



## New England Fishery Management Council

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### Research Steering Committee March 29, 2007 Radisson Hotel Plymouth Harbor, Plymouth, MA Meeting Summary

The Research Steering Committee (RSC), chaired by Council member David Goethel met on January 17, 2007 at the Marriott Courtyard Hotel in Providence, RI. Other Council members serving on the committee and in attendance were Michael Leary, and Philip Ruhle. Additional participating committee members included fishermen Richard Taylor and Curt Rice, Gib Brogan of *Oceana*, Michael Pol and Dr. Mike Armstrong of the MA Division of Marine Fisheries, Dr. John Hoey of the Northeast Cooperative Research Partners Program (NCRPP) and Dr. Fred Serchuk from the Northeast Fisheries Science Center (NEFSC). New England Fishery Management Council (NEFMC) staff members Patricia Fiorelli, Tom Nies, Chris Kellogg and Leslie Ann McGee also were present.

NCRPP staff Dr. Earl Meredith attended along with Paul Perra from the NOAA Fisheries Regional Office (RO). Rachel Gallant of the Northeast Consortium, Chad Demarest of the Massachusetts Marine Fisheries Institute and Tim Feehan from Perot Systems also attended. A number of research project principal investigators (PIs) participated in the meeting. They were Captains Luis Ribas of Provincetown, MA and Carl Bouchard of Exeter, NH, David Martins from the School for Marine Science and Technology at UMass, Dartmouth, Laura Skrobe from University of Rhode Island's Sea Grant Program, Catherine Salerno from the Gulf of Maine Research Institute and Pingguo He from the University of New Hampshire. Tom Rudolph attended and represented the Cape Cod Commercial Hook Fishermen's Association.

#### Overview

The following agenda items were addressed during the meeting:

- Review six research project final reports.
- Discuss the NCRPP-sponsored peer review of the Southern New England yellowtail flounder pilot industry-based survey project conducted by the RI Division of Fish and Wildlife; develop appropriate recommendations
- Receive a briefing on the NCRPP-sponsored peer review of the study fleet
- Identify NCRPP-sponsored peer review of the Southern New England yellowtail flounder pilot industry-based survey project conducted by the RI Division of Fish and Wildlife
- Discuss the Northeast Fisheries Science Center's report on the impacts of fishing on groundfish spawning activities

Major points made during the RSC meeting are highlighted below.

#### Final Project Reviews

The Research Steering Committee reviewed six final reports related to cooperative research. As outlined in the Council's Research Review Policy, the RSC is charged with reviewing final reports

that are generated through cooperative and possibly other research activities in the Northeast Region and providing advice on whether results are acceptable for consideration in the management process.

Each of the reports reviewed at this meeting addressed the same research priority --- Fishing gear selectivity: gear research that enhances selectivity, targets healthy stocks, minimizes harvest losses and bycatch and improves fishing practices. A number of the reports involved experiments that were aimed at "B" Day-at-Sea use or eligibility for Special Access Programs. These were completed in response to a 2004 NOAA Fisheries Broad Agency Announcement soliciting proposals to address these issues as well as other conservation engineering questions. Once a sufficient body of information is available on most or all of the regional haddock separator trawl work, the RSC will, if possible, identify an approach with particular promise and make broader recommendations to the Council. The RSC will also have the benefit of a briefing on the NCRPP-funded haddock separator trawl workshop planned for the first week in April at UNH. Looking at the big picture relative to gear types may also be appropriate, as recommended by a fisherman at the meeting.

1. ***Groundfish Trawl Nets Designed to Reduce the Bycatch of Cod***; Submitted by Mike Pol, MA DMF and Luis Ribas, Provincetown, MA – Funded by the Northeast Consortium (NEC)
2. ***Development of Net to Reduce the Bycatch of Cod in the Flounder Fishery***; Submitted by Allan Michael, ADM Associates and Industry Partner Bill Lee - Funded by the Northeast Consortium
3. ***A Rope Separator Trawl for Haddock and Pollack Using "B" DAS in the Inshore Western Gulf of Maine***; Submitted by Pingguo He, University of New Hampshire, along with UNH Research Associates Rachel Hamilton, Tracey Smith and Sea Maxwell; and Industry Partner Carl Bouchard – Funded by the NCRPP (NOAA Fisheries)
4. ***Cooperative Industry-Based at Sea Experiment to Test the Performance of Haddock Separator Trawl in Closed Area I on Georges Bank***; Submitted by David Martins, Steven Cadrin, and Brian Rothschild, School for Marine Science and Technology at the University of Massachusetts in Dartmouth, MA and Industry Partner Robert Lane, - Funded by NCRPP (NOAA Fisheries)
5. ***Bycatch Reduction in the Directed Haddock Bottom Trawl Fishery***; Submitted by David Beutel, Laura Skrobe, and Kathleen Castro, University of Rhode Island Sea Grant Program; and Industry Partners Philip Ruhle, Sr., James O'Grady, Jonathan Knight and Philip Ruhle Jr. Funded by the NCRPP (NOAA Fisheries)
6. ***Examining the Efficacy of a Haddock Separator Trawl in Eliminating Cod Bycatch in Limited Areas within Closed Area I and Closed Area II***; Submitted by Christopher Glass of Manomet Center for Conservation Sciences, Laura Taylor Singer and Catherine Salerno of the Gulf of Maine Research Institute and Industry partner James Odlin – Funded by NCRPP (NMFS)

1). ***Groundfish Trawl Nets Designed to Reduce the Bycatch of Cod - Project award, \$87,200***. The Council received this final report, along with technical reviews, from the Northeast Consortium in December 2006. Two trawl nets, the "Ribas net" and a Faroe Island design prototype, were constructed and tested at sea on a commercial vessel, against a conventional two-seam groundfish net, which served as a control. The two experimental nets both modified the top half of a trawl net; the Ribas net by using large square mesh and the Faroese net by removing much of the twine at the top of the net. The project goal was to reduce cod bycatch up to 75-90% (and possibly dogfish bycatch). This net was designed to target the following species: yellowtail and winter and windowpane flounder, American plaice and skates.

**Results:** Seventy pairs of alternate tows with the control net resulted in reductions of cod bycatch of >76 percent for both nets. Catch rates of sublegal yellowtail flounder were also >74 percent lower for both nets compared to the control. There were, however, reductions in the legal catch of yellowtail and winter flounders. Underwater video showed cod exiting the nets through the top mesh or gap made by removal of the twine.

**RSC Discussion:** The RSC agreed the report was complete and thorough, the design and analyses were well-described and the conclusions were consistent with the project results. Committee members concurred with the high quality NEC reviews. In making critical comments, members noted that the cod data was not available for some of the analyses, and one-tailed versus two-tailed tests may have been more appropriate given the experimental hypothesis. Neither observation, however, detracted from the well-done project and final report.

Several other technical observations were made at this point relative to differences in the analytical work completed in a number of gear final reports reviewed at this meeting. In the case of the above report, researchers looked at the distribution of the data and determined that log transformations were necessary prior to conducting their analyses; in other reports there were no references to examining the data distribution before the PIs performed their statistical analyses. Although a consensus was not discussed, a recommendation was made that researchers should determine, as a technical matter, whether the data meet the assumptions and use a parametric, normal statistical approach. Promoting such a standardized approach would ensure results are comparable.

Technical recommendations for experimental gear work included using standardized tow times and distances, providing raw numbers of principle species encountered, identification of legal and non-legal fish when discussing size composition in a data table and a caution that, when comparing the size composition of fish caught in one net versus another, using non-parametric tests may skew results.

This final report is on file with the NEC and the Council. Supporting data is available on the NEC's website. It is available to the Council's Multispecies Committee and its Plan Development Teams, along with the RSC's comments. Note: RSC Committee member Michael Pol, a PI on the report discussed above, recused himself from the committee's deliberations.

**2) *Development of Net to Reduce the Bycatch of Cod in the Flounder Fishery - Project award, \$35,000.*** The Council received the final project report, along with technical reviews, from the Northeast Consortium in January 2007. A standard commercial groundfish trawl net was modified by the addition of a Nordmore-style grate and an escape vent. The purpose was to develop a net that would allow flounder to pass through a grate to the codend, but direct cod upwards and out of the net. The gear was tested and videotaped in shallow waters in Ipswich Bay.

**Results:** The original grate design had horizontal openings of decreasing size from an aperture of 8-inches at the bottom to a series of 2-inch openings at the top and was inclined towards an escape vent at the top of the net. This design was unsuccessful by the PIs admission. A significant amount of cod passed through the grate during the first few trials. The design that seemed most successful used a steel grate with horizontal bars spaced 3-inches apart, producing a 73 percent reduction in the number of cod caught on the grate or in the codend and a 12 percent loss of flounder out of the escape vent. Significant problems encountered included grate clogging with large monkfish and dogfish. The PIs developed a video system and methods to document trawl net performance and fish behavior.

**RSC Discussion:** The Research Steering Committee agreed with the technical reviews provided by the NEC. Members added that they would liked to have seen more detail in the final report, regardless of the level at which the project was funded --- an insufficient rationale for not providing all relevant details about the work conducted. Members also noted and were sympathetic to the difficulties the PIs encountered with the Experimental Fishery Permit process.

While the project was not successful in achieving its goals, the RSC concluded the information provided may be useful to the Council's committees. It is on file with the NEC and the Council and is available to the Multispecies Committee and its Plan Development Teams.

**3) A Rope Separator Trawl for Haddock and Pollack Using "B" DAS in the Inshore Western Gulf of Maine - Project award - \$214, 585.** The final project report was received by the Council in February 2007. Contrary to the approach of using net panels as a separator in multi-level trawls, this experiment used a series of parallel ropes as a separator. The goal of the project was to design and develop a practical rope separator trawl that would be suitable for use in "B" Day-at-Sea and/or Special Access Programs targeting haddock or pollock, while reducing or eliminating catches of cod, flounders and other bottom dwelling species in the inshore Gulf of Maine.

**Results:** The PIs concluded the rope haddock trawl significantly reduced catches of cod with acceptable reductions in haddock catches. They observed the new gear reduced and sometimes eliminated all other species that are commonly taken in commercial multispecies trawls, such as flounders, dogfish, lobsters and skates. The PIs also speculated that use of the rope haddock trawl on haddock grounds might reduce the cod catch to a level comparable to levels allowed in the Eastern U.S. Canada Haddock Special Access Program. Accordingly, they recommended testing similar gear designs to determine potential future use in that area.

**RSC Discussion:** The RSC commented that the project and report were well-done. All of the data were provided in tables, which the committee found helpful. One member noted that the fish measurements (those following Table 4) were quantified through derived variables in this case, length/weight equations. Members cited the use of the actual weight measurements as a better alternative to account for seasonal variability. The report did separate legal and non-legal fish, which was useful.

Some members were concerned about a number of problems encountered in this and other gear research projects, in particular the problem of highly skewed data with considerable variability. The comment was made that the use of means and standard deviations may not have been appropriate in these cases, although they likely did not affect the results. Addressing zeros also may represent another problem. Providing guidance to PIs with respect to standardizing analytical methods in gear research was again mentioned as very useful in considering and comparing results.

Along with the RSC comments, the UNH report will be made available to the Council's Multispecies Committee and its Plan Development Teams.

**4) Cooperative Industry-Based at Sea Experiment to Test the Performance of Haddock Separator Trawl in Closed Area I on Georges Bank - Project award, \$297,614.** The final project report was received by the Council in October 2006. The study was designed to examine the feasibility of using a net panel or "haddock separator" to specifically reduce the bycatch of cod in Closed Area I on Georges

Bank. Twenty-seven days-at-sea were spent testing experimental haddock separator trawls, comparing them to conventional groundfish trawls fished side-by-side as an experimental control. Vessel characteristics were similar for each of the four vessels selected for the project.

**Results:** The catch of cod was less in the haddock separator trawl compared to catches in the control nets. Cod bycatch was 11 percent of the haddock catch in the two field trials. However, the PIs also reported the experimental net was less efficient at catching haddock as well as other species. An underwater video system was tested during several trips with mixed results. There was insufficient light during a number of early attempts resulting in images that were not useful. The situation improved when images were taken in less turbid, shallower waters.

**RSC Discussion:** Overall, the report was well-done, although several points were made concerning a number of technical aspects of the final report. One committee member suggested that recognition of a bias resulting from not switching the nets between paired boats would have been helpful. Ratio estimators only were provided for all 59 tows with statistical differences noted, but tow-by tow quantity and size distribution of fish were not provided in the report, possibly producing misleading results in the percent reduction. Others commented that size composition of released and retained fish also would have been helpful. In summary, greater transparency with respect to the data was encouraged. The PI agreed to make supporting data available to assist with answers to additional questions that could be asked by end users.

Fishermen on the committee cited lack of precision and documentation concerning gear specifications. Tow times and vessel speed also were cited as experimental shortcomings. Some members also noted that it would have been helpful to see more detailed information on other species caught besides cod and haddock --- winter flounder, monkfish, yellowtail flounder, etc in the report tables. The information was provided in the final report graphs.) Another observation was made concerning lack of documentation of whole and dressed fish, a possible source of error because of the estimation itself and the unknown number of fish that were subject to this calculation.

The committee agreed by consensus that there were technical problems with the report as well as serious concerns about flaws in the experimental design of the project. In addition, the committee concluded that insufficient evidence was presented to support the use of this net modification as a separator panel and had concerns about flounder bycatch. The report is on file with NOAA Fisheries and the Council and will be made available to the Multispecies Committee and its Plan Development Teams with the above discussed caveats.

##### **5) *Bycatch Reduction in the Directed Haddock Bottom Trawl Fishery - Project award, \$422, 000.***

PIs investigated the effects of employing a large mesh faced (top, bottom, and side wings) bottom trawl to capture haddock while reducing the bycatch of cod and other species. The experimental net exploited the differences in fish behavior. Two vessels conducted side-by-side comparison hauls; one vessel towed the control net (in accordance with current groundfish regulations), while the second vessel towed the experimental net. One hundred tows were completed. Total weight was recorded for all species captured. Additionally, haddock, cod and the majority of the flounders were measured.

**Results:** The experimental trawl significantly reduced the catch of stocks of concern including Georges Bank cod, yellowtail, winter and witch flounders, and American plaice. Catches of monkfish and skate also decreased significantly in the experimental net. Importantly, the catch of Georges Bank haddock, the target species, did not differ significantly between the experimental and control nets. The

PIs concluded that the experimental net could be used in the Council's "B" Day-at-Sea and Special Access Programs given that it appears to meet the minimum bycatch requirements for both of those programs.

**RSC Discussion:** As with several other reports, the data on the comparisons were not included in this report. Fishermen on the committee were supportive of the net design because it was "tamper-proof". One committee member critiqued the hypothesis of the experiment and the interpretation of a non-parametric evaluation in which the investigators were looking for lower catches in the experimental gear. In particular, the methods used could have been more fully explained and justified. These minor technical comments notwithstanding, the report was very well-done and organized. The RSC agreed with the reviewer comments found in the NOAA Fisheries cover letter, that the experiment successfully demonstrated a net design that allowed the harvest of haddock while reducing cod catches as well as the catch of other stocks of concern.

Copies of this final report are on file with the National Marine Fisheries Service and are also available through the Council office. It is particularly directed to the Council's Groundfish Committees and its Plan Development Team for use as appropriate. Note: As a PI on this project, RSC Committee member Phil Ruhle Sr. recused himself during the RSC's discussion.

**6) Examining the Efficacy of a Haddock Separator Trawl in Eliminating Cod Bycatch in Limited Areas Within Closed Area I and Closed Area II – Project Award, \$440,000.** The project was designed to document the catch of cod and other groundfish species in selected portions of Georges Bank while fishing for haddock using a haddock separator trawl. The separator trawl design tested in the experiment consisted of a conventional groundfish trawl net modified by a horizontal mesh panel sewn into the body of the net. Three lengths of chains connected the leading edge of the separator panel to the footrope and to some degree controlled the effective height of the panel.

**Results:** The results showed the experimental trawl significantly reduced the bycatch of cod and virtually all other demersal species, including many other regulated species. Overall, 94 percent of the cod catch by weight aggregated in the bottom codend where it would have escaped, versus 6 percent in the top codend. Although results demonstrated this separator trawl gear was successful in eliminating most cod bycatch, the gear also excluded more haddock than it captured, a result that would make commercial use in a Special Access Program impractical.

**RSC Discussion:** The committee noted the report did not include tow-by-tow variability, only summary statistics were provided. Further, it was not clear why tow times of 20 minutes were selected (not typically a commercial tow). The PI responded that this was out of concern for potentially high catches in the closed area, as well as the necessity to sufficiently cover the whole area. It was noteworthy to some committee members that the Experimental Fishery permit did not allow for some relocation of the experiment to achieve higher catch rates. Members agreed that the tables with distribution of fish by area and month would be useful to the Council's Plan Development Team.

The committee concluded that the report was useful, thorough and overall, very well-done and that it should be forwarded to the Council's Multispecies Committee and its Plan Development Teams. Members further agreed that the information provided would add to the body of work on separator trawl as well as provide ancillary information that could be useful in management decision-making.

## **NCRPP-sponsored Peer Review of the Southern New England (SNE) Yellowtail Flounder Pilot Industry-based Survey Project**

Dr. Hoey introduced the formal peer review of the project, pointing to the *Main Findings and Conclusions* section of the report which is provided below. He reported that the peer review was a successful and valuable exercise for all parties. The committee agreed with the peer review findings, adding that the document and the full report will be forwarded to the Council's Plan Development Teams for their use as appropriate.

The Southern New England Industry-based Survey on yellowtail flounder is characterized by high sampling intensity and represented a significant amount of effort for the team conducting the survey. Survey team members should be congratulated for their dedication in conducting these surveys.

- The SNE yellowtail survey collected sufficient information to suggest that the Nantucket Lightship closed area does not meet the objective of protection of juvenile yellowtail. The review panel recommends that analysis of the efficacy of the closed area be formally conducted and documented. The survey dataset is considered useful to identify alternate closed areas.
- The review panel is satisfied with the attention to detail taken in the selection of the two vessels used for the survey in an attempt to minimize vessel differences as well as in the selection of the most appropriate trawl gear to be used in the survey.
- The review panel considers age samples collected during the SNE yellowtail survey have been very useful to complement the age-length tables for the assessment of yellowtail flounder, however, the utility of the survey in tracking changes in abundance is low due to the shortness of the time series.
- Many of the questions and concerns of the review panel derive from lack of details to ensure consistency and standardization. Procedures and protocols (e.g. towing speed, guidelines for declaring null sets, swept area, fishing station standardization, analyses) need to be further documented to ensure that data are correctly interpreted and repeatable methods are used if the survey is resumed. The panel recommends that funding be made available to complete the documentation and development of metadata for this dataset to preserve its integrity and usefulness.
- The mixed design of the survey (stratified random and fixed station) poses particular analysis difficulties. Survey estimates using all stations may be biased. Given the high sampling intensity, it should be possible to obtain unbiased indicators of the trends in yellowtail abundance by analyzing stratified random and fixed stations separately.
- If the survey is continued in the future, consideration should be given to using a unique sampling design. Information and knowledge gained during the 2003-2005 surveys would be useful in designing a survey.
- A wealth of information is available for analysis and would be expected to provide new knowledge on the biology of yellowtail flounder in the area, gain insights in survey design and to explore sampling strategies to collect information on multiple species. To the extent possible, the project team members, NEFSC scientists, and others should be encouraged to analyze these data.
- Because of the single-species nature of the survey, integration of this survey, as it now exists, with the NMFS survey is considered to be difficult and not cost effective.
- The Southern New England Industry-based Survey is considered a good example of a cooperative project that provides valuable information on yellowtail flounder in the area. Industry-based surveys are considered more appropriate to address short-term issues than to conduct long-term monitoring.

## **NCRPP-Sponsored Peer Review of the Study Fleet**

Acknowledging the self-reported data aspect of this program, one of the purposes of a study fleet is to collect information that would improve understanding of the performance of the fishery and/or provide information that is completely lacking without interfering with routine fishery operations. A verbal summary of the findings of the peer-review panel for this pilot project was provided by Council Deputy Director Chris Kellogg. Given that a final consensus report is not yet available, the committee provided only preliminary comments. They agreed to offer guidance to the Council following the next committee meeting, along with the final report.

### **Research Priorities for 2007**

Dr. Hoey updated the committee on the status of the NCRPP budget situation, which is uncertain. HE expanded on these comments by noting that some funds are already earmarked for a number of projects --- the ME-NH Inshore Groundfish Trawl Survey (supported by the RSC as a long-term monitoring project), the Marine Resource Education Project (MREP) and analyses of information collected during the regional cod tagging project for the Groundfish Assessment Review Meeting (GARM), in addition to continued support the collection and archiving of tag return information.

Further, it was reported that the NEFSC Science Director has directed that some funds be dedicated to support the Northeast Monitoring and Assessment Program, or NEAMAP survey to cover the nearshore waters between Martha's Vineyard and Montauk, NY, an area that will not be surveyed by the *FSV Henry B. Bigelow*. While the entire allocation amount for the NCRPP has not been finalized after deductions for existing NCRPP labor and the recommended projects mentioned above, funds available for additional projects typically solicited through a Broad Agency Announcement would be about \$300,000.

In view of the funding shortfall and the projects that have already been identified for funding, the RSC supported, as its highest funding priority for 2007, analyses of the cod and yellowtail flounder IBS data so that information, as specified by the scientists conducting the benchmark assessments, is available for the GARM. While it is not a cooperative research project per se, it is the final step in using information collected via several of the major cooperative research programs that have been approved by the Council and funded through the NCRPP.

The committee also agreed to review several of the projects that have previously received funding, among them the Marine Resource Education Project (MREP). They discussed asking the conveners of MREP for an update on the status of their program, as well as an assessment of fishermen interest and the potential for continuation with NCRPP or alternative funds. Funds for continued IBS work and the ME-NH survey also were identified as areas requiring further review from a funding perspective.

Other areas were discussed as valuable initiatives that would support ongoing areas of research. These included a regional bycatch engineering program that has been mandated in the newly reauthorized Magnuson-Stevens Act. This would or could dovetail well with another area of interest, a conservation engineering data archive. A synthesis of the region-wide haddock trawl research also was discussed as an important follow-on activity.

As discussed earlier committee members also agreed that guidance is lacking to assist gear researchers in standardizing experimental protocols, data collection and analytical methods as well as final report formats. It was suggested as a follow-up action on the part of the funding agencies and/or as part of a workshop or other outreach activity.

### **NEFSC's Report on the Impacts of Fishing on Groundfish Spawning Activities**

The committee discussed a report provided to the RSC in response to its request, forwarded by Council Executive Director Paul Howard to the NEFSC, for a review of the RO's Experimental Fishery Permit Guidelines to determine if that document accurately characterizes spawning periods. The request also asked for a summary of the evidence concerning the impacts of fishing on stocks during peak spawning periods. Because there were a number of comments, concerns and questions raised by the report, for example, what is the *best* time to protect spawning fish, the committee determined that it would further consider the NEFSC's response and provide advice to the Council



following the next RSC meeting. A discussion of additional topics related to the conduct of cooperative research and EFPs may also be included. It was also agreed that the Council staff could informally raise several procedural issues concerning the guidelines with the Regional Office staff.

**Additional Items Discussed**

The committee expressed its concern over the less than robust technical reviews that often accompany NCRPP final reports. A recommendation was made to rectify the situation by requesting at least two reviewers for each final report. Cover letters accompanying the final reports should provide clear information on how many reviews were conducted and provide more precise information concerning the technical aspects the research to guide the RSC in its management review. Although a summary of technical comments/reviews are included in the cover letter on each NCRPP-funded report, some provide only summaries of project results and very general statements about the work. The RSC would like to see technical review comments that are as complete and thorough as those provided through the Northeast Consortium process. This discussion was directed to the NCRPP staff present at the RSC meeting.