New England Fishery Management Council
Scallop Survey Advisory Panel

Meeting Summary

New Bedford, MA
June 28, 2006

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Participants:

Panel members: Mr. James Kendall (vice-chair), Mr. Richard Taylor, Dr. William Phoel, Mr. Glen Nutting, Mr. Victor Nordahl, Dr. Trevor Kenchington, Dr. Dvora Hart, Mr. Andrew Applegate, and Mr. Charles Quinn

Council and NOAA Fisheries staff: Dr. Russ Brown, Mr. Robert Alexander, Mr. Larry Brady, Ms.Alicia Long, Mr. Jack Nelson, and Ms. Stacy Rowe

Others: Mr. Brad Harris, Mr. Peter Anthony, Mr. Gary ???, Mr. Gabe Miranda, Mr. David Rudders, Mr. Ronnie Shrader, Mr. Norman Vine, and Mr. Eddie Welch

Agenda items: The panel initially met as a workshop at Dockside Repair to review and suggest improvements to the survey dredge. Later the meeting reconvened at the Harbor Development Commission to elect a chair and vice-chair, revise and adopt terms of reference, and to hear a report by Dr. Paul Rago on how various scallop surveys have been combined and the challenges met when estimating scallop biomass. The panel also heard reports from Dr. Phoel and Mr. Vine on developing new technology to survey scallops using sonar and visual methods.

Meeting summary

The following narrative summaries the meeting proceedings. At the end of the summary is a list of specific suggestions and recommendations by industry participants at the survey dredge workshop.

Survey dredge workshop

The first part of the meeting occurred outside Dockside Repair, where Mr. Nordahl brought several scallop survey dredges on a flatbed truck. Mr. Anthony lifted them with a crane, whereupon the panel could examine the dredge and industry participants discussed potential improvements.

Dr. Brown told the panel that the change in the survey vessel also offered an opportunity to test and calibrate the survey gear. The calibration tests for the vessel change could also be used to evaluate dredge design changes and improve its performance. He reported that the new R/V Bigelow would not be used to conduct the scallop survey, so NMFS would need to lease vessels to conduct the survey beginning in 2008 and to help with calibration experiments in 2007. He said that the R/V Delaware was an option under consideration, but NMFS was also evaluating other options. NOAA Fisheries has budgeted 12 sea days to conduct calibration experiments. Industry vessels may be difficult to use, because of insufficient berths for an entire scientific party.

Mr. Nordahl led the panel and participant discussion of the dredge characteristics and discussion of improvements. He said the purpose of the improvements was to obtain better consistency and reliability, not to simply catch more scallops. As it was, the survey dredge is a bit of a compromise because a major purpose of using it is to catch and monitor small scallops, unlike the commercial dredges which are used to target larger scallops.

Industry participants thought that the dredge was too light, the bag was hung incorrectly, and the scope (3:1) was too short for many conditions and particularly those in the channel where currents are high. They recommended a larger pressure plate and a longer scope when fishing the gear. Also recommended was a wheel on the front of the bail to help stabilize it under various conditions. Under some conditions, the nose of the bail will tilt downward and dig in without a wheel that many commercial vessels use, while at other times the nose will lift off the bottom. A wheel would help the nose from tilting downward and stabilize the bail and cutting bar.

Everyone agreed that the existing twine top and the way that the bag was attached to the bail was pulling the bag into an odd shape. Some areas of the bag were tight while others were loose. A better configuration would provide more uniformity. Another dredge had a larger twine top with more meshes and everyone agreed that the chain bag hung mcuh better, but still had problems.

Industry participants suggested using a day or so of the calibration experiments to fine tune a revised dredge design and agreed to work with NMFS to modify the existing 8 foot dredge frame and rehang the ring bag to improve sampling consistency over all habitat types. Some industry participants said that they would be able to meet with NMFS this fall to help modify the dredge design and test the dredge next year when the sea days are available. They thought a day of work at sea would allow for fine tuning and straighten out any remaining problems with the bag configuration.

Election of chair and vice-chair

Nominations were made and the panel appointed by acclamation Mr. Smolowitz as chair and Mr. Kendall as vice chair. Mr. Smolowitz was not at the meeting due to a schedule conflict, but was contacted by telephone and accepted the appointment.

Terms of Reference

At the first panel meeting, the panel decided to review the draft charter and terms of reference. After some discussion, the panel recommended restructuring the existing draft terms of reference to provide clearer focus. The panel agreed the structure the terms of reference to focus on five areas and suggested a tentative timeline to complete the tasks. The focus areas were the feasibility of using new sampling technologies for surveying scallops, development of an improved survey dredge design, recommendations for sampling designs and protocols, development and integration of specific need survey programs, and coordination of other data sources into the management specification process. The panel decided that Mr. Applegate would revise the existing six terms of reference accordingly and send a revised draft to the panel for review.

Procedures and challenges for estimating scallop biomass using different surveys

Dr. Rago presented a thorough overview of survey design considerations that come into play when estimating scallop abundance and biomass from different survey designs. He showed some comparisons of density estimates using dredge and photo survey data, how the variance was highly correlated with the stratum means, and discussed the effects of varying the scale of observation. Many of these technical considerations will become important when the panel develops procedures to conduct and coordinate various types of scallop surveys.

New developing technologies

Dr. Phoel showed a brief video presentation of an autonomous underwater vehicle (AUV) system that he believed would have potential to survey scallops when outfitted with ultrahigh frequency sonar. The system navigates a grid/transect pattern at a fixed distance from the seabed.

Mr. Vines showed some photos taken with a towed sled outfitted with fast strobes to record seafloor images. Software was under development to identify and measure scallops in the overlapping images. The system is 'flown' behind a vessel at an approximate distance from the seafloor and lasers are used to estimate distance within the images. He showed images of scallops in the channel and Elephant Trunk areas.

The Council expresses its appreciation for the generous hospitality and use of equipment and meeting space at Dockside Repair and the Harbor Development Commission in New Bedford. The Council also recognizes the efforts of Mr. Kendall to coordinate the use of these facilities and to solicit greater industry participation.

Suggestions For Survey Dredge Modifications

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Wheel

- Main purpose is to prevent wearing towards the nose of the dredge.
- Would help standardize the angle of approach on the dredge while towing.
- The wheel is designed to prevent hangs when fishermen are fishing the channel.
- Dvora Hart suggested that because fishermen use this for fishing bad bottom that we add it exclusively to the rock chain dredges.
- A suggestion by Dave Rudders and consensus of most fishermen would like to see it on all the dredges.
- Panel needs feedback as to design and size of wheel to dictate the angle of attack. Also some indication of standardization in terms of wearing.

Wearing Pads, Heel Shoes & Cutting Bar

- One fisherman uses the diameter of a quarter to determine the distance that the cutting bar should be of the bottom, basically the thickness of shoes.
- Recommendation for face welding the shoes and cutting bar to prevent wearing.
- There was discussion of at-sea welding of shoes when they are worn down. This then became a topic of discussion and question of the quality of work our deckhands are capable of. Nordahl et. al believes deck crew will not be capable of this. Trevor also believes the larger gear problem is that the people at sea are not qualified to make gear decisions.
- Thickness of shoes was not specific for all fisherman and varies greatly from boat to boat.
- There was discussion initiated by Jim Kendall about the shoes wearing more on the nose than on the heels. He believed this to be due to the nose of the dredge banging up and down during the tow. It was suggested that real-time inclinometers are used to investigate this.
- Bolt-on shoes was suggested without much support.

Pressure Plate

- A larger pressure plate was suggested by a few fishermen, but with no advice on how big or different.
- Jim suggested a bolt-on plate to see the differences that this could make to how the dredge fishes.

Twine Top

- Most fishermen went with a larger twine top (more meshes across and up and down) in order to provide a ballooning affect while the dredge is fishing.
- One fisherman gave the example of his gear which uses 3 meshes per ring and a 6:1 hanging ratio (also with a longer clubstick). In addition, he uses chain to attach the twine top to the bale instead of rings. The attachment point is also moved back from the cutting bar starting as far down as our 3rd ring on the side.
- SSAP requested advice on choice of material, mesh size, hanging ratio, and panel size. Will address once ring bag is re-hung.

Sweep Chain

- First recommendation is that the dog links start farther into the sweep chain (at least on the 4th link). Ours is on the 2nd.
- Some fishermen hang dogs on the 6th link or the 8th link and a consensus was that we should loosen it.
- One fisherman uses half inch shackles instead of the dog chain to attach the sweep to the bag, but this is just personal preference.
- A suggestion was that it should have two attachment points to the bale.

Overall Suggestions

- In general the dredge needs to be hung straighter/square without tension or bunching of the bag and rings. Suggestions to fix all the sags and bunches in our dredge were:
    1. A better hanging twine top that isn't so stretched.
    2. Attaching the side rings so they hang straighter and are visibly aligned.
    3. Use a wider clubstick to help straighten the bag.
    4. Loosen up the bag attachments to the sweep chain by moving the dog chain links to atleast a 4 link position and maybe even 6.
- Use a larger dredge with a shorter tow time (although this presents problems for the time it takes to sample and sort catches).
- Perform some paired tows with commercially rigged dredges or a larger survey dredge. This could be done off a commercial pair trawler.
- Allow fishermen to come to the warehouse and use our equipment to create a new setup for the dredge.