions about the NBSRA should be part of the overall approach and not done in a piece meal way.

We appreciate the fishing companies' effort to modify bottom trawl gear to reduce impact on the seafloor. However, we are not convinced that raising part of the gear above the bottom by 2-3 inches will effectively protect marine life and habitat. Furthermore, the footrope of the net, the discs along the sweeps and the trawl doors are still in direct contact with the bottom.

Recommendation

The wisest decision would be to require this modified gear in the open area and to leave the NBSRA alone while we go through the full process of evaluating how to allow bottom trawl fisheries to operate inside the closed area. At the very least, we request that you move the eastern boundary of the Modified Gear Trawl Zone out to 169° to 170°W longitude. This would provide a buffer for the sea mammals and other resources we rely on.

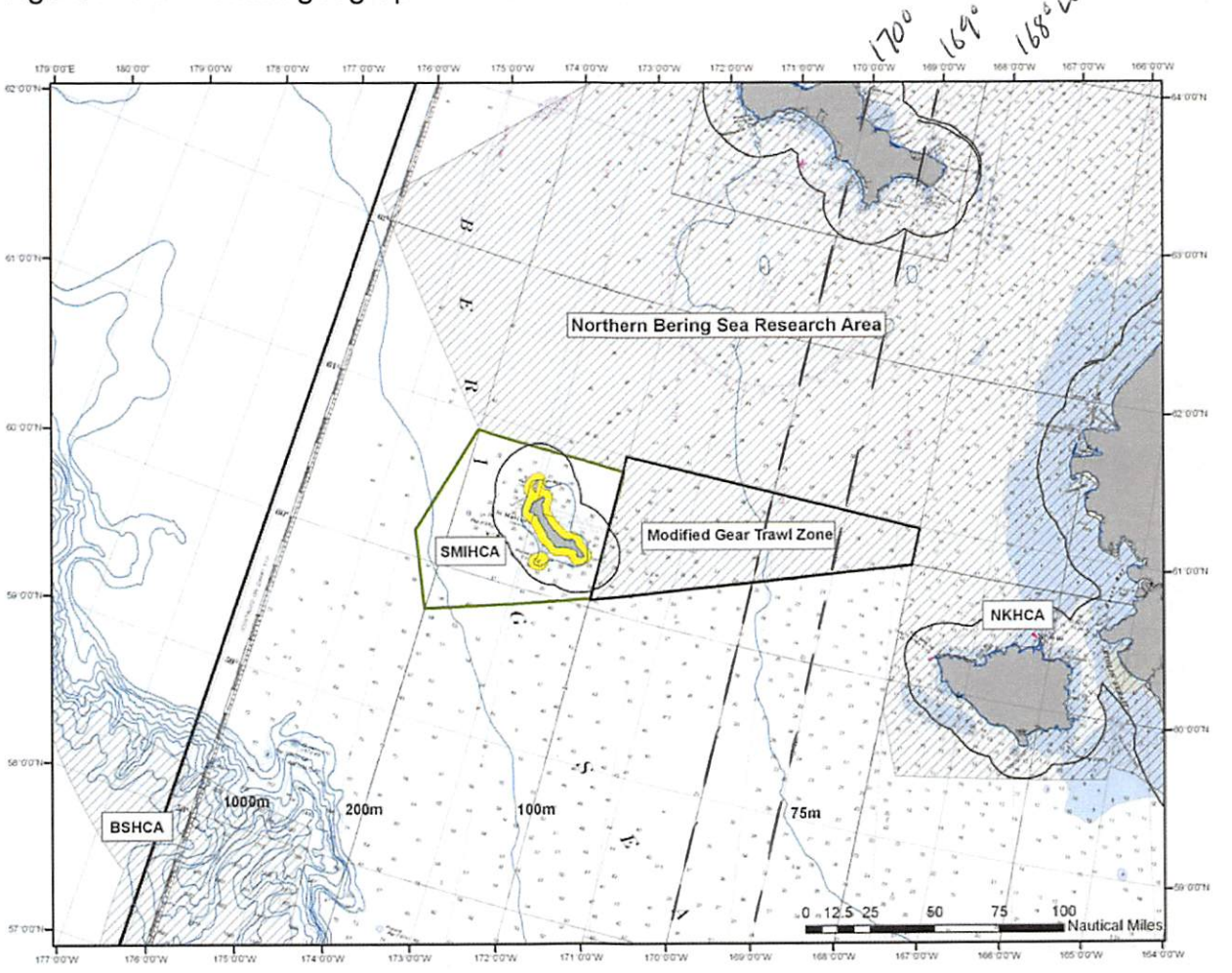
Sincerely,

David Bill, Sr.
Chair

cc: Myron Naneng, AVCP
Loretta Bullard, Kawerak, Inc.

Bering Sea Elders Advisory Group
Recommendation for Modified Trawl Gear Zone
October 2009

Figure 2-1 Maximum geographic extent of the Modified Gear Trawl Zone .



Note: NKHCA = Nunivak-Etolin Strait-Kuskokwim Bay Habitat Conservation Area; BSHCA = Bering Sea Habitat Conservation Area