

Feb'09

# Public Testimony Sign-Up Sheet


Agenda Item D-2(d) BS bottom trawl sweeps

	NAME (PLEASE PRINT)	AFFILIATION
1 /	JOAN GAUVIN	Best Use Cooperative
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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.

MEMORANDUM

TO: Council, SSC and AP Members

FROM: Chris Oliver   
Executive Director

DATE: January 28, 2009

SUBJECT: Miscellaneous Groundfish Management

ESTIMATED TIME 4 HOURS ALL D-2 ITEMS
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**ACTION REQUIRED**

(d) Discussion paper on BSAI bottom trawl sweep requirements.

**BACKGROUND**

At the June 2008 meeting, the Council initiated an analysis to require modified trawl sweeps in Bering Sea flatfish bottom trawl fisheries. The Council requested staff bring forward a discussion paper identifying the problem statement and alternatives that were originally analyzed with respect to this action as part of the June 2007 Bering Sea Habitat Conservation action, BSAI Groundfish FMP Amendment 89. The Council received the discussion paper in October 2008, but did not have time to address this issue then. The discussion paper is attached as Item D-2(d)(1). The AP minutes relating to this agenda item, from October, are attached as Item D-2(d)(2).

Although requiring modified sweeps for flatfish trawls in the Bering Sea was included in the preferred alternative for Bering Sea Habitat Conservation, the modification was not included in Amendment 89. Action was deferred because of implementation issues with regard to the practicality and enforceability of requiring the modified sweeps on all vessels participating in the fishery. The Council received a report in June 2008 from John Gauvin and Dr Craig Rose on additional field testing and research to resolve the challenges of using the modified sweeps on vessels without net reels, of using clamps and other methods to attach the discs to combination rope (two-inch diameter fabric over cable material commonly used for trawl sweeps), and of the correct spacing of the discs to achieve the habitat benefits while also achieving feasibility in terms of being able to roll the modified discs onto net reels and sweep or main wire winches.

On September 8, 2008, the Council sponsored a public workshop in Seattle to discuss implementation issues for the proposed trawl sweep modification. Mr. Gauvin and Dr. Rose presented their gear design and field testing results, and Melanie Brown, of NMFS Alaska Region, discussed the draft regulation that would implement the required modification. About 30 people attended, and discussed monitoring and enforcement issues arising from the draft regulation. A report from the workshop is attached as Item D-2(d)(3).

In October 2008, the Council's Enforcement Committee reviewed the discussion paper and implementation issues, and had specific comments on the enforceability of the draft regulation. The

Committee's October minutes are included in the discussion paper (Item D-2(d)(1)) as Appendix 2. To address the Enforcement Committee's concerns, an agency meeting was held in late October 2008, the summary of which is also in the discussion paper under Appendix 2. The meeting identified that the major outstanding enforcement issue to be resolved is the following: *Can a regulatory standard that specifies only a required clearance and spacing standard for modified gear be credibly enforced by NMFS?* In order to address this question, the agency representatives decided that an at-sea demonstration would be necessary to view the modified gear in situ. The sea trial was organized by Mr. John Gauvin, on the F/V Vaerdal, on January 9, 2009, in Seattle. A report from the demonstration is attached as Item D-2(d)(4). The final conclusion of agency personnel participating in the at-sea demonstration was that at-sea inspection of and compliance with the standards can be safe and successful, and that the regulation as written can be credibly enforced as long as it is accompanied by a comprehensive enforcement plan addressing both a strict penalty schedule and a plan for at-sea inspection.

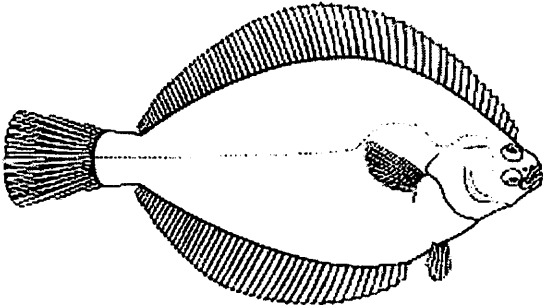
With the benefit of this new information, the Enforcement Committee will meet again on February 3<sup>rd</sup>. The Committee will revisit this agenda item, and their previous minutes on this subject, and consider any further recommendations for the Council.

The Council's actions at this meeting are described in the discussion paper in section 8, and summarized below.

- The Council's primary task is to review the problem statement and alternatives, and amend them as necessary. Once the Council has adopted a problem statement and alternatives specific to this action, staff will develop a new EA/RIR/IRFA, which can tier off the information included in Amendment 89, and also include any new information as appropriate.
- During the development of this discussion paper, a question has been raised about the boundaries adopted under Amendment 89 for the "wedge" and the St Matthew Island Habitat Conservation Area. If the Council is interested in pursuing this issue, staff could investigate and evaluate these boundary areas as part of this amendment package.
- Finally, as part of this amendment, staff would like to include a housekeeping change to the BSAI Groundfish FMP. The proposed change is not substantive, but would correct the description of the Crab and Halibut Protection Area, which was effectively superseded by the Nearshore Bristol Bay closure, and renumber certain figures in the FMP. Specific information on this change will be included in the Initial Review Draft of the analysis.

**DISCUSSION PAPER**

**Trawl sweep modifications for the Bering Sea flatfish fishery**  
Ensuing from BSAI Amendment 89, Bering Sea habitat conservation measures



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

January 2009

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## **1 Introduction and Council motion, June 2008**

In June 2008, the Council received a report on research and field testing of proposed modifications to the trawl sweep as used in directed flatfish fishing in the Bering Sea. This report was requested by the Council during their deliberations on Bering Sea habitat conservation measures, adopted by the Council in June 2007 as BSAI Amendment 89, and implemented in August 2008. The proposed gear modification was endorsed by the Council in June 2007, in order to reduce contact of the trawl gear with the seafloor, but specific recommendations were deferred, pending further research and testing.

Following the 2008 report, the Council initiated an analysis of the proposed gear modification, and requested staff to compile relevant information from the Amendment 89 EA/RIR/IRFA, as well as any new information, in a discussion paper for the October 2008 meeting. The discussion paper was to include the problem statement and alternatives relevant to gear modification from Amendment 89.

Section 2 provides a history with respect to the Council's proposed action, and Sections 3 and 4 provide the problem statement and alternatives from Amendment 89. Section 5 summarizes information on research and field testing of the gear modification. Section 6 provides information on the gear modification requirement, as well as industry feedback on the regulation based on a September 2008 workshop (the workshop report is available separately), and enforcement and compliance issues with respect to the regulations. Section 7 discusses the reopening of an area closed under Amendment 89, which the Council identified as an area that may be reopened following implementation of the gear modification requirement. Section 8 identifies what the Council's action is with respect to this agenda item, for the February 2009 Council meeting. Appendix 1 contains the proposed regulatory language for this amendment. Appendix 2 excerpts those comments on the final rule for Amendment 89 which are relevant for the gear modification action.

## **2 History of the proposed action**

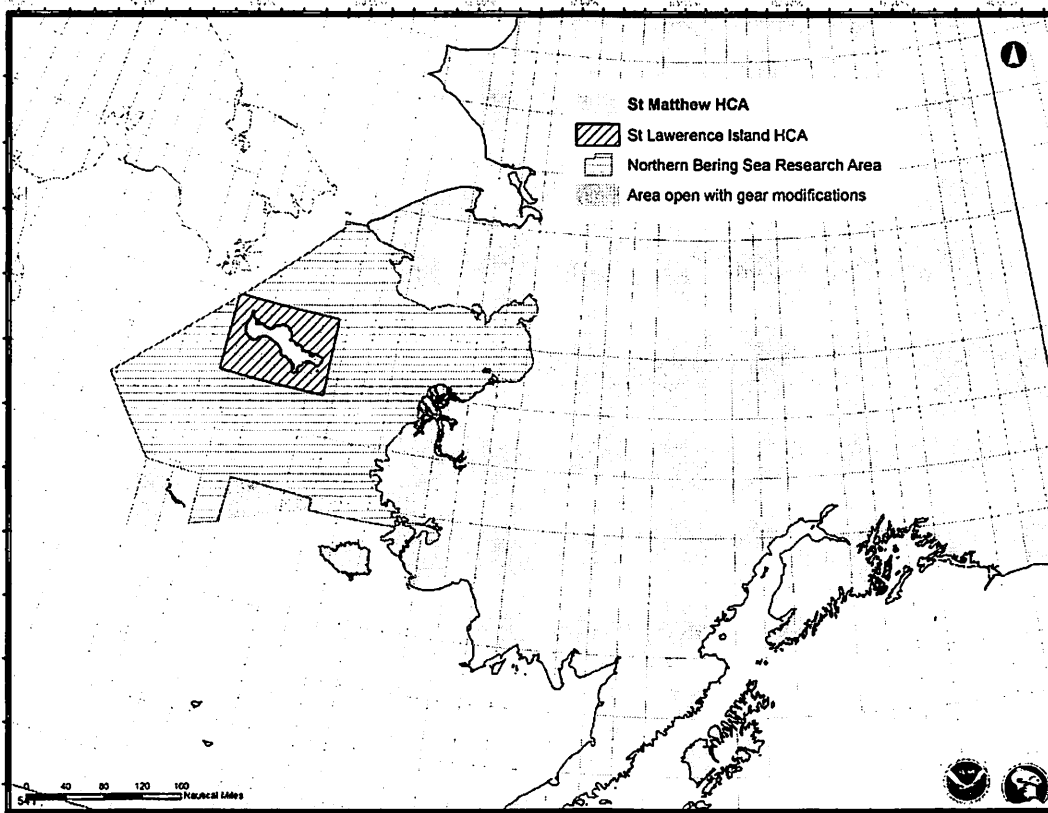
In June 2007, the Council adopted a number of actions for Bering Sea habitat conservation, implemented under BSAI Amendment 89, which was approved by the Secretary of Commerce in May 2008. The Bering Sea habitat analysis followed on from the February 2005 Environmental Impact Statement for Essential Fish Habitat Identification and Conservation in Alaska (EFH EIS; NMFS 2005), which described EFH and under the auspices of which a suite of measures were implemented to conserve EFH in the GOA and AI from potential impacts due to fishing. In 2005, the Council took no action to implement additional conservation measures in the eastern Bering Sea, as the analysis found such additional measures were neither required by law, nor necessary at that time. Subsequently, the Council initiated an analysis focused specifically on nonpelagic trawl gear issues in the Bering Sea. Trawl gear was identified with high long term effect indices (LEI) on habitat, based on the 2005 EIS evaluation, and nonpelagic trawling uses gear that fishes constantly on the bottom. The nonpelagic trawl fishery in the Bering Sea is widely distributed (i.e., has a large footprint). The extent of nonpelagic trawling effort has the potential to increase with any future increases in total allowable catch (TAC) limits for flatfish species, and the footprint may increase with the movement of fish stocks in response to global warming.

In addition to the series of area closures included in the Amendment 89 management measures, the analysis evaluated an alternative to require gear modification for the flatfish fisheries. This alternative would require all vessels engaged in directed fishing for flatfish in the Bering Sea to use a trawl sweep modification intended to raise the sweeps off the seafloor while trawling. Research to develop the appropriate type of gear modification was undertaken, and an industry workshop convened in March 2007 to discuss the necessary requirements. At the time of Council final action, in June 2007, it was determined

that further research and refinement of the specific details of the gear modification was required. The Council endorsed the trawl sweep modification requirement, but deferred a specific recommendation on gear modification for the flatfish fisheries until June 2008. The Council asked that further gear testing be undertaken in the meantime.

In the June 2007 motion, the Council also identified a roughly triangular-shaped area west of St Matthew (often referred to as the “wedge”). Although this area was closed to non-pelagic trawl fishing as part of the Northern Bering Sea Research Area (NBSRA), under BSAI Amendment 89, the Council indicated that this area may be opened following the implementation of the gear modification for flatfish fishing, discussed above.

**Figure 1** Portion of the Northern Bering Sea Research Area (colloquially known as the “wedge”) that may reopen with the implementation of gear modification requirements for the flatfish fishery.



Note: HCA = Habitat Conservation Area, areas closed to nonpelagic trawling under Amendment 89.

A representative of the flatfish trawl industry, John Gauvin, and Dr. Craig Rose, an Alaska Fisheries Science Center researcher, made presentations to the Council at the June 2008 meeting regarding the progress of the gear testing and their research. The Council subsequently directed staff to initiate analysis to implement the gear modification requirement.

### 3 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, with respect to gear modification in the

Bering Sea flatfish nonpelagic trawl fishery. The purpose of the action is to protect 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. Field testing of the modification has now been completed, and has demonstrated 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 for the flatfish trawl fishery 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.

### **3.1 Council problem statement, from BSAI Amendment 89**

The Council articulated a problem statement for BSAI Amendment 89, the Bering Sea Habitat Conservation analysis, which included an examination of the gear modification alternative. That problem statement is captured below.

*The Council intends to evaluate potential new fishery management measures to protect Essential Fish Habitat (EFH) in the Bering Sea. The analysis will tier off of the 2005 EFH Environmental Impact Statement and will consider as alternatives, open and closed areas and gear modifications. The purpose of the analysis is to consider practicable and precautionary management measures to reduce potential adverse effects of non pelagic trawl fishing on EFH and to support the continued productivity of Council managed species. Any new management measures will be developed in consideration of local community use.*

Because this action is specific to gear modification for the Bering Sea flatfish fishery, the Council may want to consider developing a new problem statement that would be specific to this action and the purpose and need statement.

## **4 Preferred Alternatives from BSAI Amendment 89**

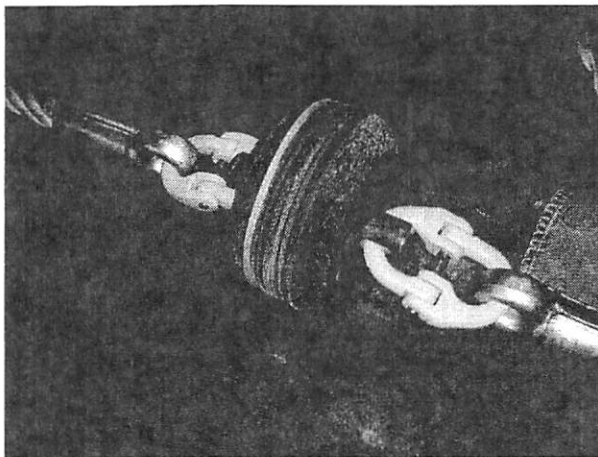
The Council adopted their preferred alternatives for Amendment 89 in June 2007. Two of the five components of the motion relate to the gear modification action; these are copied below. One component is to require a trawl sweep modification for directed flatfish trawl fishing in the Bering Sea, and the

second is to reopen the area described as the “wedge” once the gear modification has been implemented. Sections 6 and 7 provide further discussion with respect to these two actions in the forthcoming analysis.

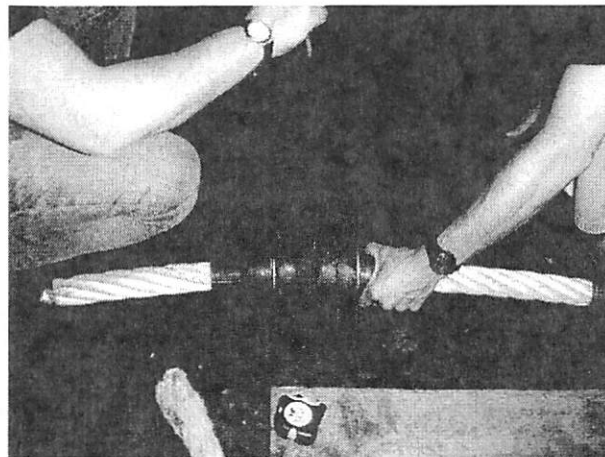
2. *The wedge area described under the suboption of Alternative 2 may be opened if the Secretary has approved, and NMFS has implemented, a gear modification for nonpelagic trawl gear for the Bering Sea flatfish fishery to reduce bottom habitat impacts (see item 3 below). Further, the Council encourages NMFS to include this area within the annual trawl survey design.*
3. *The Council endorses trawl sweep modifications that reduce the potential impacts on benthic habitat from gear contact with the seafloor, per Alternative 3. The Council will provide recommendations to NMFS for the specific gear modifications in June 2008, following additional gear testing by the flatfish trawl industry, so the agency can undertake rulemaking after that date. The Council understands that depending on the final gear modifications, such a regulatory amendment may require supplementing the EA/RIR/IRFA analysis that is currently before the Council.*

## 5 Summary of industry research and gear testing

Dr Craig Rose and scientists from the Alaska Fisheries Science Center (AFSC) Resource Assessment and Conservation Engineering (RACE) Division have been working with the fishing industry, notably John Gauvin and the Head and Gut Workgroup, to modify groundfish trawls to reduce their effects on the seafloor environment. Elevating devices were added to trawl sweeps and were tested for their effectiveness at reducing effects on sessile seafloor animals on unconsolidated (sand – mud) substrates. For most Bering Sea flatfish trawls, sweeps are so long (up to 1500 ft) that they sweep 90% of the area covered between the trawl doors (Figure 2). The proposed modifications elevate most of the sweep area 2 to 3 inches above the substrate, allowing space for animals to pass beneath. In field testing, these modifications have proven effective at reducing effects on basketstars and sea whips, and did not substantially reduce catches of target flatfish.



10 inch elevating bobbin connected to 2 inch (52mm) combination wire with hammerlocks (coupling links)



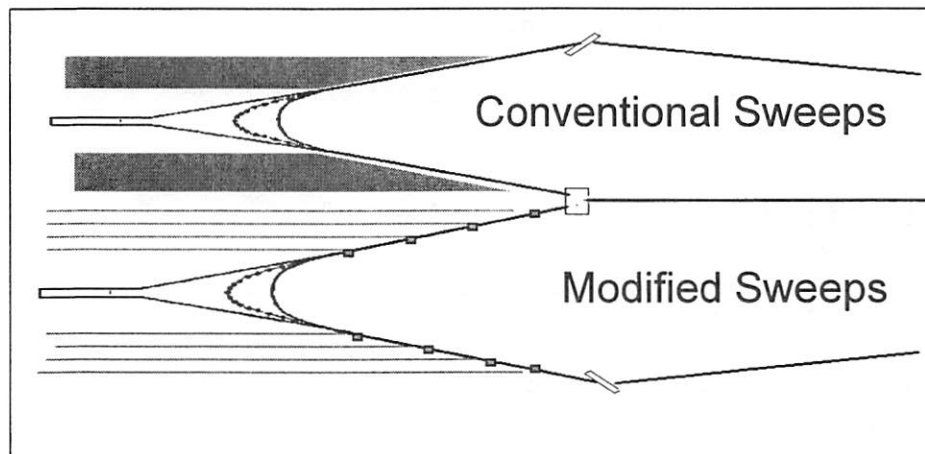
8 inch elevating discs mounted on body of 2 inch (52mm) combination wire with stopper swages each side

The information in this section is abbreviated from Dr Rose’s summary of current gear research, Appendix B in the Amendment 89 EA/RIR/IRFA, and from his and John Gauvin’s presentations to the Council in June 2008. During various field testing in 2006, and 2007, the researchers created parallel trawl tracks of modified and conventional sweeps. Conventional sweeps had the same diameter



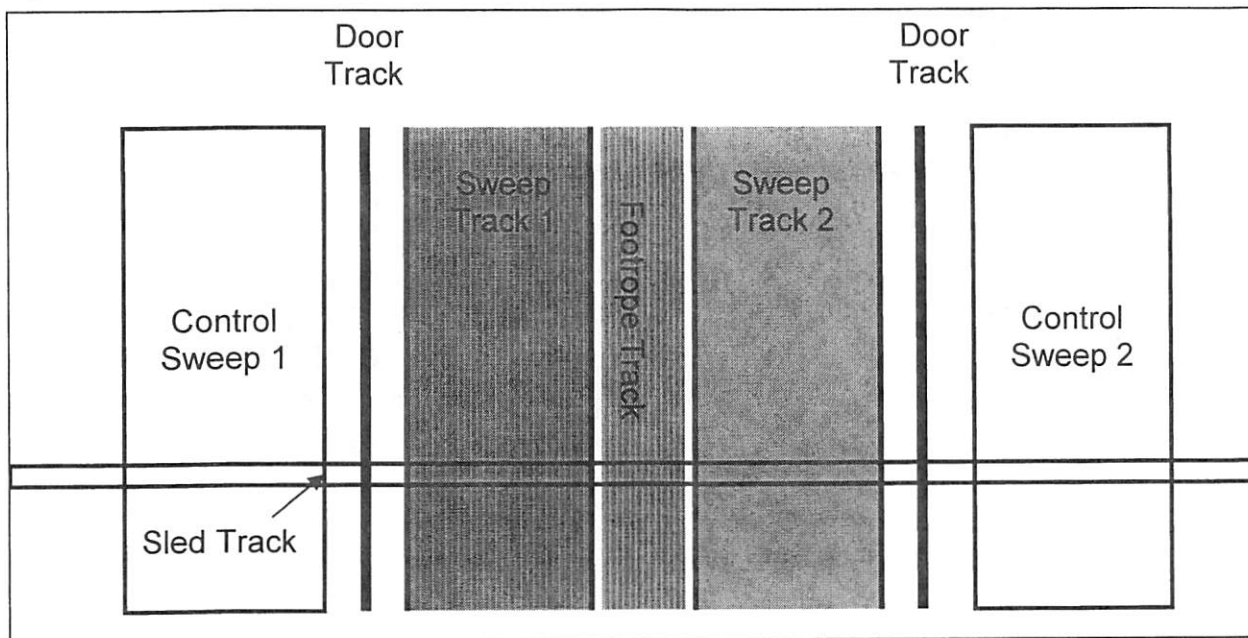
throughout, of either 2 inch diameter combination rope (rope including interwoven steel and fiber element, with the softer fiber on the outside), or 3 inch disks strung over steel cable, causing more continuous seafloor contact. Modified sweeps had clusters of 6 inch, 8 inch, or 10 inch diameter disks lifting the sweep cables above the seafloor, creating a nominal clearance (the space created under the sweeps adjacent to the elevating device, measured on a hard surface) of 2, 3, or 4 inches. Actual clearance is influenced by nominal clearance, the degree to which the elevating device sinks into soft sand or mud, and the degree to which the sweep sags in the span between elevating devices. The original 2006 research attached the disks at 30 ft intervals on the sweep.

**Figure 2 Schematic of a twin trawl system, showing the concept of reducing bottom contact area of sweeps by limiting contact to disk clusters (C. Rose). Figure is not drawn to scale.**



A seafloor sled with both sonar and video sensors was then towed across the parallel trawl tracks at several points to compare the condition of seafloor animals in areas affected by these different gears, and in control areas between tracks. Clearance indicators were developed to measure actual clearances between the sweep material and the seafloor during operation. These indicators were installed at several points across the span between elevating devices. Indicators installed next to the elevating devices evaluated the degree of sinking (elevating devices may sink up to 0.5 inches into the mud), while those near the center of the span measured sag. The imagery was analyzed to estimate the relative effects of the alternative sweep designs on the principal structure-forming invertebrates at each site.

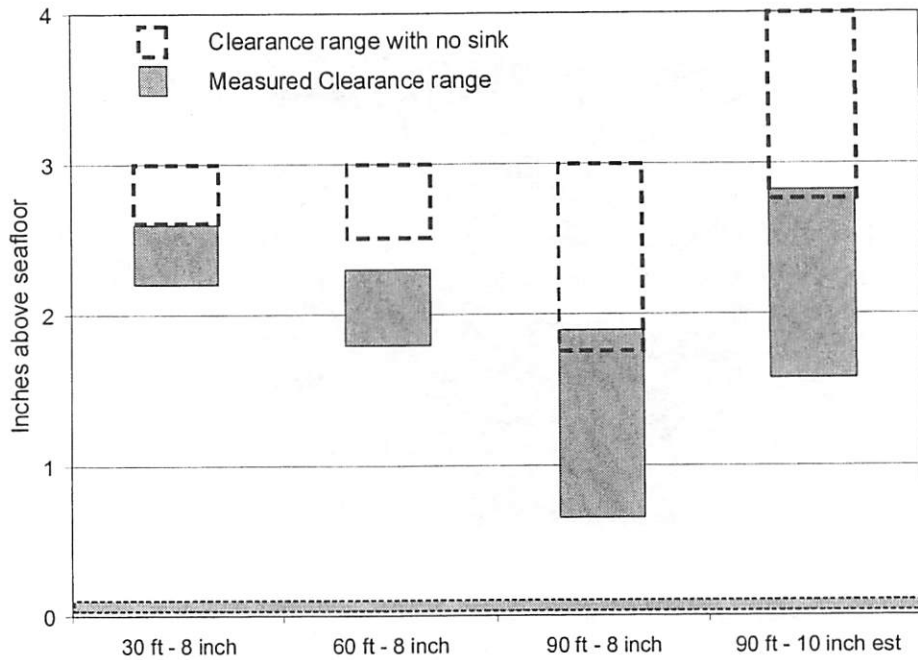
Figure 3 Illustration of the sled sampling of trawl tracks (C Rose).



The results from the 2006 research, at 30 ft spacing, indicated that while some damage reduction was seen with the 6 inch disks (with 2 inches nominal clearance), the 8 inch disks (with 3 inches nominal clearance) performed somewhat better with no detectable reduction in catch rates. Differences between the 8 inch and 10 inch modifications were minimal for basketstars and sea whips, however there was a small reduction in fish capture (5-10%) when using the 10 inch disks.

The 2007-08 field tests were trying to replicate the actual clearance from the 2006 tests, but using a longer spacing between elevating devices (intervals of 45 feet, 60 feet, and 90 feet). It was recognized that longer spacings between elevating devices would be easier for fishers to work with, and would further reduce direct contact area, providing a similar actual clearance could be maintained. Figure 4 illustrates various clearance ranges for the tested disk sizes and spacings. Dr Rose's general conclusion was that similar actual clearance to the 2006 tests could be achieved using elevating devices producing a 3 inch nominal clearance at 60 ft spacing (tested using 8 inch discs on 2 inch sweeps), and 4 inch nominal clearance at 90 foot spacing (10 inch discs on 2 inch sweeps). The 60 ft spacing achieved similar clearance to the 30 ft spacing, especially on firmer sediments (as illustrated by the boxes in dashed lines). At 90 ft spacing, the 10 inch bobbins provided significantly better clearance than the 8 inch bobbins.

**Figure 4** Clearance range of sweep at various elevation heights and spacings; also shows what clearance would be without accounting for the degree to which the elevation device (disk) sank into the seafloor (C Rose).



## 5.1 New research results since June 2008

This section contains a further bulletin from Dr Craig Rose about new research results since the last time he presented results to the Council, in June 2008. Dr Rose will provide a brief overview of the results at the February Council meeting.

### Effects on Sea Whips over time

During the summer of 2007, Dr. Rose extended the tests of effects on sea whips to examine the potential for recovery or delayed mortality. While the 2006 study only assessed damage after 1 – 2 days, this work also compared effects after approximately one week, one month and one year. As in 2006, a seafloor sled was towed across trawl tracks that included areas affected by conventional and modified sweeps. Areas covered by different gear components were identified using a sonar recording device aboard the sled and sea whip conditions were assessed from video images. The proportions of damaged seawhips in affected areas were compared with those in control areas immediately outside of the trawl tracks, as well as between those of the conventional and modified sweeps. VMS records were examined to assure that the area was not trawled by any other commercial fishing operations between trawl tows and sled tows.

Earlier evaluations of immediate effects ignored bare rods left from sea whips that had died previously (Figure 5). After a day or a week, recently damaged sea whips were easily distinguished from rods remaining from prior mortalities. However, after a month or a year these could not be separated. Therefore, our comparison across all time periods included these bare rods in the total counts of sea whips used to calculate proportions of undamaged sea whips.

**Figure 5** A bare rod remaining after decomposition of a sea whip (left) and a sea whip flattened by recent passage under a trawl (right).

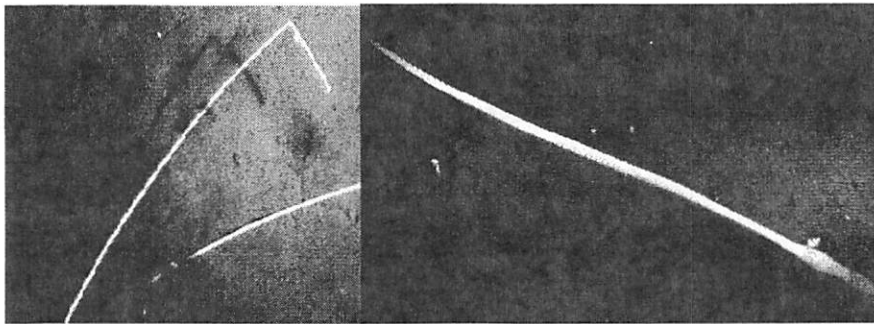
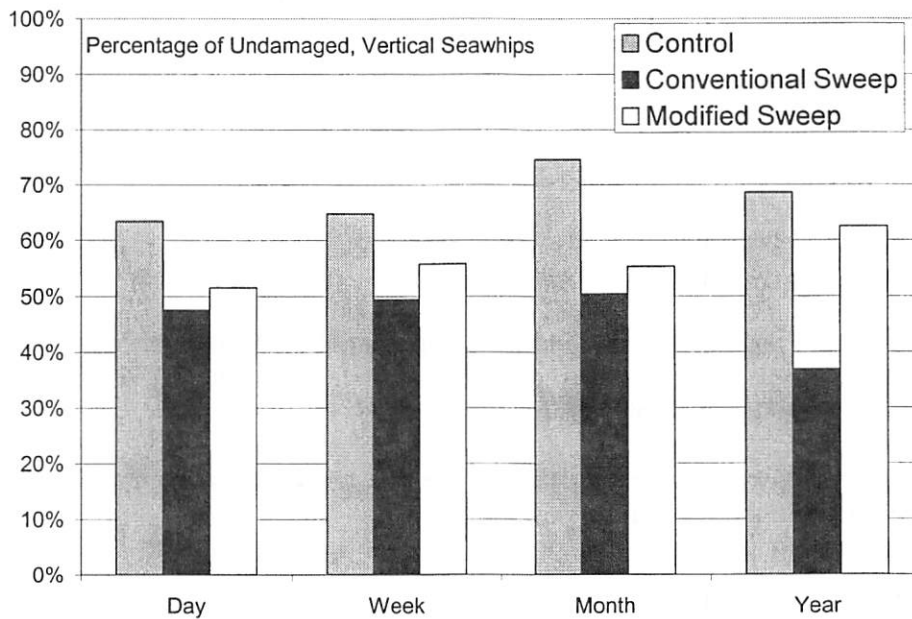


Figure 6 shows the proportions of upright and undamaged sea whips in the control, conventional sweep and modified sweep areas for each of the time periods. The relationships between these proportions were similar for the day, week and month periods, with more normal sea whips in the control area than in either affected area, and more in the modified sweep area than that for conventional sweep. After a year, the proportion of normal sea whips in the conventional sweep area dropped considerably, while that for the modified sweep moved closer to the proportion in the control area. This may indicate delayed mortality to sea whips affected by conventional sweeps and recovery of those affected by the modified sweeps.

**Figure 6** Percentage of normal seawhips after passage under modified and unmodified trawl sweeps (compared to control area).



### Effects on Crab Mortality

In the summer of 2008, we conducted a study, funded by the North Pacific Research Board, to estimate the mortality rates for snow and Tanner crabs that encounter bottom trawls, but remain on the seafloor. That study estimated mortalities for both species for conventional and modified sweeps. Briefly, crabs were captured by auxiliary nets fished behind different parts of a commercial bottom trawl. They were carefully brought aboard and assessed using a six part reflex test. A subsample of those crabs was held for 5 – 12 days to establish the relation between reflex state and delayed mortalities. The proportions of crabs

in different reflex states and the reflex-mortality relationship were used to estimate raw mortality rates for crabs encountering each part of the trawl. Results for crabs captured with a control net, fished in front of the trawl to serve as a scientific control for the effects of the recapture net itself, were used to assess and adjust for mortalities due to capture and handling.

Estimates of mortality for crabs encountering conventional sweeps were approximately 5% for both species (compared to 10 – 15% for the trawl footrope). That rate dropped to nearly zero for crab encountering the modified sweeps.

Both of these studies support previous research indicating that the sweep modifications reduce damage to seafloor animals encountering them. Since sweeps account for most of the area affected by Bering Sea bottom trawls, implementation of these modifications should be useful in reducing effects on habitat from flatfish fishing in that area.

## **6 Gear modification alternative**

The primary action that the Council is addressing in this amendment package is to implement a requirement for the flatfish trawl fishery to use elevated devices on their trawl sweeps, in order to raise the sweep off the seafloor and reduce damage to habitat. One of the challenges with implementing this requirement has been to develop a gear modification design that both reduces the gear's contact with the seafloor and yet maintains fishing productivity. This issue has largely been addressed at this point through the research and field testing of Dr. Rose and John Gauvin (see Section 5). Another difficulty has been to come up with a regulatory standard that ensures that actual clearance off the seafloor is achieved, yet represents something that can be measured by both vessel operators and enforcement personnel. It is also important to provide the fleet with sufficient flexibility to allow them to use the gear modifications on the diverse vessel and gear type configurations that are currently employed in the flatfish fishery.

The gear modification requirement, as proposed, will apply to any vessel conducting directed fishing for flatfish in the Bering Sea. For the most part, vessels that fish flatfish are participants in the Amendment 80 program. There are, however, some AFA vessels which target flatfish, and they also would be required to use the modified gear when fishing for flatfish.

The action will require an FMP amendment to the BSAI Groundfish FMP under the section of the FMP that specifies target-fishery specific gear restrictions. The proposed action alternative can be restated from the BSAI Amendment 89 motion (Section 4) as follows:

Alternative: Require trawl vessels targeting flatfish in the BSAI to use elevating devices on trawl sweeps to raise the gear off the seafloor.

### **6.1 Regulations for the gear modification alternative, and enforcement discussions**

The regulations will describe the modification in more detail, and will combine a gear and performance standard. Vessels must employ elevating devices on the sweeps that achieve one of two options, combining a nominal clearance (the space created under the sweeps adjacent to the elevating device, measured on a hard surface), and a maximum distance between elevating devices. The draft regulation includes a figure to identify the sweep, and elevating devices may also be required on trawl door and net bridles that are longer than the standard size (180 feet). The draft regulation is still subject to revision, but is included in Appendix 1 for reference.

The details of the regulation were discussed initially with federal monitoring and enforcement personnel, gear manufacturers, and the industry at a public workshop in September 2008. There was discussion about whether to include more specific detail in the regulation, for example whether to specify the height of the elevating device required to meet the standard, or whether to require spacing markers on the sweeps to indicate that the correct spacing had been met. After much discussion, the workshop participants agreed that the intent of the action would be met by regulating the clearance standard and spacing requirements, and that by leaving the other details out of the regulation, the fleet would have more flexibility to individualize the gear as appropriate to their vessel and gear type configurations. An outstanding issue with the regulation is how to define the part of the gear on which devices are required (the sweep). While everyone at the workshop understood exactly where the elevating devices were supposed to be placed, coming up with an unambiguous regulatory standard to describe this has been a challenge. Melanie Brown, of NMFS, has put together a figure that will illustrate the appropriate placement.

The implementation of a modified trawl sweep program will involve manufacturers, fishers, NMFS, the North Pacific Groundfish Observer Program, USCG, and NOAA Office of Law Enforcement (OLE) personnel. The fishers will be responsible to ensure their sweeps meet the standards, and this may be randomly checked by several methods. Agency enforcement activities will focus on ensuring compliance with the regulation that prohibits targeting flatfish without using a modified trawl sweep. An at-sea observer may observe the deployment or retrieval of the net to determine the presence or absence of the modified sweep. The OLE would be notified if the sweep may not meet the standard or if no modified gear is detected. OLE may follow-up with a more intensive dockside inspection. The USCG may conduct at-sea inspections to determine if a modified sweep is present or absent. The details of the types of inspections, the design and use of various devices such as "wear indicators" on the bobbins to enable visual detection of worn or inadequate modified trawl gear, and the actual procedures to be used by the vessels and the monitoring bodies in undertaking an inspection of modified trawl gear will need to be developed prior to implementation of the gear modification requirement.

Since the public workshop, various discussions about enforcement of the proposed regulation have occurred, both in the forum of the Council's Enforcement Committee, and at a meeting of agency enforcement personnel. The minutes from these meetings are included in Appendix 2. The focus of the discussions was primarily whether a regulatory standard that specifies only a required clearance and spacing standard be credibly enforced by NMFS (the summary of the agency meeting, included in Appendix 2 beginning on page 20, further amplifies on this topic).

In order to resolve some of the outstanding concerns about the enforceability of the modified gear, it was determined that an at-sea demonstration of the gear on board a vessel would be most useful. Consequently, Mr John Gauvin arranged for the F/V Vaerdahl, with captain Bill Hayes, to take onboard representatives of the various interested agencies. The demonstration occurred in Seattle on the afternoon of January 9, 2009, and fourteen agency personnel attended. A report on the demonstration will be available at the February Council meeting. Overall, the experience was very informative, and provided insight into the feasibility of conducting inspections of the gear while in use on the vessel. In general, the enforcement personnel appeared to agree that boarding a vessel at sea and inspecting the gear for compliance with the regulatory requirements is feasible and likely to be successful. The bobbins or elevating devices are easy to see and measure while the sweeps are being set or hauled back, and should be easy to replace when they become worn down. Onboard observers should also be able to see and note gross violations, such as the vessel not using the modified gear for flatfish fishing. The enforcement agents agreed that it would be important to come up with a penalty schedule, so that not using the gear, or using it in an improper manner (e.g., with the bobbins worn down so as not to meet the correct clearance), presents a serious violation. They also agreed that the Coast Guard and OLE should cooperate in the first

year of implementation of the program, to put OLE staff on vessels and aim to do onboard inspections of a large proportion of vessels in the flatfish fleet. With these conditions in place, the enforcement personnel indicated that some of the previous, more stringent recommendations for the regulation of this proposed amendment may not be necessary.

The Council's Enforcement Committee will meet at the February Council meeting, and is scheduled to revisit its previous minutes on this agenda item, in light of the at-sea demonstration. The Council will have further recommendations from the Committee when this agenda item comes up before the Council in February. The draft regulations in Appendix 1 also have been modified from previous versions based on the experiences and recommendations from the at-sea demonstration. One change is that the door bridle length was increased from 90 feet to 180 feet to account for the use of midwater doors which require more bridle length than door used in contact with the bottom and for larger vessels. Midwater doors require additional chain to be added to the bridle to bring the sweep to the bottom while the doors are off bottom. Larger vessels may need more door bridle length than 90 feet but are unlikely to need more than 180 feet.

## **7 Clarifications regarding the reopening of the "wedge"**

The other action being considered as part of this amendment package is to reopen a part of the Northern Bering Sea Research Area. This would also require an FMP amendment, to redefine the NBSRA, and possibly to define the reopened area in the FMP, if specific constraints are placed on fishing within that area.

The NBSRA was closed to non-pelagic trawling as part of Amendment 89, the Bering Sea Habitat Conservation action, to create a research area where minimal fishing occurs, in order to facilitate the study of the potential effects on nonpelagic trawling on Bering Sea benthic habitat. The Council indicated, in their final motion on Amendment 89, that a small portion of the NBSRA, referred to in the motion as the "wedge", may be reopened following implementation of the gear modification requirement for flatfish fishing. Section 4 cites the wording of the Council motion with respect to this option, and Figure 1 illustrates the area in question.

Staff proposes to include the reopening of this area as part of the Initial Review analysis that will be presented to the Council. The Council's motion is ambiguous, however, about who would be permitted to fish in the area once it is reopened. Will the area only be open to flatfish fishery participants using the modified gear; will the area open to any non-pelagic trawling using modified gear; or will the area reopen to all non-pelagic trawling with no gear requirement specified (but flatfish fishery participants will be required to use the modified gear here as elsewhere)? There are three possible interpretations of the Council's wording. These have been restated below as options. The Council may indicate at the October Council meeting which option(s) to include in the analysis, and at final action, decide which option to select.

- Option 1: Revise the boundaries of the Northern Bering Sea Research Area to exclude the area referred to as the "wedge" (see Figure 1). The "wedge" area will be designated as a "Flatfish Trawl Zone" Only vessels targeting flatfish (and subject to modified trawl sweep requirements) may fish in the area.
- Option 2: Revise the boundaries of the Northern Bering Sea Research Area to exclude the area referred to as the "wedge" (see Figure 1). The "wedge" area will be designated as a "Modified Gear Trawl Zone". Non-pelagic trawling within the area can only be conducted using modified trawl sweeps.

Option 3: Revise the boundaries of the Northern Bering Sea Research Area to exclude the area referred to as the “wedge” (see Figure 1). Non-pelagic trawling would be permitted in the “wedge” area, although directed fishing for flatfish in the area would be subject to modified trawl sweep requirements.

The ambiguity regarding the wording of the Council’s motion was raised at the industry workshop in September 2008. Workshop participants indicated that they had understood that the area would only be opened to vessels using modified gear, but that they would prefer to retain the flexibility to target more than just flatfish in that area. The primary species that could be targeted in the area other than flatfish is Pacific cod. Anecdotal evidence suggests that the area in question is not productive for Pacific cod, due to its shallow depth. While targeting Pacific cod has not been a focus for the gear modification research, Dr. Rose has indicated that there has been some research on targeting Pacific cod using modified trawl sweeps.

### **7.1 Boundaries for the “wedge” and the St Matthew Island Habitat Conservation Area**

A comment that was raised at the September 2008 workshop was with respect to the western boundary of the “wedge”. Participants commented that it had been their understanding that the boundary should extend westward to the eastern border of the St. Matthew Island closure. Staff has since confirmed that Figure 1 is the same as the map viewed by the Council at the time of final action in June 2007.

Further discussion with the maker of the Council motion, in June 2007, however, indicate that the boundaries that were actually adopted may have drifted slightly as they were mapped in GIS. It has been suggested that the St Matthew Island Habitat Conservation Area (HCA) may in fact have shifted further west than was intended by the Council, and that as it is currently regulated, it may not provide adequate protection to crab stocks, which was the Council’s original intent. In the same way, the boundary for the “wedge” area may also have shifted further east, and these shifts may have resulted in the confusion noted by industry. Staff has not yet been able to follow the history of these boundaries through the development of Amendment 89, to know whether these assertions have merit. If the Council is interested in pursuing this issue, however, the shape and boundary of the St Matthew HCA and “wedge” subarea could be investigated and evaluated as part of this action. If the St. Matthew HCA eastern boundary as implemented under Amendment 89 does not meet the intent of the Council’s action in Amendment 89, an FMP amendment may be considered to adjust the eastern boundary of the St. Matthew HCA to meet the Council’s intent.

## **8 Council action in February 2009**

The action before the Council at the February 2009 meeting is to approve the proposed direction for this analysis. Additionally, staff is requesting that the Council endorse inclusion of housekeeping changes to the FMP as part of the proposed amendment, which are further explained below.

### **Problem statement**

The problem statement from BSAI Amendment 89 has been included in this discussion paper. The Council should determine whether the Amendment 89 problem statement is still appropriate for the gear modification component that is being addressed in this follow-on action. If not, the Council may wish to adopt a more focused problem statement for this analysis. In particular, it may be advisable, from a NEPA perspective, for the Council to articulate a focused problem statement if the Council is only looking at two alternatives in this analysis.



## Alternatives

The discussion paper provides the alternatives that were included in Amendment 89 with respect to gear modification. Sections 6 and 7 restate these alternatives for the forthcoming analysis (for reference, the text is copied below). There is some question as to the Council's intent with regard to the reopening of a portion of the Northern Bering Sea Research Area, the subarea referred to in the Council motion as the "wedge". The discussion paper suggests three interpretations of the language; staff requests that the Council indicate which of the options should be included in the analysis, or whether they should all be included at this time.

Alternative 1: No action.

Alternative 2: Require trawl vessels targeting flatfish in the BSAI to use elevating devices on trawl sweeps to raise the gear off the seafloor.

Option 1: Revise the boundaries of the Northern Bering Sea Research Area to exclude the area referred to as the "wedge" (see Figure 1). The "wedge" area will be designated as a "Flatfish Trawl Zone". Only vessels targeting flatfish (and subject to modified trawl sweep requirements) may fish in the area.

Option 2: Revise the boundaries of the Northern Bering Sea Research Area to exclude the area referred to as the "wedge" (see Figure 1). The "wedge" area will be designated as a "Modified Gear Trawl Zone". Non-pelagic trawling within the area can only be conducted using modified trawl sweeps.

Option 3: Revise the boundaries of the Northern Bering Sea Research Area to exclude the area referred to as the "wedge" (see Figure 1). Non-pelagic trawling would be permitted in the "wedge" area, although directed fishing for flatfish in the area would be subject to modified trawl sweep requirements.

## Revisiting the boundaries adopted under Amendment 89

As discussed above, the question has been raised as to whether the boundaries for the St Matthew HCA and the "wedge" subarea, which were adopted in Amendment 89, are in fact located where the Council intended them to be. Should the Council consider this question worthy of investigation, the Council could choose to include an action in the analysis to investigate and consider revising the boundaries of the St Matthew HCA and the "wedge" subarea.

## Analysis

At the June 2007 meeting, when the Council deferred a specific recommendation on the gear modification component of the Bering Sea habitat conservation measures, the Council acknowledged that the EA/RIR/FRFA analysis for Amendment 89 may have to be supplemented in order to provide sufficient and appropriate information for a final recommendation by the Council and decision by the Secretary of Commerce. Staff suggests that rather than producing a supplementary analysis, it may be simpler to create a new EA/RIR/IRFA for this action, which can tier off the information included in Amendment 89, and also include any new information as appropriate. Unless the Council disagrees with this course of action, staff will proceed accordingly.

## Timeline

Assuming the Council provides direction to staff at the February 2009 meeting with regard to the issues identified above, staff should be able to prepare an initial review draft of the analysis for the April 2009

Council meeting. Barring other Council scheduling conflicts, this would allow the Council to take final action in June 2009, and regulations may be implemented in the first half of 2010.

Housekeeping action

As part of this amendment, staff would like to include a housekeeping change to the BSAI Groundfish FMP. As all changes to the FMP, even minor typographical changes, require an FMP amendment that is approved by the Council, this could be handled as a separate action that is implemented under this FMP amendment. The proposed change is not substantive, but would correct the description of the Crab and Halibut Protection Area, which was effectively superseded by the Nearshore Bristol Bay closure. Specific information on this change will be included in the Initial Review Draft of the analysis. The housekeeping amendments will also include the renumbering of figures in Section 3 of the FMP, which became confused with the adoption of Amendment 89.

## Appendix 1 Draft regulatory language

Several regulations in 50 CFR part 679 would need to be revised to implement a modified trawl sweep requirement. **Note, this language is a draft only, and is still subject to revision.** The requirements would apply to all federally permitted vessels in reporting areas of the Bering Sea subarea and adjacent State of Alaska waters.

1. New definitions under § 679.2 should be added for directed fishing for flatfish for purposes of the gear modification requirement. The flatfish fishing definition includes any exemption from a nonpelagic trawl closures based on the use of modified gear. The definition for federally permitted vessels should be revised to include modified trawl gear for flatfish fishing in the Bering Sea. Fishing trip will need to be revised to apply to its use in the directed fishing for flatfish definition.

### § 679.2 Definitions

\* \* \* \*

**Directed Fishing for Flatfish** means for purposes of nonpelagic trawl restrictions under § 679.22 (a) and gear modification requirements under §§ 679.7(c)(3) and 679.24(f), fishing with nonpelagic trawl gear during any fishing trip that results in a retained aggregate amount of yellowfin sole, rock sole, Greenland turbot, arrowtooth flounder, flathead sole, Alaska plaice, and other flatfish that is greater than the retained amount of any other fishery category defined under § 679.21(e)(3)(iv).

*Note: The closure area at 679.22(a) would need to be included if the wedge in Fig. 4 applies only to flatfish fishing with modified gear.*

\* \* \*

**Federally permitted vessel** means a vessel that is named on either a Federal fisheries permit issued pursuant to § 679.4(b) or on a Federal crab vessel permit issued pursuant to § 680.4(k) of this chapter. Federally permitted vessels must conform to regulatory requirements for purposes of fishing restrictions in habitat conservation areas, habitat conservation zones, and habitat protection areas; for purposes of anchoring prohibitions in habitat protection areas; **for purposes of modified gear requirements for the BS directed flatfish fishery**, and for purposes of VMS requirements.

\* \* \*

**Fishing trip** means:

- (1) With respect to retention requirements (MRA, IR/IU, and pollock roe stripping) and to gear requirements for directed flatfish fishing
  - (i) An operator of a catcher/processor or mothership processor vessel is engaged in a fishing trip from the time the harvesting, receiving, or processing of groundfish is begun or resumed in an area until:
    - (A) The effective date of a notification prohibiting directed fishing in the same area under § 679.20 or § 679.21;
    - (B) The offload or transfer of all fish or fish product from that vessel;
    - (C) The vessel enters or leaves an area where a different directed fishing prohibition applies;
    - (D) The vessel begins fishing with different type of authorized fishing gear; or

- (E) The end of a weekly reporting period, whichever comes first.  
(ii) An operator of a catcher vessel is engaged in a fishing trip from the time the harvesting of groundfish is begun until the offload or transfer of all fish or fish product from that vessel.

\* \* \* \* \*

3. 2. A new subparagraph (3) also would be added to § 679.7(c) to prohibit directed fishing for BS flatfish without sweeps that meet the standards specified at § 679.24(f).

#### § 679.7 Prohibitions

\* \* \* \* \*

§ 679.7(c)(3) Conduct directed fishing for flatfish as defined in § 679.2 with a vessel required to be federally permitted in any reporting area of the Bering Sea subarea as described in Figure 1 to this part and adjacent State of Alaska waters without meeting the requirements for the nonpelagic trawl sweeps specified in § 679.24(f).

\* \* \* \* \*

4. A new subparagraph would be added to § 679.7(a) to reopen the “wedge” area, if fishing in that area is to be limited only to those fishing with modified non-pelagic trawl gear. If the “wedge” is to be open to all nonpelagic trawling, only the coordinate table and the Northern Bering Sea Research Area figure will need to be modified to eliminate the wedge from the NBSRA and no regulatory changes in § 679.22 would be needed.

#### Figures – Part 679

*The NBSRA figures and coordinate table would need to be changed.*

\* \* \* \* \*

679.22(a)(21) Flatfish (or Modified Gear) Trawl Zone. No federally permitted vessel may fish with nonpelagic trawl gear in the Flatfish (or Modified Gear) Trawl Zone specified at Table 46 and Figure 22 to this part, except for vessels directly fishing for flatfish using modified gear as specified in § 679.24(f).

*Note: A coordinate table and possibly a figure would be added to the regulations for this zone.*

\* \* \* \* \*

5. To establish standards and requirements for the use of modified nonpelagic trawl gear, add paragraph (f) to § 679.24.

#### § 679.24 Gear Limitations

\* \* \* \* \*

§ 679.24(f) Nonpelagic trawl bottom line and sweep of Section A of Figure X for directed flatfish fishing with federally permitted vessels in reporting areas and adjacent State waters of the BS. Vessel owner or operators using nonpelagic trawl gear for directed flatfish fishing must meet the following standards in subparagraphs (1) through (3):

(1) elevating discs, bobbins or similar devices installed on the bottom line and sweep of Section A of Figure X raise the bottom line and sweep at least 2.5 inches, as measured adjacent to the elevating device when resting unsupported on a hard, flat surface, regardless of the elevating device orientation, and measured between the supporting surface and the lowest part of the line material;

(2) elevating devices secured along the entire length of the bottom line and sweep of Section A on Figure X at either

(i) no more than 65 feet between elevating devices that raise the bottom line and sweep of Section A on Figure X 3.5 inches (8.89 cm) or less, or

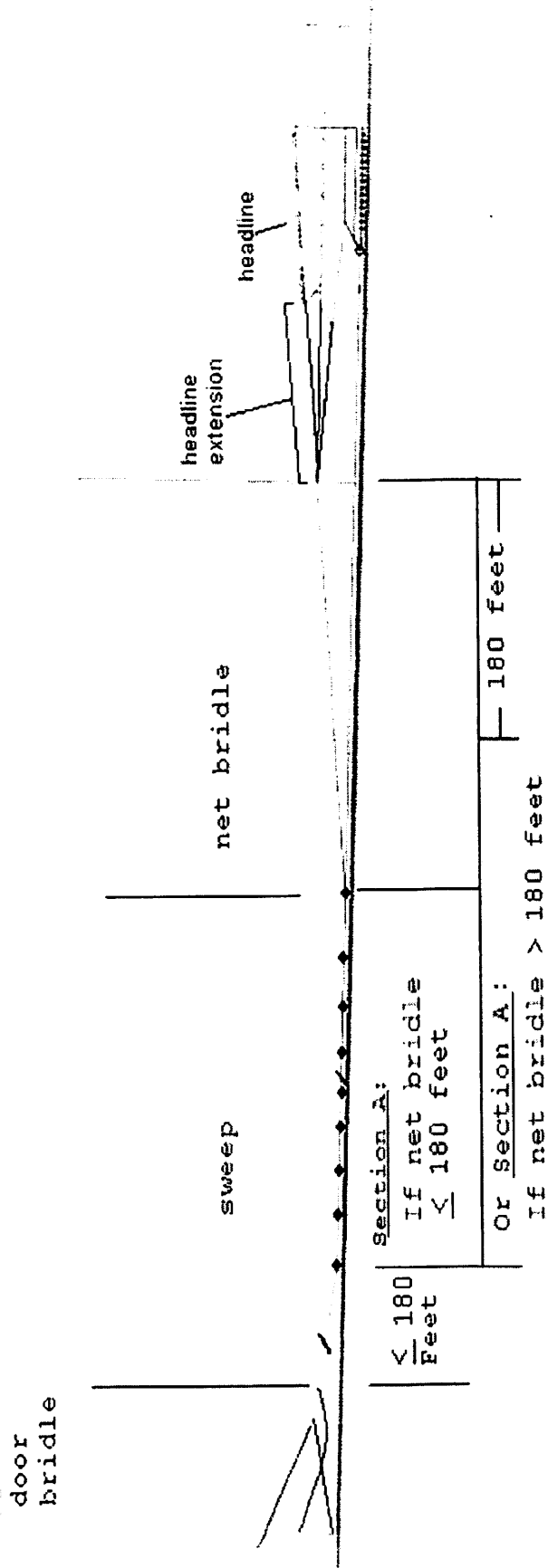
(ii) no more than 95 feet between elevating devices that raise the bottom line and sweep of Section A on Figure X more than 3.5 inches (8.89 cm);

and

(3) The largest cross-section of the bottom line and sweep in Section A of Figure X between elevating devices shall not be greater than at the nearest measurement location. Wider cross-sections resulting from doubling the line back for section terminations and devices required to connect sections are exempt from this requirement. Where a device is installed over material different from the bottom line and sweep, (for example, on a chain joining two bottom line sections), that material must be at least as wide as the bottom line and sweep material.

\* \* \* \*

Figure X to 50 part 679  
Nonpelagic Trawl with Elevating Devices



Note: Section A identifies the line where elevating devices are required, as described in 50 CFR 679.24(f). The sweep is the line connecting the aft joining of the door bridles to the forward joining of the net bridles. Section A includes any portion of the sweep that extends beyond 180 feet of the door bridle and any portion of the bottom net bridle that extends beyond 180 feet from the headline connection to the net bridle when a headline extension is not used or from the headline extension connection to the net bridle.

## **Appendix 2 Minutes of enforcement discussions about the draft regulation**

Included in this section:

- Council's Enforcement Committee minutes, October 2008
- Summary of meeting among agency personnel, October 2008
- Council's Enforcement Committee minutes, December 2008
- Report on the at-sea demonstration of trawl sweep modified gear, January 2009

***[NOTE: this report will be available at the Council meeting]***

The Council's Enforcement Committee will meet again at the February meeting to review and potentially revise their recommendations to the Council on this agenda item, after hearing the report from the at-sea demonstration.

**Excerpt from Enforcement Committee Minutes**  
September 30, 2008  
Sheraton, Anchorage, Alaska

Committee present: Roy Hyder (Chair), Sue Salvesson, LCDR Lisa Ragone, Herman Savikko, Garland Walker, Jeff Passer, Matt Brown, and Jon McCracken (staff)

Other present: Bill Wilson, Diana Evans, Melanie Brown, John Olson

**V. BSAI Trawl Gear Modifications**

Melanie Brown gave an overview of a discussion paper on BSAI trawl gear modifications. At the June 2008 meeting, the Council initiated an analysis to require modified trawl sweeps in Bering Sea flatfish bottom trawl fisheries. Although the sweep modification for flatfish trawls in the Bering Sea was included in the preferred alternative for Bering Sea Habitat Conservation, the modification was not included in Amendment 89. Action was deferred because of implementation issues with regard to the practicality and enforceability of requiring the modified sweeps on all vessels participating in the fishery.

The Enforcement Committee had a number of recommendations concerning the enforcement of the modified sweeps. These recommendations are presented below:

- For the purposes of enforcement, modified trawl sweeps should be of “standard” design, and such gear should be commercially manufactured by certified companies. A company could be required to submit its design of bobbins and sweeps to NMFS along with an actual sample. If the design (materials, etc) is acceptable, then its product is certified as meeting modified trawl gear standards by NMFS. In addition, each certified manufacturer should be required to stamp a manufacture seal on its bobbin in a conspicuous place. The great advantage of using certified gear, is that anyone inspecting the gear to insure that the gear presumptively meets required design specifications, simply has to start with a review of the paper certification/documentation. Of course, if there is continued doubt as to the gear’s set up, then the inspecting party can conduct a visual inspection of the gear. In addition to requiring that only certified gear be used and to assist in making any modified gear verifiable and measurable (primarily as an aid to observers and USCG boarding parties), NMFS should require that “wear indicators” be built into the bobbins. When a wear indicator can be visually seen, then the regulations would require replacement of the bobbin prior to redeployment of the sweep/net.
- Further, given the difficulty in checking bobbin spacing, it maybe necessary to have several manufactured types of modified trawl sweep “units” (i.e., bobbins and sweep sold as a unit and intended for deployment as an integral unit) certified by NMFS. There may be several combinations of bobbin heights and spacing that will raise the sweep off of the sea floor to the necessary clearance. Having a number of the manufacturers certify these manufactured combinations (integral units) for use would allow flexibility for vessels based on their fishing needs while also providing some reassurance to Enforcement that modified gear presumptively meets the required standards. For example, the trawl sweeps would be accompanied by a letter from the manufacturer that states something like: Dantrawl, Inc. assembled trawl sweeps for the F/V Blank. These 150 foot trawl sweeps have bobbins of 10 inch diameter with serial number ##### installed at 60 foot indicators. These bobbins have brass/yellow rubber wear indicators imbedded within the black rubber. Once these wear indicators are visible, the bobbins should be replaced. It is expected that the modified sweep combinations would be initiated by industry and designed in collaboration between the industry, manufacturers and NMFS.



- Regulations should require the vessel to conduct visual inspections of the modified gear for any wear on deployment and hauling of each set. Penalties for improper use will be a difficult issue. Enforcement Committee members believe that unless the penalties are pretty significant for a failure to use required modified gear and for any failure to properly deploy that gear, there will be little incentive for a vessel to stop or slow fishing operations to change worn or incorrectly set up gear. Furthermore, the Committee believes it is fairer to the industry to let them know early on that if they want the benefit of using modified gear in an area that would otherwise be closed to trawl gear, then they have the responsibility/obligation to inspect/repair/replace gear as necessary to make sure the gear is functioning as envisioned.
- Vessels using modified gear should be “endorsed” on their FFP (or other appropriate permit that is issued to them by NMFS) for such use. Failure to properly use or maintain modified trawl gear as required would subject the vessel to penalties and/or sanction of the endorsement thereby preventing that vessel from having the privilege of using modified gear.

## Summary issues – discussion of trawl sweep modification enforcement

Thursday, October 23, 2008 10:30am-12:30pm  
Sustainable Fisheries conference room, NMFS, Juneau, AK

<b>NMFS SF:</b>	Melanie Brown, Sue Salveson, Jennifer Watson
<b>NMFS AFSC:</b>	Craig Rose (teleconference)
<b>NOAA Enforcement:</b>	Ken Hanson, Matt Brown
<b>NOAA GC – Enforcement:</b>	Garland Walker
<b>NPFMC:</b>	Diana Evans
<b>USCG:</b>	Lisa Ragone, Pat Barelli

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The Council is currently considering an amendment for vessels targeting flatfish in the BSAI, which would require them to install disks or bobbins on their trawl sweeps, to elevate the trawl sweep off the seafloor. The current Council schedule for this action is as follows:

- February 2009 – Council reviews discussion paper on the problem statement and alternatives, Council's Enforcement Committee discusses proposed amendment
- April 2009 – Council initial review of amendment analysis
- June 2009 – Council final action on amendment
- 2010 – earliest implementation of the regulation

The draft regulation is not written to establish a performance standard for elevating the sweep off the seafloor, even though that is its ultimate purpose. This standard would be impossible to measure. Instead, the regulation, as currently written, comprises two standards intended to be measured on deck, which research has demonstrated should achieve seafloor clearance: a spacing requirement between the discs or bobbins, and a clearance standard that specifies what the minimum clearance must be between the deck and the bottom of the sweep. All sweeps must provide at least 2.5 inches of clearance. Vessels may achieve compliance with the regulation in one of two ways:

1. Devices with a clearance of less than or equal to 3.5 inches must be spaced at no more than 65 ft
2. Devices with a clearance of more than 3.5 inches must be spaced at no more than 95 ft

There are some other elements of the regulation, specifying where on the sweep elevating devices must be placed. However, the draft regulation, as currently written, purposely does not regulate the type of gear that is used to meet the clearance and spacing standards.

The group primarily met to discuss the Council's Enforcement Committee minutes, which identified several enforcement concerns with the draft regulation as currently written.

### Major outstanding enforcement issues to be resolved

The group spent the majority of their time discussing the following issues, and acknowledges a lack of consensus regarding them.

- **Can a regulatory standard that specifies only a required clearance and spacing standard be credibly enforced by NMFS?**
- If not, do we need to require wear indicators on the bobbins? This would appear to lead down a path of requiring the agency to certify / type-approve each manufactured bobbin and sweep configuration.

- Advantages: Wear indicators would significantly improve the enforceability of the clearance standard by providing a visual cue to crew, observers, and enforcement personnel. A two color indicator may be the most effective, when the bobbin is approaching and is actually out of compliance. Most of the flatfish vessels will probably buy gear from one of several major manufacturers, so this would not be a hardship for most of the fleet.
- Disadvantages: Getting a gear configuration certified is a time-intensive process. The wear indicator on a bobbin would be dependent on the sweep material used which limits flexibility. This program would be resource intensive for NMFS in both development and implementation. This significantly reduces the ability of the fleet and gear manufacturers to experiment and improve on the gear configuration (especially important since this gear is a very new tool). Experience shows that certification often leads to a limited number of manufacturers supplying the gear (often one). Vessels that occasionally fish flatfish may be deterred from the fishery due to the cost of going through an approved manufacturer. The certification is only reliable at the time when the equipment is purchased. Once the equipment is used, the gear will still need to be checked against the standards.

### **How will enforcement occur?**

The discussion with regard to the major issues identified above centered on the practicability of enforcing the regulatory standard. The group all agreed that wear indicators would definitely improve the enforceability of the regulations, and that many of the vessels would probably be using gear from reputable manufacturers who will incorporate the wear indicators. The discussion, however, centered around what should be required in the regulation in order to assure regulatory compliance by all vessels.

### *Measuring clearance*

- Physical inspection during setting or haulback: This appears to be the best way to measure clearance, but may not be practical. The vessel operator would stop the gear for the required measurement. Enforcement would probably want to measure 4 points on each bobbin, to ensure that clearance is met at all points if bobbins are not wearing evenly.
  - this method is used for other types of gear inspections (e.g., checking the pelagic trawl footrope. Frequency?)
  - there may be safety issues (serious?) with measuring the gear while it is being deployed or hauled back
  - For safety in rough seas (e.g., greater than 4 feet), it may be necessary for the vessel operator to chain off the gear at the stern ramp, and then insert slack into the gear on deck. It was noted that boardings are less likely in seas greater than 4 feet. Seas less than 4 ft would represent relatively calm conditions, relative to the size of vessels common to the affected fishery.
- Physical inspection at sea or dockside: The vessel operator could perhaps unfurl the net so that one or two bobbins could be checked, but not all of them (no space). Clearance cannot be measured while on the net reel (they are compressed).
- Visual inspections during setting or haulback: Visual inspections are definitely practical, but may not be as effective. Observers or inspection personnel may be able to tell whether a bobbin looks worn down, while watching from a vantage point. They could then follow up by physically measuring the bobbin (feasibility discussed above).
  - wear indicators would obviously facilitate such inspection, but could only be relied upon for accuracy if their manufacturer was also considered reliable

- the group discussed how far away an observer or inspection officer would safely be standing from the gear, and whether s/he would be able to identify differences in the relatively small clearances that distinguish between compliance and noncompliance

#### *Measuring spacing*

- **Physical inspection during setting or haulback:** this appears to be the only way to measure the spacing. As most decks are not long enough to accommodate the entire 90 ft spacing between bobbins, the inspection officer would need to know the distance from the forward net reel to the stern of the boat; as the bobbin reaches the reel, the crew would be requested to mark the sweep, and continue reeling in the line – one or two such repetitions should allow the inspection officer to measure the spacing between bobbins.
  - a similar method has been used in the past for measuring cod ends
- **Visual inspection:** To assist in measuring the spacing, the vessel could be required to insert markings on the sweep at the appropriate spacing (60, 90 ft) so that it is identifiable from an observer/inspection personnel's standpoint (50 feet away?)
  - this could be done by the fishing vessel crew or built into the gear by the manufacturer

#### *Role of observers?*

The group agreed that enforcement solutions that minimized additional tasks or enforcement responsibilities for observers were most desirable, however they did discuss ways in which observers might help to ensure vessel compliance with the regulation.

#### **Other suggestions or ideas – these were not necessarily endorsed or pursued by the group as a whole**

- Regulate that captains/crew must inspect the gear at each deployment to ensure that the gear is compliant, and worn bobbins are replaced if necessary
  - Advantage – puts enforcement responsibility on captain, removes vessel's excuse that they didn't realize the gear was non-compliant
  - Group discussed whether to require the inspection on a longer timeline (e.g. weekly), whether an observer should be present during inspection, and whether the captain would need to have paperwork affirming the inspection has taken place. All of these additional requirements have the disadvantage of creating additional paperwork requirements and resulting in compliance that is doubtful.
- Institute a two-part standard: the regulatory standard as currently drafted could apply to all flatfish fishing within the existing footprint, however should the Council open new areas to non-pelagic trawl (e.g., the "wedge", or the Northern Bering Sea Research Area), fishing in these areas could be governed by a more strictly enforceable standard (e.g., certified gear only)
- Require each vessel to carry onboard a manufacturer's or gear builder's statement describing the how the elevating disk gear is configured (e.g., what spacing is being used, what types of bobbins, whether they have wear indicators and how the indicator is visible). This would be available to assist enforcement on boarding the vessel.
  - Official manufacturer's statements would be permissible for gear bought from major manufacturers, but statements describing the configuration and construction of home-developed gear would also be required
  - Would need to avoid pitfalls of seabird avoidance plan for seabird avoidance measures (which was recently removed from the regulations due to not being effective and compliance problems.)

- Institute a longer testing period for the gear, providing information on a) how many hauls before the bobbins are worn out, b) how well is the gear working at elevating the gear off the seafloor, c) what configurations are needed to accommodate gear use variability in the fleet, d) what configurations and regulatory standards are feasible for enforcement
  - It was suggested that this type of testing would not be practicable without implementing the gear requirement first; however, the Council could build in a time-certain re-evaluation date, or even a sunset date for the amendment. It has already been recommended that the Council revisit the gear modification requirement in 3 years, for adjustments based on industry experience.
- In determining the appropriate level of enforcement, we should also consider the nature of the threat of non-compliance with the regulation, and comparable enforcement level of other, similar fishery regulations.
  - However we may not be able to have adequate facts on which to know/estimate the nature of the threat of non-compliance with the regulation, and each enforcement regimen should stand on its own unique facts

### Issues raised but not discussed

The Enforcement Committee minutes raised the issue of penalties for non-compliance with the regulation. The group briefly touched on this issue, but decided to address it another time.

### Next steps

- The group agreed that the best way to work out some of the outstanding issues regarding practicability of enforcement is to see the gear on a vessel. Melanie and Diana will work with John Gauvin to arrange a meeting where the group, with the addition of the remaining members of the Council's Enforcement Committee, can see the gear on deck.
  - Ideally this would occur during the February Council meeting as previously scheduled, however we may need to be flexible about the timing due to vessel availability  
*UPDATE: John Gauvin is exploring the possibility of enforcement committee members participating in a field test of the modified gear before the 2009 fishing season starts.*
- Craig Rose will look through his collection of video from the field tests he conducted last summer, to see whether he has any footage of the setting or haulback of the gear on deck, which may help the group get a feel for the practicability of how to enforce compliance.
- John Gauvin has also offered to look into the possibility of video-taping the gear in use on a vessel, to demonstrate how enforcement might be made practicable.
- Melanie and Diana will retrieve information about the vessels participating in the flatfish fisheries, to whom this regulation would apply, the approximate deck size of the vessels, and how many are likely to order gear through a major manufacturer versus make their own gear.
- Melanie and Diana will share the enforcement concerns with industry (John Gauvin and any others as appropriate) to see whether they can suggest ways to resolve these concerns.

**Excerpt from Enforcement Committee Minutes**  
December 9, 2008  
Hilton, Anchorage, Alaska

Committee present: Roy Hyder (Chair), Sue Salveson, LCDR Lisa Ragone, Herman Savikko, Garland Walker, Jeff Passer, Matt Brown, Ken Hanson, Martin Loefflad, and Jon McCracken (staff)

Other present: Diana Evans, John Olson. John Gauvin, and Mike Kelly joined the meeting via teleconference

**I. BSAI Trawl Gear Modifications**

John Gauvin presented a quick overview of a sea trial demonstration of the modified trawl sweep gear for January 9<sup>th</sup> and 10<sup>th</sup>. The individual agencies that are represented on the Council's Enforcement Committee have been invited to participate in the demonstration, although the event is not hosted or sanctioned by the Council. The demonstration will take place aboard F/V Vaerdal, which is a 120 ft vessel captained by Bill Hayes.

Enforcement representatives planning to participate in the demonstration identified the following interests (although there might be others that come up during the demonstration):

- to observe the mechanics of fully deploying and hauling back the sweeps, including winding the sweeps on the net reel
- to see how easy or difficult it is to stop the deployment or haulback of gear prior to completion, to chain off the sweeps, and to physically measure the gear on the deck
- a representative available to discuss the proceedings during the demonstration (this might be the deck boss and/or John Gauvin)
- an opportunity for a debriefing with the captain at the conclusion of the demonstration (this could be on the journey back to shore, or after arriving onshore). This would give the participants a chance to discuss any potential problems that might arise from using the gear.

Following the demonstration, Council staff will write up a summary of the demonstration and the enforcement discussions. This report will be discussed at the February Enforcement Committee meeting, and the Committee will then provide recommendations to the Council about the proposed trawl sweep modification issue.

The demonstration will help to address enforcement concerns about inspection of the gear at sea, to determine whether the gear being used meets the required standards. There are other, outstanding enforcement concerns (included in the Enforcement Committee's October minutes) about whether there is a need for primary verification that vessels are installing the appropriate gear, such as through the requirement for a manufacturer's certification. **The Committee expects that the demonstration will provide clarity about the importance or need for primary verification of the modified sweeps.** A discussion of all issues related to the proposed trawl sweep modification is anticipated for the February meeting.

## Appendix 3 Relevant public comments from BSAI Amendment 89 Final Rule

*Comment 3:* The Council submitted comments and recommends that the preamble to the final rule describe the Council's intent regarding future actions for nonpelagic trawl management in the Bering Sea. The Council intends future adjustment to the NPSRA boundary with the implementation of a modified gear requirement for the flatfish trawl fishery that would minimize potential impacts on bottom habitat. This potential future adjustment would open a portion of the NBSRA to nonpelagic trawling. The adjustment to the NBSRA boundary to open this area is shown in Figure 1. Because the area to be opened with flatfish trawl gear modification requirements may contain high concentrations of yellowfin sole and low concentrations of other bycatch species, the flatfish industry has identified this area as important to its fishery. In June 2008, the Council received a report on the progress of developing modified gear for flatfish fishing that will reduce the potential impacts on bottom habitat. Analysis supporting the gear modification requirement and adjustment to the NBSRA will supplement the existing EA/RIR/FRFA for the Bering Sea Habitat conservation measures.

*Response:* Any potential changes in the gear requirements for the flatfish fishery would require analysis of the potential environmental and socioeconomic impacts of the action. NMFS will work with the Council to ensure the appropriate information is available to inform the Council's final recommendation on gear modification. If the Council recommends a modified gear requirement for the flatfish fishery and the adjustment to the NBSRA shown in Figure 1, NMFS will include these recommendations in future proposed rulemaking for this action. The supporting analysis for this potential future action would include information from the EA/RIR/FRFA for this final rule and any relevant new information to inform the decision making.

*Comment 4:* To protect local communities' resources, we support permanent closure of the area considered for opening in connection with the implementation of modified gear for the flatfish fishery (Figure 1).

*Response:* This final rule implements the closure of the BSRA which includes the area considered for opening with the potential future implementation of modified gear for the flatfish fishery (Figure 1). The Council has expressed its intent to open this area to commercial fishing with implementation of a modified gear requirement (Comment 3). Any concerns about opening this area should be expressed to the Council while the modified gear requirement recommendation is being developed. The Council received a report on modified gear research at its June 2008 meeting (73 FR 26964, May 12, 2008). The Council recommended that staff develop an analysis of a gear modification requirement, including consideration of opening the area identified in Figure 1. The gear modification requirement and any proposed adjustments to the NBSRA boundary will require analysis and rulemaking to implement, including the public process provided by the Council in developing its recommendations to NMFS.

**ADVISORY PANEL MINUTES**  
**North Pacific Fishery Management Council**  
**September 29 – October 4, 2008**  
**Anchorage Sheraton Hotel**

Approved \_\_\_\_\_

Date \_\_\_\_\_

The following members were present for all or part of the meeting:

Joe Childers  
Mark Cooper  
Craig Cross  
John Crowley  
Julianne Curry  
Jerry Downing  
Tom Enlow

Tim Evers  
Bob Gunderson  
Jan Jacobs  
Simon Kinneen  
Chuck McCallum  
Mike Martin  
Matt Moir

John Moller  
Rex Murphy  
Ed Poulsen  
Michelle Ridgway  
Beth Stewart  
Lori Swanson

*Bob Jacobson was absent.*

\*\*\*\*\*EXCERPT\*\*\*\*\*

**(c) BS Bottom trawl sweep requirements**

The AP recommends that the purpose and need statement reflect that the Council intends to evaluate potential gear modification measures for non-pelagic trawl gear used to target flatfish. Research has suggested that these modifications may allow efficient harvest operations while reducing the impact of trawl sweeps on the seafloor. Further, the flatfish industry has identified an area east of St Matthews Island (now referred to as the 'wedge'), now closed as part of the Northern Bering Sea Research Area, as important to the fishery due to industry report of high concentrations of flatfish and low concentrations of other bycatch species. Therefore, the Council will consider exempting the flatfish fishery from the closure of that portion of the Northern Bering Sea Research Area, or removing that portion from the NBSRA. This action is needed to ensure fishers can efficiently harvest flatfish as flatfish stocks are likely to shift locations in the Bering Sea.

*Motion passed 15/0.*

The AP notes that there may be a discrepancy on the position of the Eastern border of the St. Matthew's Habitat Conservation Area and the Western border of the 'wedge.' The AP recommends that Council direct staff to review these boundaries with regard to the Council intent at the time of final action. *Motion passed 15/0.*

The AP recommends that the Council endorse the inclusion of a housekeeping change to the FMP as part of the proposed amendment. *Motion passed 15/0.*

The AP recommends that the Council direct industry to work with NMFS Enforcement personnel to address practicable enforcement of the regulations associated with this action. *Motion passed 15/0.*



## Public workshop on proposed gear modifications to trawl sweeps used in the BSAI flatfish fisheries

September 8, 2008 1-4pm  
Dantrawl, 1121 NW 52<sup>nd</sup>, Seattle, WA 98107

### Report

The agenda for the workshop and a handout listing questions to be resolved, which was used at the workshop, is included as Appendix 1, on page 6. A list of the workshop attendees is included as Appendix 2, on page 10.



### Introduction

Melanie Brown introduced the purpose of workshop, to educate participants on the latest modified gear research and come up with solutions to implementation issues.

### Latest Research

Dr. Craig Rose reviewed the material presented to the Council in June 2008 on the field testing and research conducted over the last year for the modified gear. Results presented last year, assessing effects of the modification on habitat effects and catch rates, used 6, 8, and 10 inch disks over 2 inch combination rope at 30 foot intervals. Actual clearance between the sweep and the seafloor is influenced by nominal clearance (the space created under the sweeps adjacent to the elevating device, measured on a hard surface), the degree to which the elevating device sinks into soft sand or mud, and the degree to which the sweep sags in the span between elevating devices. While some damage reduction was seen with the 6 inch disks (with 2 inches nominal clearance), the 8 inch disks (with 3 inches nominal clearance) performed somewhat better with no detectable reduction in catch rates. It was recognized that longer spacings between elevating devices would be easier for fishers to work with and would further reduce direct contact area, up to the point that actual clearances are substantially reduced due to sag. The goal of this year's studies was to identify the longest spacing that achieved similar clearance characteristics to the 30 foot spacing used in initial tests.

Clearance indicators were developed to measure actual clearances between the sweep material and the seafloor during operation. These indicators were installed at several points across the span between elevating devices placed at 30, 60, and 90 foot spacings. Indicators installed next to the elevating devices evaluated the degree of sinking (elevating devices may sink up to 0.5 inches into the mud), while those near the center of the span measured sag. The general conclusion was that similar actual clearance to last year's tests was achieved over a longer spacing, using elevating devices producing a 3 inch nominal clearance at 60 ft spacing (tested using 8 inch discs on 2 inch sweeps), and 4 inch nominal clearance at 90 foot spacing (10 inch discs on 2 inch sweeps).

John Gauvin explained some of the background for the gear modification action. In the Environmental Impact Statement for Essential Fish Habitat (EFH) Identification and Conservation in Alaska, the flatfish fleet was identified as having the highest impact on EFH, of Bering Sea fisheries. This is primarily because the fleet fish over broad areas, following the movement of the flatfish, so the total area affected by the fishery is high. Consequently, when the Council began considering habitat conservation measures for the Bering Sea, they focused on the flatfish fishery. The Council's first strategy, to close areas with low catch per unit effort over a series of years, would have closed out much of the flathead sole fishing grounds (as this is a highly mobile species). As an alternative, gear modifications were proposed as a

mechanism to reduce the impact on the seafloor, without closing areas to fishing. An industry workshop was held in March 2007 to discuss implementation issues with attaching elevating devices to the sweeps, but there continued to be unresolved issues at the time of the Council's final action on Bering Sea Habitat Conservation (Amendment 89, in June 2007).

The purpose of the additional research in 2007 and 2008 was to resolve three outstanding issues: spacing, methods of attachment and wear rates, and how to work with modified gear on vessels without net reels. Extending the spacing between devices by using larger discs was successful (60 ft for main wire using 8 inches elevating devices and 90 foot for combination rope with 10 inch elevating devices). Connecting the elevating devices at the eyes, where the sections of sweep are spliced together, worked well, while clamps did not work as well as attachment between sections. Finally, testing was done on the F/V Seafisher, a vessel without a net reel, using graduated bobbins rather than discs, which was successful.

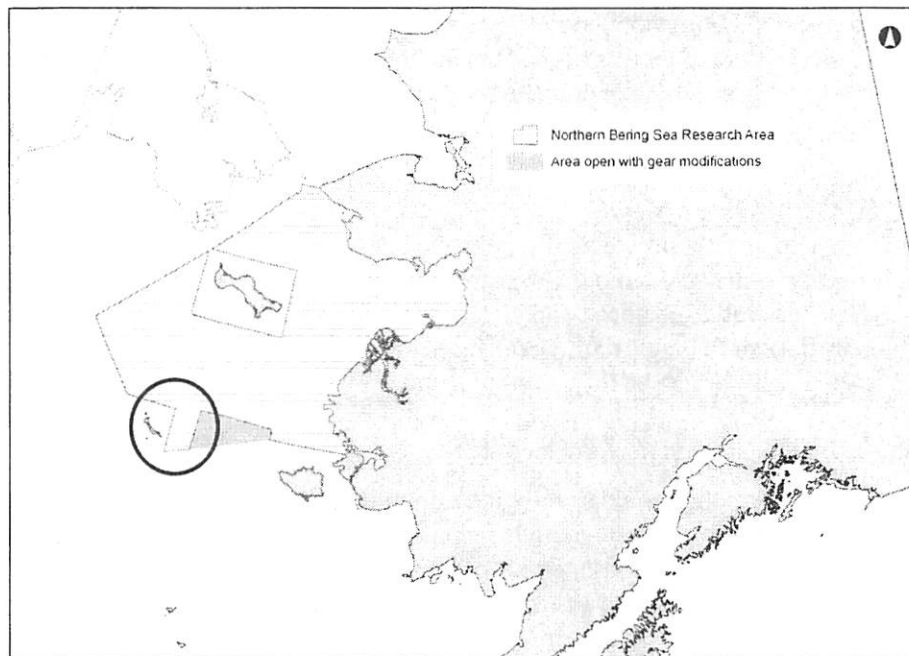
Given that these issues have been resolved, the remaining issues revolve around how to define the requirement in a regulation. Mr Gauvin strongly recommended that the regulation allow for the maximum flexibility. As people use the gear in the fishery, they will likely come up with improvements and changes, and should not be locked into a particular gear configuration as long as the gear meets the overall clearance standard. Mr Gauvin also recommended that the Council include in their final action a formal time period for reconsidering the regulatory standard, to allow any changes that may be required.

#### **Council action and reopening a closed area (the 'wedge')**

Diana Evans spoke about the Council's motions with respect to gear modification in June 2007 and June 2008, and the likely timing of an amendment. The Council is currently scheduled to take initial review of this amendment in December 2008, and final action in February 2009. Implementation would likely be for the 2010 fishing year.

Once the gear modification requirement is in place, the Council has indicated that it may reopen an area of the Northern Bering Sea Research Area, which is currently closed to non-pelagic trawling. An alternative proposing this action will be included in the Council's amendment analysis. Ms Evans noted that the wording of the Council's June 2007 motion regarding the reopening of the area is ambiguous – will the area only be open to flatfish fishery participants using the modified gear, or will the area reopen to all non-pelagic trawling. Workshop participants indicated that they had understood that the area would only be opened to vessels using modified gear, but the modified gear could be used to target more than just flatfish in that area. Ms Evans indicated that she would be asking the Council for further clarification on this matter at the October Council meeting. Dr. Rose stated that there has been some research on targeting Pacific cod using modified gear, and this may be a potential species to be harvested in the area. However, workshop participants thought it was unlikely Pacific cod in fishable quantities would occur in the reopened area.

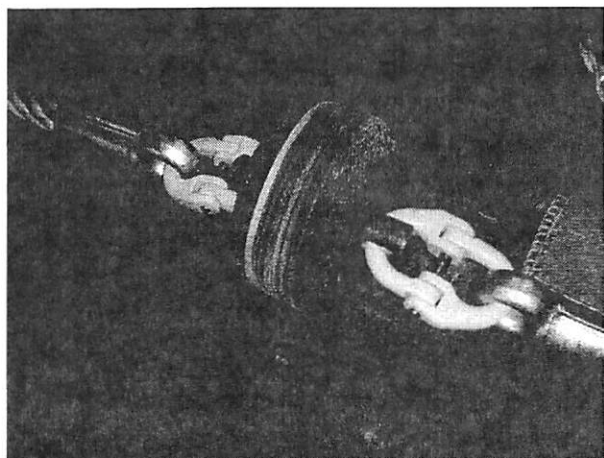
Lori Swanson and John Gauvin also noted that the figure depicting the area to be reopened, known as the 'wedge', did not look correct. They believe the western border should extend to the closure border of the St. Matthew Island closure. The figure here was included in the Federal Register notice for Amendment 89; the circle roughly indicates the disputed boundary.



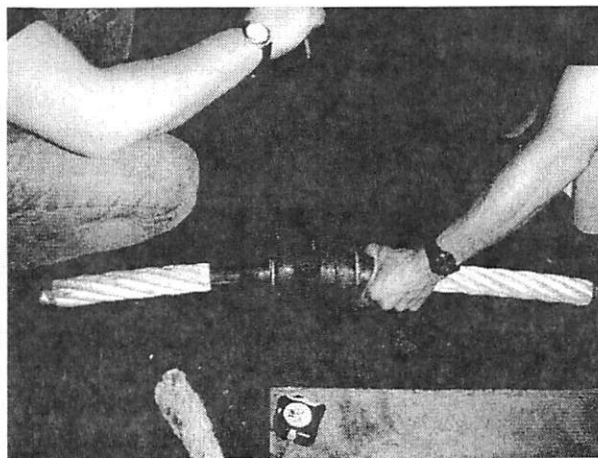
### Implementation and the draft regulation

Melanie Brown presented the draft regulation for § 679.24(f), as currently proposed, and went through the list of questions identified in the handout (Appendix 1). Overall, there was agreement that the draft regulations should establish the required clearance standard, yet leave some flexibility for how to meet the standard, for minor slippage of the elevating devices, and for various sizes of elevating devices. Research has shown that the elevating devices can be securely attached to both bare wire and combination wire.

Participants were much more comfortable with the current proposals for meeting the clearance standard than they were a year ago, and stated that 90 foot spacing with 10 inch elevating devices is a viable solution, whereas the requirement to place the devices at shorter spacing intervals was not. Manufacturers are able to produce the requisite parts to meet the standard; there were a couple of examples available at the workshop site to illustrate how the devices may be attached to combination wire and bare wire.



10 inch elevating bobbin connected to 2 inch (52mm) combination wire with hammerlocks (coupling links)



8 inch elevating discs mounted on body of 2 inch (52mm) combination wire with stopper swages each side

According to Dr Rose and Mr Gauvin, who have field tested the gear, the biggest challenge with implementation will be that there will be frustrations among the crew as they get used to handling the gear. Winding of the modified gear will take practice for vessel operators. However, research has shown that this challenge can be met.

#### Applies to directed flatfish fishing

The regulation will be written so that any Federally-permitted vessel that is directed fishing for flatfish in the Bering Sea will be required to use the modified gear. This means that it will apply to pollock vessels directly fishing for flatfish, as well as the head and gut fleet. Definitions would be revised and added to the regulations to address flatfish fishing by a Federally-permitted vessel, and to define directed flatfish fishing.

#### Regulations combine gear standard and performance standard

The group agreed that the regulations should specify the minimum nominal clearance required for an elevating device over a given spacing. The regulations would be written to require a minimum of 2.5 inches nominal clearance for devices used at intervals of a maximum of 65 ft, or a minimum of 3.5 inches of nominal clearance for devices used at intervals of a maximum of 95 ft. The details of the size or type of elevating device would not be included in the regulation, to allow flexibility for the fleet in meeting the standard.

The group discussed the wording in the regulation requiring the nominal clearance be measured adjacent to the elevating device, given that some devices may not be able to be measured immediately adjacent due, for example, to the use of graduated discs. After looking at the example devices, the Coast Guard and NOAA Enforcement representatives at the meeting felt comfortable that they would be able to interpret the word 'adjacent' appropriately under different configurations (see 'Measuring clearance' section below, also).

#### Defining what part of the gear on which the devices are required (the sweep)

The participants discussed how to identify in regulations the part of the trawl that would need to have elevating devices. The intent is to put elevating devices on the sweeps, which are usually the line between the door bridles and the net bridles. However, some trawl configurations (e.g., parallel rig for semi-pelagic trawl) have a top net bridled that extends the entire length of the bottom sweep to the door bridle, making it difficult to define what part of the sweep needs elevating devices. The participants agreed that 180 feet in front of the net should be excluded from the elevating device requirement, to prevent tangling of the gear. If the net bridle exceeds 180 feet, elevating devices would need to be put on the bottom bridle at the appropriate spacing. This would allow for flexibility in the length of the bridle yet still meet the intent of having most of the bottom lines elevated.

While everyone in the room understood exactly where the elevating devices were supposed to be placed, it was very difficult to come up with a regulatory standard to describe this. The group discussed many different ways to define 'sweep', or to define 'bridle' (the sweep then being everything in between the bridles), but was unable to arrive at an unambiguous definition. The problem is especially difficult because parts may be used differently on different trawl configurations. The group discussed the possibility of using a figure in the regulations, which could be used to identify the location where the elevating devices need to be placed. Ms Brown will continue to work on clarifying this issue.

#### Measuring spacing

The spacing of the elevating devices can be easily inspected on combination wire that is in 90 foot sections. An elevating device would be mounted at the location where sections of sweep are joined

together. For devices used with bare wire, a sleeve could be mounted on the wire at 60 foot intervals to help achieve proper spacing. The participants agreed that marking the sweeps for the elevating device spacing should not be a requirement, but would only be a convenience for crew and inspectors. Marking the vessel deck to assure correct spacing for elevating devices is not practical for the smaller vessels.

The group discussed briefly whether there was a need to specify a minimum spacing for use of the devices in the regulation (using more devices on the sweeps than necessary may increase habitat impacts). It was decided that it was very unlikely that fishermen would want to place more devices on the gear than would be necessary to meet the clearance requirements, due to the inconvenience of using the gear if so configured. Therefore, a minimum spacing requirement is not needed.

#### Measuring clearance

The participants agreed that the performance standard would be measured as the nominal clearance from the deck to the elevating devices. The group discussed how to measure the nominal clearance of the elevating devices, when different methods are used to attach the devices to the sweeps. For elevating devices mounted on a shaft, the measurements could be made from the shaft to the deck surface. For devices attached over a chain connector, the chain would need to be rotated to measure the distance from where the chain contacts the inside of the elevating device (the wide part of the chain link) to the deck. The measurements could also be done from the top side of the hole through the elevating device to the top of the bobbin or disk. It is also important that the diameter of the chain or shaft passing through the elevating device have the same or greater diameter than the diameter of the sweep itself. Smaller diameters would overestimate the sweep's nominal clearance. Elevating devices that are mounted on bare wire with graduated disks (to allow even winding) could be measured using a caliper that reaches from the top of the elevating device, beyond the graduated disks, to the top of the wire.



Dantrawl has made elevating devices with a brass ring on the inside. When the device is worn down so that the brass shows, the device is no longer providing the necessary clearance, and needs to be replaced. A similar wear indicator can also be added to a home-made device, by drilling holes in the disc or bobbin. As with spacing, these indicators may be more helpful to the crew, but could also assist visual inspections by federal personnel. The workshop participants agreed that such indicators should not be required, however.

#### Manufacturer's warranty or certification

The USCG will do further research into the feasibility of a program where the manufacturers could certify that the modified sweeps meet the regulatory standards. Even without such a formal program, however, the participants noted that the vessel operator could file a letter from the manufacturer and bill of sale with the ship's records indicating that the purchased gear met the requirements. This would be similar to the requirement for a manufacturer's statement for mid-water trawl gear, and could facilitate inspections by USCG and NOAA personnel. The participants agreed that this document should not be a requirement, but just something that could be done as a convenience to the gear owner and the inspection personnel.

Accommodating gear on net reels

The vessel net reels will need to accommodate the increased bulk of the modified gear. Mr Gauvin and Dr Rose indicated that in most cases they should be able to do so, but learning to wind the gear efficiently would take practice. It was noted that this would be easier for vessels with split net reels. For other vessels, several options may have to be considered. Some net reels can be modified to increase the diameter for winding the gear. Another option is to raise the net reel to allow for more gear to be wound on the reel, however this may be a concern for the stability of the vessel and the strength of the deck. The other option is to reduce the length of the sweeps. Making changes to the net reels will be an expense to the vessels using modified gear. Decreasing the sweep lengths may impact fishing efficiency and reduce harvests.

Council reconsideration of modified gear requirements

The participants agreed that it would be desirable to have a set date for the Council to revisit the modified gear requirement. This would ensure a place on the agenda for any needed revisions to the requirement, which can be difficult to obtain. The participants agreed that the preferred time period for reconsideration would be three years after implementation.

## Appendix 1 Agenda and Issues for Discussion

1. Introductions
2. Latest research results (Craig Rose)
3. Gear designs - bobbins, placement, rope types, net reels and without net reels; practical applications (John Gauvin)
4. Council June motion (Diana Evans)
5. Draft regulations (Melanie Brown)
6. Monitoring and enforcement issues: identify problems and suggest solutions (Melanie Brown, moderator)

### **Regulation Issues:**

1. **Should the definition of the sweeps include all lines between the doors and the fishing line or the footrope?**

Current definition:

fishing line is a length of chain or wire rope in the bottom front end of a trawl to which the webbing or lead ropes are attached.

footrope is a chain or wire rope attached to the bottom front end of a trawl and attached to the fishing line.

For purposes of establishing where to measure and attach elevating devices, we should describe whether the sweep extends to the footrope or beyond that to the fishing line.

2. **What distances should be excluded in the spacing measurements for the elevating devices next to the doors and next to the trawl?**

The bridles can include a substantial portion of the length of the trawl gear. Adding the length of the bridles at the door and trawl end of the sweep would increase the number of elevating devices needed. The suggested regulatory definition of the sweep excludes 90 feet closest to the doors and the 150 feet closest to the forward ends of the fishing line.

Are these exclusion distances appropriate?

Should fishing line be footrope (depends on question 1 answer)?

3. **Should the regulations be written as a gear standard, performance standard, or a combination?**

The draft regulations set the elevating device spacing dependent on the clearance provided by the elevating device. Clearances greater than 3.5 inches allow for greater elevating device spacing (95 feet). Research showed 10-inch diameter devices on combination wire and 8-inch devices on wire to be effective at providing the 2.5 inch clearance minimum. The following are the draft regulations which are a combination of gear and performance standards.

§ 679.24(f) Nonpelagic trawl sweeps for directed flatfish fishing with federally permitted vessels in reporting areas and adjacent State waters of the BS, as described in Figure 1 to this part. Vessel owner or operators using nonpelagic trawl gear for directed flatfish fishing must meet the following standards in subparagraphs (1) through (3):

(1) elevating discs, bobbins or similar devices installed on the sweeps that raise the sweeps at least 2.5 inches, as measured adjacent to the device when resting unsupported on a hard, flat surface, regardless of device orientation, and measured between the supporting surface and the lowest part of the sweep material;

(2) elevating devices secured along the entire length of the sweeps at either

(i) no more than 65 feet between elevating devices that raise sweeps between 2.5 and 3.5 inches (6.35 to 8.89 cm), or

(ii) no more than 95 feet between elevating devices that raise sweeps more than 3.5 inches (8.89 cm);

and

(3) The largest cross-section of the sweeps between elevating devices shall not be greater than at the nearest measurement location. Wider cross-sections resulting from doubling the line back for section terminations and devices required to connect sections are exempt from this requirement. Where a device is installed over material different from the sweeps, (for example, on a chain joining two sweeps sections), that material must be at least as wide as the sweep material.

Should the regulations be specific to the size of the disk and the type of sweep? or

Should the standard of at least 2.5 inches continue to be used but work with the manufacturer and industry to use the right size discs for the type of sweep?

**4. Should the regulations specify a range of values for the spacing of the devices and for the diameter of the devices? If so, what should that range be?**

New elevating devices are likely to be made in a standard size of either 8 inches or 10 inches in diameter. *Is this true?*

Is there a certain amount of wear that is acceptable so that a range of diameter size could be used in the regulations? The spacing of the devices is dependent on the diameter of the devices.

Understanding that some slippage may occur in one or more points of connection, can we specify an acceptable range of distances between devices? Is not more than a certain distance OK? See current draft regulation language.

**Implementation Issues:**

**1. What method is preferred to easily see if the spacing of the elevating devices is correct?**

Combination rope sweeps usually come in 100-fathom (600-foot) sections. But gear manufacturers have indicated that they can place **spliced "eyes"** at 90-foot sections. Additionally, manufacturers of combination rope may be able to produce 90-foot combination rope "shots" with spliced eyes or other such sections at 90-foot intervals for attaching disc/bobbins. The spliced eyes provide a viable means of placing shackles such as a "hammerlock" or short length of chain and shackles where elevating discs or bobbins can be attached. This method of attachment reportedly provides a reliable means of attaching the discs/bobbins to combination rope sweeps than using clamps or other approaches that fishers and gear manufacturers have tried to date.

If the regulations require spacing at 60 feet, the elevating device would need to be placed on parts of combination rope sweep sections that may or may not be where the sections are joined with spliced eyes. This may make it difficult to reliably attach the elevating discs/bobbins on combination rope sweeps.



Attachment of discs/bobbins to steel cable or chain sweeps that are covered with small (typically 2 inches in diameter) rubber discs (i.e. "cookie sweeps") does not present the same potential difficulties for disc attachment at spaced intervals.

One manufacturer has used **metal sleeves on the sweep** to mark the 60 and 90-foot intervals which would provide a quick visual method to determine spacing. **Can this method be used on any sweep material and is it economical?**

**Marking the vessel deck**, trawl alley or trawl way fence at 60-foot intervals where the sweep is brought back onto the vessel may make it easier to quickly see if the elevating devices are in the proper locations. This method **may work better for larger vessels** using forward net reels.

**Should some method of easy visuals be required** or should it be left up to the operator, knowing that hand measurements would be time consuming for all?

**2. Can the elevating devices be manufactured to easily see if they have worn to the point of not providing the elevation necessary to meet the standards?**

The goal is to provide the crew, observers, OLE, USCG, and possible industry inspectors a quick visual method to determine if an elevating device is not meeting the standard and may need replacing.

According to gear manufacturers, discs/bobbins used on the combination sweep line could be equipped with **wear indicating devices** such as the ones used on some automobile tires (tread wear indicators) such that it would indicate if wear has made the device not meet the standard. Discs could have **three evenly spaced holes** drilled into them so that reaching the holes through wear would show that the discs no longer provide the necessary elevation to meet the standard.

Are there other types of wear indicators and should this be a requirement?

**3. Are there considerations for modified sweep fitting on the reels and being wound level?**

For fishers currently using a trawl net and sweeps that fill their net reel fully, the additional load of the discs/bobbins may not be accommodated on their net reels. Some fishers facing this situation may have to modify net reels. This can usually be done by increased drum diameter of the net reel and possibly elevating the net reel to achieve necessary deck clearance. Alternatively, fishers may have to reduce the amount of sweep they use under the modified disc requirement relative to what they use currently. This may have some effect on catch rates of fishing efficiencies. Fishers who have to cut back on sweep lengths as part of this regulation may lose some fishing efficiency, which would be a cost as a result of the requirement to modify sweeps.

**4. Can modified sweeps be used on vessels without net reels?**

Field trials on industry vessels without net reels indicate that disks of graduated diameters should be attached to the sweeps where the elevating discs are installed. This apparently facilitates winding the elevating discs through the level winds. The level winds may need to be modified and require extra maintenance to allow discs to be rolled onto main winches. Sweep winches may need to be added if main winches cannot be made to work on a regular basis. The use of 8-inch disks at 60-foot spacing is expected to be the preferred set up for vessels without net reels.

**5. Should the Council do a review in 3 or 4 years, or should they wait until they are notified by the industry or the AFSC that enough additional work has been done to justify looking at new techniques?**

The lighter Spectra rope may allow for better lift than the combination rope. It may be possible that not as many elevating devices would be needed on Spectra or other lighter weight rope to achieve the same clearance as heavier gear. Additional research is needed to explore this option, and the Council may wish to review progress on this method in the future.

**6. Can the elevating devices be securely attached to the sweeps?**

Research showed that the most effective way to attach the elevating devices to combination rope is at the rope "eyes" use for connecting sections. This may be another reason why it may be desirable to use 90-foot spacing as the standard instead of 60 feet. According to industry feedback, there is no problem attaching elevating devices to cookie gear sweeps and to the wire for sweeps on vessels without net reels.

**7. Is it possible to have an industry inspection program to certify the modified sweeps meet the standard?**

It would be helpful to have an industry program to certify that new and used modified sweeps meet the standards. This would allow for documentation for a sweep to be presented during inspections and would be efficient for fixing any problems noted during inspection.

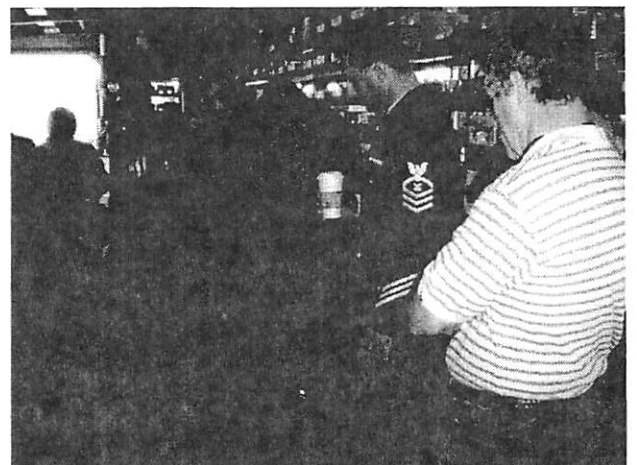
**Additional Question for the Workshop if time allows:**

**Should the Wedge be open to all nonpelagic trawl gear, or only to those using modified gear?**

The Council may want to analyze options for the wedge area with the modified gear requirement to either allow all nonpelagic trawling in the wedge area or to only allow modified gear for flatfish fishing in the area. See Figure 4. If time allows, identify the pros and cons to the options?

## Appendix 2 Gear Modification Workshop Attendees, September 8, 2008

Name	Affiliation
Ben Langholt	Dantrawl
Bill Hayes	Jubilee Fish
Brian Fujimoto	Hampidjan USA
Carwyn Hammond	NOAA/AFSC
Dave Wilson	Iquique
Diana Evans	NPFMC
Elias Olafsson	Dantrawl
Frank Vargas	American Seafoods
Garland Walker	NMFS GC
Jason Anderson	BUC
Jim Strickland	US Seafoods
Jody Cook	Trawl Skipper
Jody Nummer	USCG
John Adams	NET-sys
John Gauvin	H & G Workgroup
John Olson	NMFS
JR Osuga	Cascade Fishing
Keith Bruton	O'Hara Corp.
Ken Hansen	NMFS Enforcement
Kim Hampton	US Seafoods
Lori Swanson	GFF
Melanie Brown	NMFS-SF
Mitch Hull	OP
Patti Nelson	NMFS-AFSC
Paul Ison	Iquique
Steven Patterson	NETS
Susan Robinson	Fishermen's Finest
Takeo Inoue	NET-sys
Thorbjorn Finnboganson	US Seafoods
Tim Meintz	Cascade Fishing
Vidir Vernhardsson	Hampidjan USA



## At-sea demonstration of trawl sweep modified gear: Report

Friday, January 9, 2009 3:30pm-7pm

Onboard the F/V Vaerdal, out of Shilshole Marina, Seattle, WA

<b>ADF&amp;G:</b>	Herman Savikko
<b>NMFS AFSC:</b>	Craig Rose, Carwyn Hammond, Martin Loefflad
<b>NMFS AKR:</b>	Melanie Brown, John Olson
<b>NOAA Enforcement:</b>	Ken Hansen, Matt Brown, Doug Marsden, Hans Brubaker
<b>NOAA GC – Enforcement:</b>	Garland Walker
<b>NPFMC:</b>	Diana Evans, Jon McCracken
<b>USCG:</b>	Pat Barelli
<b>F/V Vaerdal:</b>	Capt Bill Hayes, crew
<b>Best Use Cooperative:</b>	John Gauvin
<b>Groundfish Forum:</b>	Greer Cowan, Lori Swanson
<b>Dantrawl:</b>	Pol Pederson

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### Background

The Council is currently considering an amendment for vessels targeting flatfish in the BSAI, which would require installation of elevating devices, such as disks or bobbins, on the trawl sweeps, in order to elevate the trawl sweep off the seafloor. Following discussions within the Council's Enforcement Committee, and internally within the agencies responsible for enforcing the proposed regulation, it was determined that a visual demonstration of the gear would be the best way to resolve outstanding enforcement questions regarding enforceability of the proposed gear modifications and how the regulation could be written.

### Logistics of the demonstration, and vessel configuration

The demonstration took place onboard the F/V Vaerdal, on the afternoon of January 9, 2009. The Vaerdal is a 118 ft trawl catcher processor, captained by Bill Hayes, a long-time participant in Bering Sea and Gulf of Alaska flatfish fisheries. In addition to the above list of interested people, the captain had six crew members on board who readied the test gear on the way out to an area where gear testing is allowed in Puget Sound. After arriving at the site, the crew set and hauled back the net and sweeps from fore and aft net reels. Upon request, the captain and crew stopped the gear and let the group inspect and ask questions. The trip lasted approximately 3 hours.



The Vaerdal is somewhat unique in the flatfish CP fleet because it uses both forward and aft net reels on a regular basis. Most flatfish CPs have aft net reels but rely on their forward net reel for most if not all of their fishing. Aft net reels on most flatfish CPs are used primarily for temporary storage of sweeps, bridles, and nets from the forward net reel, used during maintenance or while switching out a net from the forward net reel. Additionally, the Vaerdal also has a relatively short trawl deck (44 ft) compared to most flatfish CPs that are currently fishing.

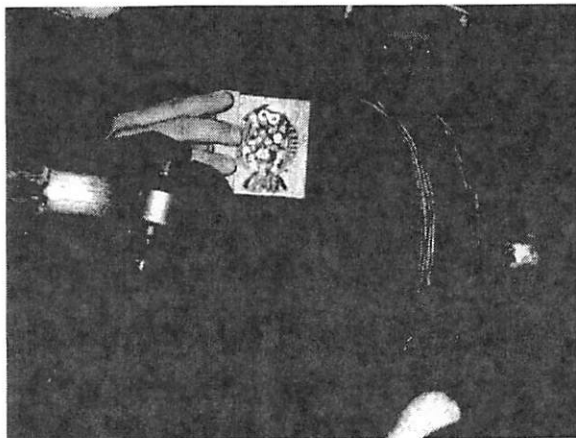
Fishing with an aft net reel is generally expected to create more difficulty for accessing the elevating devices for taking measurements to ensure minimal clearance standards. Also, a shorter deck is likely to add difficulty to the task of taking measurements to ensure that the distance between elevating devices is correct. So the Vaerdal served as a good platform for the demonstration, because it represents one of the more challenging platforms for enforcement of the modified sweep requirements for flatfish CPs. It also was the best available catcher processor “proxy” for looking at enforcement issues for Bering Sea catcher vessels that may target flatfish under the requirements for modified sweeps.

For the demonstration, the vessel had installed modified sweeps and a net on both reels (without attaching a cod end). On the forward reel, a total of 16 10-inch bobbins were connected to 2-inch combination wire with hammerlocks, in 90 ft ‘shots’ or sections, 8 on each sweep. The aft net reel was set up with shortened sweeps, a total of 4 bobbins attached, just to demonstrate the relative degree of difficulty for inspection from the aft reel. At the aft end of the sweeps on the forward reel, a very large rubber disk (approximately 15 inches in diameter) was installed on the gear at the point the net bridle meets the end of the sweep combination wire. This is used to protect the splice at the point the top and bottom net bridles meet, and the captain noted that this aspect was a commonly-used configuration. The bottom net bridle was cookie gear and the top net bridle, bare wire. The forward end of the sweeps attached to two 10-20 ft sections of heavy chain, which connect to two sections of cable, approximately 90 ft each, attaching to midwater doors. The chains help force the sweeps to the seafloor. About half of the cable contacts the bottom.

The Vaerdal is part of the Amendment 80 sector in the Bering Sea and Aleutian Islands (BSAI), and fishes flatfish and Pacific cod in both the BSAI and the GOA. The vessel will be taking a set of modified sweeps onboard for the 2009 fishing season, and will test them in the first BSAI flatfish fishery (probably rock sole).

#### **Tools for measuring clearance**

Both the captain and Ken Hansen had anticipated the need for simple tools to measure the clearance of the bobbin or elevating device and both had constructed prototype tools for the demonstration. Ken Hansen had two tools made of a square of metal and a wooden handle. The tools are 2.5- and 3.5-inches high, and can be placed between the deck and the rod holding the bobbin, to measure the respective minimum distances stipulated in the draft regulation. Bill Hayes’ tool, made from a metal ruler and two clamps, rests on top of the bobbin and extends down on each side to the rod holding the bobbin. He had cut the extensions to represent the 3.5 inch minimum distance. The tools are very simple to make and both worked well. The tools could easily be given to inspection personnel, or used by the crew to ensure the elevating devices meet the clearance standard.



### **Physical inspection of the gear – measuring clearance**

The regulatory standard is currently written to measure the clearance of the elevating device from the deck. In actuality, it became apparent from the sea trial that the easiest way to measure the gear will be in mid-air, as it is being deployed between the net reel and the stern ramp. This is because measuring the clearance is best done when the gear is under tension and this is easiest to achieve while the gear is being set or retrieved. As such, it will be important to measure from above, as the rod will be pushed up against the top of the bobbin and this will represent the minimum clearance. In general, inspectors would want to rotate the bobbin or the measuring device to find the smallest clearance. If the disc/bobbin set up does not allow for easy rotation, then the person taking the measurement will need to maneuver the measurement device to take the measurement at a point that appears to provide the least clearance. Both clearance measurement tools worked well for measurement. Measuring clearance on the bobbins from the forward reel was easier than from the aft reel. There is more time to access the bobbins as they cross the deck, and the bobbins are clearly visible from many places on the vessel. From the aft reel, one has to reach across the trawl alley next to the stern ramp to reach the device as the gear descends from the reel, before entering the water. Measurement of clearance was successful, but a small person may have trouble conducting the measurement. Because most flatfish CP vessels predominantly rely on forward net reels, for the most part measurement of elevating devices on aft net reels will not be required.

### **Physical inspection of the gear – measuring spacing between bobbins/devices**

The sweep gear used by the Vaerdal is in 90 ft sections, which is standard for trawl sweeps. To accommodate the modified gear, the length of combination wire for a normal trawl sweep was shortened slightly, so that the extent of a length of wire plus one bobbin constitutes a 90 ft section on the modified gear. As the vessel is using purpose-built modified gear from Dantrawl, the enforcement personnel had confidence that the spacing between the bobbins was consistent and accurate, and met the draft regulatory standard of no more than 95 ft between bobbins.

In order to measure spacing between bobbins, should distances be in doubt, the crew used a tape measure to cut a 95 ft piece of twine. This was attached, by the crew, to the bobbin hammerlock as it was being set or hauled back. By running the twine along the sweep as it deployed, the onlookers were clearly able to see that the spacing between bobbins met the regulatory standard. The crew were successfully able to measure the spacing on the aft reel sweeps using the same method, but not as easily as from the forward reel, because of reaching across the trawl alley well. This methodology was deemed by enforcement personnel to represent a logical approach to determining compliance with spacing requirements, especially on vessels with shorter trawl decks or aboard vessels where the gear is set or hauled from the aft net reel. In the demonstration, the twine was left on the sweep. If this becomes standard practice, the string should probably be of some sort of biodegradable material, or should be removed during the next launch.

On vessels with a longer trawl deck, if the gear is set or hauled from the forward net reel, the deck could be paced off or measured, and spacing estimated by observing the spacing of the bobbins relative to pre-determined points on the trawl deck.

### **Visual inspection of the gear**

The net takes up several turns of the net reel before one can see the sweeps. While the net was wrapped on the reel, it was very difficult to see any elevating devices. Only one or two could be seen on the forward reel, and none on the aft. The tools could be used to measure for compliance any bobbins accessible on the net reel, which were not covered by the net.

As the gear was being set from the forward reel, an inspector could be standing in safety, on the upper deck, within 10 ft of the gear. Either of the measuring tools could be given to the crew to measure clearance on the bobbins, and the inspector, standing on the upper deck, would easily be able to see whether the gear met the required standard. The same holds true for measuring spacing – the crew could be given a piece of twine of the appropriate length to measure spacing. It would not be necessary for the observer or enforcement personnel to be in the trawl alley to ensure whether the gear was in compliance. When fishing off the aft reel, visual inspection would likely need to be from on deck, but the inspector would still be able to stand back from the moving gear and witness the crew measuring clearance and spacing.

If enforcement officers desired to inspect the trawl sweeps more closely in rougher sea conditions, this could be safely conducted during setting or hauling of the net. The crew could briefly “chain off” the net at the stern ramp. This involves cinching the gear as it comes up or down the stern ramp, and allowing it to drag behind the vessel, while underway. Sweep gear can also be rolled from the net reel to the deck, where it could be measured and inspected for compliance. Finally, on flatfish CP vessels that generally use the aft net reel mainly for net storage and maintenance, the net and sweeps could be rolled off the forward net and placed onto the aft net reel during inspection. This would provide the same tension for taking measurements as setting the gear out underway and using the aft net reel for this purpose provides a convenient way of taking measurements with the gear under tension even during shoreside inspections.

#### **How typical is the Vaerdal among flatfish trawl vessels?**

At 118 ft, the Vaerdal is one of the smaller vessels in the Amendment 80 catcher processor sector, which catches the majority of flatfish in the BSAI. It should be easier to inspect the modified gear on larger vessels, as there is more deck space for measuring the distance between the bobbins, more time to inspect the bobbins on the moving gear when using the forward net reel as the gear traverses the deck, and more room for personnel to maneuver. Most vessels are not configured with a forward and aft net reel; it is more common to fish only with forward net reels. The Vaerdal is unusual in that it tends to fish with both.

The Vaerdal is also fairly unique among flatfish vessels in that it is conducting on-going experiments with the use of off-bottom trawl doors. But this feature had no effect on the enforcement sea trial because doors did not need to be set to allow the visitors to evaluate the enforcement issues surrounding spacing and elevating disc/bobbin clearance.

Most of the vessels in the Amendment 80 sector buy their gear from either Dantrawl or Northeastern Trawl Systems (NETS), both of which have worked with the research team to develop the modified sweeps. There are also some pollock vessels that occasionally fish in the BSAI flatfish fisheries, particularly for yellowfin sole. It was noted that some smaller catcher vessels, many based out of Kodiak, tend to fish more with the aft net reel, and may be more likely to want to manufacture their own gear.

Some of the Amendment 80 vessels do not have net reels. The option in the regulation to achieve the lower 2.5 inches minimum clearance, but over shorter (not to exceed 60 feet) spacing, was suggested because research shows that it meets the same seafloor clearance standard, but it is workable on these other vessels. NETS have worked with Dr Rose and the F/V Seafisher to develop ways to attach the elevating devices to main winch wire systems. The elevating device is not connected to the sweep between sections, but rather consists of a series of graduated disks that are installed over the cable between pressed steel or aluminum sleeves referred to as “swages”.

Industry participants attending the sea trial on the Vaerdal commented that once the regulation was in place, all vessels with a net reel would be likely to switch over to using the one shot (90 foot section) system with elevating devices, because it is so much easier to use.

### **Identifying the sweeps and exemption distances for the bridles**

Lacking a way to accurately describe sweeps, the draft regulations instead specify, in pictorial form, that elevating devices must be used on all of the gear except for 180 ft from the net (to account for the net bridles) and 90 ft from the trawl doors (to account for the connection of door bridles to the sweeps). On the Vaerdal, the portion of the gear to which the regulation would apply was clearly identifiable. At one end, the sweeps connect to the chain used with the midwater doors, and at the other, there is a large rubber disk at the point that the sweeps connect with the net bridles. Industry representatives have indicated that the presence of this large rubber disk is common to bottom trawl configurations, so it should be fairly easy for inspectors to determine what portion of the gear should have elevating devices attached.

Starting in the 2009 season, the Vaerdal will be using midwater doors for flatfish fishing. In this new technique, the doors stay above the bottom, and cables with heavy chains either in-line or serving as a "weight clump" (as is done on pollock vessels) are attached behind the doors to bring the forward ends of the sweeps down to the seafloor. On the Vaerdal, a 90 ft length of single cable line extends on each side extended between the door bridles and the in-line weight chains. As currently written, the draft regulation exempts 90 ft forward of the sweeps from the requirement for elevating devices. Adding the cable length to the length of the weight chain (10-20 ft), this would put the Vaerdal's configuration just over the exempted distance. The captain raised the point that on larger vessels using midwater gear, the cable and chain lines might need to be longer still. If so, you could have a situation where, according to the regulation, you would need to attach a bobbin to cable or chain that would be suspended in the water column, and not serving the purpose of raising the sweep off the seafloor. In order to account for this, it was suggested that the draft regulation be adjusted to allow a 180 ft exemption both fore and aft of the sweep. This would accord with the way the aft 180 ft exemption was arrived at – to take the normal bridle length, which is 90 ft, and double it to allow for individual vessel flexibility of configuration. Lengthening the forward door line exemption from 90 to 180 ft could reduce the requirement by one less elevating device, but would allow for midwater doors to be used and would accommodate larger vessels that may need more length in the door lines. The extent to which flatfish fishermen will utilize midwater doors in the future is not known at this time, but flatfish industry representatives have expressed an interest in adopting the 180 foot arrangement described above in case midwater doors prove to be a useful fishing tool for achieving net spread at reduced fuel cost. The impact of losing the one elevating device would be greater on vessels using shorter sweeps than longer ones, as the percentage reduction in gear being raised above the seafloor would be less for the vessels with longer sweeps.

### **Whether to require wear indicators in the regulation**

Agency personnel discussed again the issue of whether to require wear indicators in the regulation. The advantage is that wear indicators clearly would help both compliance with and enforceability of the regulation. Wear indicators would help the captain and crew know easily when the elevating devices need to be replaced. In terms of enforcement, it would be easier to involve observers in enforcement with visible wear indicators. At the same time, if wear indicators are required in the regulation, this means that enforcement personnel may be required to check to see if wear indicators are present, even though they may not become visible until the gear is worn through. This would mean that enforcement personnel may need, for example, to cut through the gear in order to see whether the indicator is present – which would seem to be wasteful. A wear indicator requirement may also mean that the agency would need to institute a manufacturer's certification process, the disadvantages of which have been discussed previously, and the requirement for which significantly reduces the flexibility of the industry to develop new and better gear types.



### **Threat of non-compliance with the modification requirement**

During retrieval, the captain repeatedly had to wind and unwind the gear in order to get the bobbins to go on straight, and had to swing the vessel to evenly wind the gear on the reel (the vessel acting as a level wind). Because the Vaerdal was such an ideal vessel for the sea trial, the captain was asked to make his vessel available for the sea trial even if he had not done any fishing with modified sweeps. Captain Hayes has also purchased a set of modified sweeps that he plans to use in order to become familiar with them prior to the requirement to use them. But this was the first time the captain had used the modified gear at sea and so some learning curve for fishing with them is apparently not uncommon according to Dr. Rose and others involved in the research on the modified sweeps. The researchers who have been developing the gear noted that the most frustrating aspect of compliance would be the learning to get used to hauling back this type of gear, but that this was somewhat easier for vessels with a split net reel. Captain Hayes noted that one reason he was testing the gear this year was to see whether he would need to get a split net reel, which the Vaerdal does not currently have. Under normal fishing operations, the entire process of retrieval and deployment usually takes 25 minutes. Based on the experience during the demonstration, Captain Hayes estimated that using the modified gear on his current configuration might add an additional 10 minutes to this process, which might increase costs to fishing operations unless practice with loading the sweeps on the net reel makes the task easier and less time consuming.

At the same time, while this aspect of compliance may be frustrating, and may require vessel modifications in order to make using the gear easier, once the regulation is in place, most vessels are unlikely to go flatfish fishing without using a form of the modified gear. It was agreed that observers could certainly be tasked to report gross violations of the requirement to use modified gear, such as bobbins that were clearly missing, or the complete failure of the vessel to use any modified trawl gear. All of the Amendment 80 sector vessels are required to have 200% observer coverage, and most of the other vessels fishing for flatfish will have 100% observer coverage, so vessels are unlikely to be able to avoid compliance with the modified gear requirement.

With respect to whether the vessel would allow the gear to become worn down without changing out the bobbins, the demonstration showed that, for the gear supplied by Dantrawl, bobbins appear to be easy to install and exchange. The bobbins are installed between sweep sections (shots) with hammerlocks. Captain Hayes estimated that replacing a bobbin (for example, should it become worn down) would take approximately 5 minutes. Additionally, the bobbins are inexpensive (although their exact cost was not known to the group onboard). Participants observed that with this configuration, there would be little incentive for vessels not to replace the gear once it becomes worn down.

Research has shown that there should not be any impact to the catchability of target fish when using the modified sweeps that create 3 inches of clearance, and minimal impact with modifications that create 4 inches of clearance (necessary for use of spacings greater than 60 ft). Using the modified gear also provides a benefit to the vessels, by reducing wear on the sweep itself. Combination wire, of which many sweeps are made, is very expensive, and Mr Gauvin noted that raising it off the seafloor with elevating devices is expected to as much as double the life of the sweeps from what he has heard from fishermen who have been using the modified sweeps. This savings may provide an encouragement to vessels to comply with the modification requirement. Industry personnel are also aware that preliminary data indicates a reduction in crab mortality may result from the use of elevated sweeps. Dr. Rose is expected to provide information on this finding from the NPRB funded research he is doing. Lastly, vessel personnel suggested that the reduced seabed contact achieved by raising the sweeps from the bottom may result in incremental savings in fuel.

## **Penalties for non-compliance and requirements for at-sea enforcement**

The demonstration showed that for vessels buying a gear configuration similar to that used by the Vaerdal, the agency could be fairly confident in the likelihood of compliance with the regulation (see above). There are, however, other vessels which may choose to manufacture their own gear. The question arose about how to have confidence that the gear that is installed on these vessels meets the regulatory standard. Agency enforcement personnel agreed that there need to be two additional aspects to the implementation of the regulation in order for it to be credible: a well-defined penalty schedule, and a rigorous enforcement of the standard, especially in the first year.

### Penalty schedule

It was suggested that prior to the implementation of this regulation, NOAA GC-Enforcement and NOAA Enforcement should meet and come up with a clear penalty schedule for this action, which should then be thoroughly communicated to the BSAI flatfish fleet. In general, any infractions of the regulations that compromise the effectiveness of the gear (i.e., failure to meet individual elevating device clearance specifications and/or failure to meet spacing requirements along the sweep) would be treated seriously and would likely result in a significant penalty. For example, this might occur if all of the bobbins have wear indicators showing upon inspection, or were out of compliance with the regulatory standard, or if an elevating device was absent. Making a legal case would be made more simple by the fact that, if necessary, the bobbins in question could be physically removed from the boat and produced in any court case that might ensue.

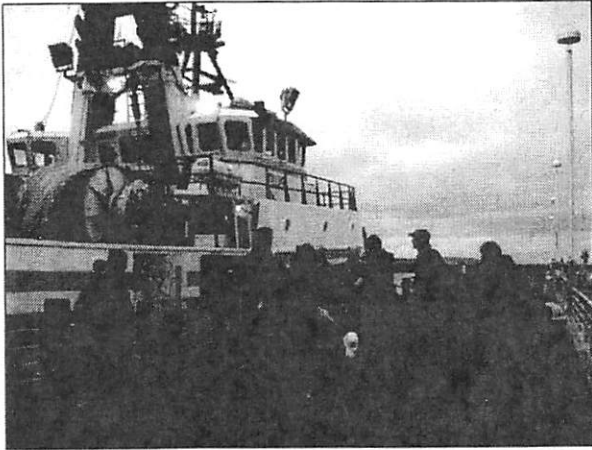
Such a strict approach would also encourage all vessels to select the most effective gear for complying with the regulation. By only requiring that modified trawl gear meet a few specified design standards (i.e., clearance and spacing standards), the agency is providing the industry with the flexibility to manufacture the gear, meeting those standards, that works best on any particular trawl vessel. Correspondingly, by setting relatively high penalties for a failure to comply with these few regulatory specifications, there is a built-in incentive for the regulated community to take special care that the gear which they choose to use does in fact comply with the regulation. (A high incentive to use gear that meets the specified design standards may also mean that vessels will be less likely to attempt making their own gear, if they have questions about their ability to meet the specified gear standards throughout the fishing period, and will instead prefer to purchase gear from reputable gear manufacturers that is built to meet the standards.)

### Rigorous inspection

The second aspect of enforcement would be to institute a rigorous inspection program in the first year of implementation, and in subsequent years as deemed necessary, to ensure all vessels are compliant. This could be accomplished, for example, by embarking an enforcement agent on a Coast Guard cutter. The agency could set a target goal representing the proportion of the fleet that would be boarded within the first year of the program. Because the fleet is a small one, likely representing no more than 50 vessels, such a goal is feasible, and, indeed, the ultimate goal may be 100% inspection. This kind of rigorous approach would provide a strong incentive for the fleet to comply with the gear requirement.

## **SUMMARY**

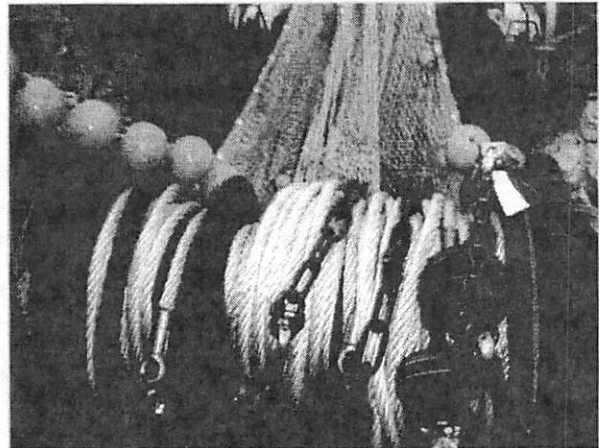
Overall, the at-sea demonstration showed that at-sea inspection and compliance with the standards can be safe and successful. Agency enforcement personnel agreed that the regulation as drafted, which specifies only a minimum clearance and spacing standard for the modified sweeps, would be credible for the agency to implement as long as it is accompanied by a comprehensive enforcement plan addressing both a strict penalty schedule and a plan for at-sea inspection, as described above.



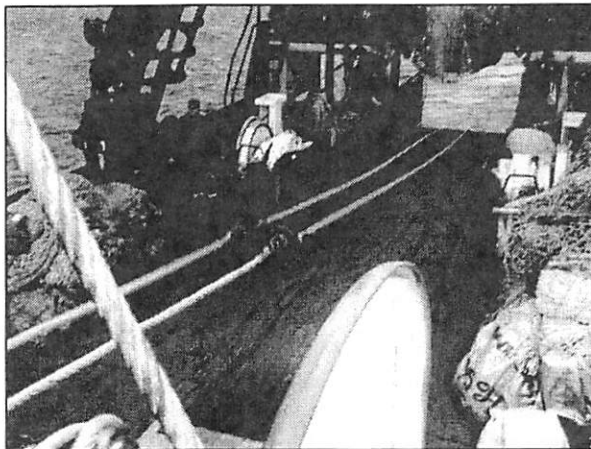
Boarding the vessel for the demonstration



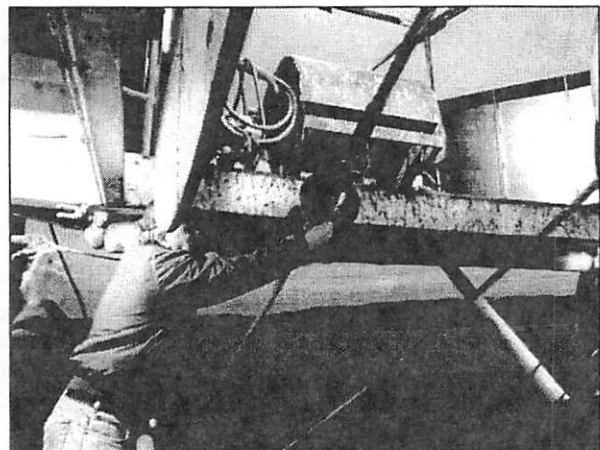
Footrope, net and sweeps wrapped on forward net reel, one bobbin showing in upper center



Sweeps and bobbins wound on the forward net reel once the net is unwound



Setting sweeps and bobbins off the forward net reel



Measuring bobbin clearance off the aft net reel

February 6, 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(d) Bottom trawling in the Northern Bering Sea and trawl gear modifications

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

Under the Council's action and NMFS's final rule that implemented FMP Amendment 89, the Northern Bering Sea Research Area (NBSRA) is appropriately closed to bottom trawling.

The NBSRA includes a habitat area of almost 3,500 square miles between St. Matthew Island and Nunivak Island that is referred to as the 'wedge'. The H&G fleet wants you to fast-track opening this habitat to bottom trawling by linking with Council action to require modifications for trawl gear. Those ideas are unrelated to changing the established bottom habitat protections put in place—particularly those designated for research and identifying important habitat and are premature to advance ahead of the research plan for the NBSRA.

As you know, the Council has called for a research plan to be developed for the Northern Bering Sea before bottom trawling can be conducted in the area, and has approved a 4 year schedule to develop and review said research plan. The Council has also approved a 4 year schedule for Western Alaskan communities and stakeholders for potential adjustment and review of the NBSRA boundary. Finally, formal rulemaking and full NEPA compliance is required to open any portion of the Northern Bering Sea Research Area (NBSRA) to bottom trawling

We support the modification of trawl gear that is justified through peer-reviewed scientific research to reduce bycatch and reduce the habitat impacts on trawling. We do not support the modification of trawl gear so as to 'duck' existing habitat conservation measures. Researchers with expertise in the Northern Bering Sea habitat, in their letters to the Council, have stated that in the NBSRA; "*Heterogeneity of community types makes it hard to delineate substantial blocks of coterminous habitat that contain more resilient or redundant species, and are thus amendable to industrial trawling or large-scale experiments to quantify its effects*". In other words, the NBSRA, including the 'wedge', contains a diversity of habitats, and it is premature open the area to bottom trawling until a research plan is developed and important and sensitive habitat is identified.

Having already identified areas such as the NBSRA as important, the Council should be cautious in changing the protections. We advise the Council to separate the trawl modification action from the alteration or repurposing of the NBSRA. Whether or not to approve trawling in the NBSRA, including the 'wedge', is a decision that should only be made after the timeline established by the Council to develop the research plan for the NBSRA.

Sincerely,

Jim Ayers,  
Vice President, Oceana