New England Fishery Management Council
50 WATER STREET | NEWBURYPORT, MASSACHUSETTS 01950 | PHONE 978 465 0492 | FAX 978 465 3116
E.F. "Terry: Stockwell III., *Chairman* | Thomas A. NIes, *Executive Director*

DRAFT MEETING SUMMARY

NEFMC Research Steering Committee

Holiday Inn, Taunton, MA
March 14, 2014

The Research Steering Committee met on March 14, 2014 in Taunton, Massachusetts to discuss and identify research questions for Council funded groundfish collaborative research projects, discuss priorities, and to get an update on the NEFSC Northeast Cooperative Research Program. The Council released an RFP on March 10th, seeking a contract with an organization that can manage the research competition and oversight of sub-awards for selected projects.

Meeting Attendance: Mark Alexander (Chair),Vince Balzano (Vice Chair), Dr. Bill DuPaul, Dave Beutel, Dave Preble, Dr. Earl Meredith, Ellen Goethel, Dr. John Hoey, Mike Pol, Ted Platz; Chris Kellogg and Rachel Neild (NEFMC staff); Ryan Silva Brett Alger (NMFS GARFO staff). In addition, approximately 15 members of public attended.

Key Outcomes:

- Research questions provided at the end of the report
- Priority concern for flatfish studies specifically windowpane and yellowtail flounder and Bigelow survey net efficiency
- Concern for codfish and haddock
- Research concerns for conservation engineering, tagging, hot spots, closed areas, stock structure and spawning areas, and swept area biomass
- Bottom temperature studies and climate change analysis were also discussed

Presentation: Ms. Neild followed by Dr. Hoey

Introduction

Mr. Alexander provided an overview of the agenda followed by introductions. Ms. Neild then provided a brief presentation discussing the elements required of the research questions as they pertain to the collaborative research project(s). The focus is on groundfish, in part because the groundfish fleet does not have RSA funding. Furthermore, the Council chair requested the RSC to identify research questions that would:

1. Be relevant to groundfish,

2. Collaborative with industry,
3. Have an on-the-water component,
4. Provide information used in scientific or management process,
5. Not require long-term funding, and
6. Not augment federal funding or ongoing, federally funded projects in any capacity.

Additionally, Dr. Hoey provided an update on the NEFSC Northeast Cooperative Research Program (NCRP) and those research studies that are nearly complete. Please see Dr. Hoey's full statement, which is attached and labeled as "Attachment 1 to the NEFMC RSC March 14, 2014 Report".

Discussion on presentation
There was an initial concern that the process of producing a successful request for proposal (RFP) may be too fast and that adequate timeline is needed to make proper choices.

Further discussion on research topics and ideas ensued and there was some concern that the survey gear research projects that Dr. Hoey identified as NEFSC recommendations would overlap with current research projects. Dr. Hoey did not believe that was the case, but promised to keep the Council informed about any new initiatives and he would certainly raise questions with budget specialists if necessary. Dr. Hoey re-iterated that most of the existing projects are scheduled for completion by this fall and there are no conflicts with the current FY14 spend plans at this time.

Subsequently, yellowtail and windowpane flounder bycatch was identified as a priority concern, especially in the coming years due to their accountability measures (AM) and the potential impacts on industry. Dr. Hoey explained that while there had been additional discussions with external partners and NMFS staff about AMs for yellowtail and windowpane flounder, there were inadequate funds remaining in the network projects to support additional conservation engineering studies. Industry has suggested additional research on rope trawls, and in particular on rapidly collecting performance information on simple bycatch reduction designs that could inform near term Council discussions. Dr. Hoey also noted that there may still be limited funds under the CFRF conservation gear voucher program to expand use of drop chains and large mesh belly panels for fisheries on Georges Bank. It was further discussed that gear engineering studies may provide further information to improve the effectiveness of accountability measures.

Agenda Item #1:
Discussion on Research Questions
Ideas and suggestions for research questions included:

- conservation engineering/gear engineering
- survey gear research
- recreational discard mortality studies
- tagging studies (archival data storage tags as well as traditional spaghetti and roto tags),
- genetic studies to define stock areas for key groundfish species

Tagging

A tagging discussion followed and it was noted from an industry perspective that storage tags, though costing more, may be more effective than traditional tags, especially given concerns about reporting problems when the phone numbers listed on the tags are not maintained and calls not returned to fishermen who have recaptured the tags. The 2009 cod tagging study was also mentioned as a possibility for further study, as well as a tagging study involving yellowtail flounder. However, it was stated that tagging studies are long term and would not provide immediate results for assessments or management. There was also concern about whether codfish are moving north and contributing to reports of rebuilding cod stocks within the Canadian zone or if that stock is being rebuilt by Canadian spawners. It was noted that studies regarding tagging are on other funding lists and are best handled by a broad collaborative effort between NMFS and academia due to the immense size of tagging projects. Concern about data gaps relative to yellowtail flounder are being discussed within NOAA and with partners involved in preparations for the upcoming yellowtail assessment. Once that assessment is complete, further research recommendations will likely be included in the final report.

There were additional questions and discussions about other research topics, including; bycatch reduction studies, trawl survey catchability studies for non groundfish, whiting projects, and closed area access studies. Dr. Hoey suggested that it would be helpful to narrow the research topics to specific species of concern, given the limited amount of funds under discussion. It was mentioned that many on-the-water projects take time and can be very expensive.

EFP concerns

A brief discussion on closed area studies brought up that there could be further delays to obtain exempted fishing permits (EFPs) or other special permits. It was also felt that short term results from closed area studies may not be valuable at the present time, especially because the closed areas could be changing due to the current Habitat Amendment. It was noted that the RSC should avoid making research priority decisions in response to concerns about exempted fishing permits. There are ongoing research activities in closed areas authorized by the Regional Office (RO), and the RO considers research on groundfish closed areas a very important research need. In cases where exempted fishing permits are needed, close program coordination should avoid delays to research.

Further research suggestion/questions:

The bulleted statements below provide numerous ideas and statements from audience members and individual committee members. The RSC research questions are at the end of this report.

- Socio-economic analysis – no directed studies, but rather consider as a value-added component for most studies
- A suggestion to convene a joint committee with groundfish AP or PDT to ensure that the research proposals and topics are relevant to the Council's needs
- Recreational fishery issues and socio-economic analysis on the behavior of the recreational fleet resulting from decreased bag limits/increased size of fish and how the economic impacts may affect the "for-hire" and "party/charter" businesses
- Lack of seasonal studies regarding spawning areas and questions about spawning information from State surveys in the Gulf of Maine

- Additional acoustic tagging for cod (short term project) to expand pilot study funding from NMFS
- A need for additional stock structure research for groundfish, specifically for cod because there is a large amount of data that can be integrated and become valuable for the management process (follow-up to recent cod structure workshop)
- Short term genetic, otolith microchemistry, and morphometric studies (short term:1-2 yrs)
- Closed area hook and line or other suitable gear and acoustic surveys (useful in age structure and population modeling studies)
- Concern about the decrease in flatfish species – especially windowpane flounder
- Climate change impact work and bottom temperature studies
- Short-term research on distribution and abundance on groundfish species
- Maturity studies – cod specifically
- A need for hot spot studies to help solidify bycatch reduction/spatial/temporal information sharing networks to support real time avoidance of areas with high bycatch
- Habitat impact reduction projects (modifying ground cable etc,-project may be too large)
- There was a comment suggesting that the datasets that already exist could also be used and dovetailed with other research projects/ideas
- It was also suggested that the RSC look into the discard mortality in the recreational cod and haddock fishery
- Stock structure of windowpane flounder is highly uncertain and could cause assessment issues, but is lacking research.

Funding concerns and accountability measures
Many shared the sentiment that these funds need to be used wisely and the information needs to be of immediate use to council members for management decisions. It was noted that the permitting process should not be a problem as long as the process is followed per the regulations in MSA. Another suggestion was to also look at new and innovative research opportunities as well as gear studies already in motion but in need of further funding.

There was great concern about the accountability measures of the flatfish and what the council can do to make fishing more effective without having area closures. An RSC member suggested that better communication between vessels may help to avoid area closures and inferred that the increased use of conservation gear requirements could be effective, thus lessening area closures. Increased support for conservation gear use by State agencies and managers could encourage greater industry adoption of new technology.

Conservation Engineering
An RSC member noted that the conservation engineering projects for exempted fisheries used a decade ago are not the same as the present day, due to a new sub-ACL system that the fishing industry is now under. The management schematic has changed due to this sub-ACL system and there is a need for the industry to use the most efficient/effective gear to catch a target species in a specific area. It was noted that conservation gear usage is difficult to document and monitoring data that can be utilized in performance output studies is limited. This is because there are limited official gear codes at this time that can be inputted into NOAA's vessel trip reporting database. As a result the effective monitoring of a fisheries use of conservation gear is decreased substantially.

Evaluation Criteria
A question was brought up as to how to evaluate proposals. Most RFPs include evaluation of several factors, including; the appropriateness of the scientific method, probability for success, experience of PIs, level of industry collaboration, potential to inform management, cost effectiveness, and outreach. It was also stated that studies having short-term agendas and/or unique in research may be considered more closely. Committee members suggested that during the review of the proposals, value added points should be given to studies that include either:

- Social or economic components, or
- Temperature or a habitat components

However, as was noted by a committee member this could result in an endless list and may make it difficult to put in an RFP.

Gear code issues
Many comments encircled data base issues because there are limited gear codes, and that monitoring performance of new net designs or devices is constrained by coding systems associated with VTR reporting regulations.

Bottom Temperature and Climate change
An RSC member noted that there has been limited sampling of bottom temperatures, primarily measured by moored oceanographic sampling arrays, and bottom temperatures recorded during State and Federal research surveys. The existing physical oceanographic models are currently being tested against recently recorded bottom temperatures associated with more than 35,000 study fleet trawl tows. Incorporation of this new industry data into revised bottom temperature models will aid in climate change studies and in efforts to better model species distribution patterns relative to temperature. Improved species distribution modeling, explicitly linked to bottom temperatures, can support enhanced bycatch avoidance.

A discussion on climate change ensued and it was noted that temperature change and climate change are separate study entities. It was suggested that studies on climate change could be expansive and expensive, but providing data that aids climate change studies should be considered.

Swept Area Biomass
Additional discussions on swept area biomass and catchability studies was strongly recommended by the committee, which noted the importance of this topic to stock assessment population estimates, as well as a way to improve survey accuracy. An RSC member emphasized the importance of examining the species-specific fish herding characteristics of the NOAA survey net and implications that has for swept area biomass estimations for flatfish and skates. The herding study will complement the research on cookie – rock hopper efficiency. It was noted that this can also provide data for length/frequency models regarding a single species and assist in the modeling of size specific catchability for specific species

Cod Stock Structure, Haddock etc.
GOM and GB/SNE Cod stock structure and spawning studies were strongly recommended, as well as having a second cod stock structure workshop to help compile all pertinent data and develop additional research recommendations. This workshop could benefit population

dynamics studies, as well as fine tuning stock boundary lines for cod. It was further stated that refining the cod stock structure study could be an effective research priority to help fill data gaps in the cod assessments and create pertinent research information that could assist in the understanding of the GOM and GB/SNE cod fishery decline. Further studies on biological stock structure, especially in the GOM cod, could analyze existing genetic, otolith, and morphometric data. Additional studies include investigating key areas such as Western Georges Bank where there are data gaps.

It was suggested that the recreational cod discard mortality rate has been generated in a workshop and will be available before the next cod assessment; however the recreational haddock discard mortality rate is still problematic. It was noted that this could be done in a fairly short amount of time and be very valuable.

Closed Areas
It was asked how closed areas can be useful in management. The questions that were brought up by an audience member include: How important are closed areas as a management conservation tool? Would smaller scale closed areas be as beneficial as large scale closed areas? It was noted that this may be a more expansive study in time and money than is available currently. It was suggested that a one year monitoring of the closed areas may not be a sensible use of funds. A study to set up protocols for long term monitoring of closed areas may be a more beneficial expenditure.

Flatfish and Stock Assessment Questions

- Are there gears that are proven more effective at decreasing flatfish bycatch?
- What management measures need to be put in place to help mitigate non-groundfish fisheries from area closures?
- How do we improve stock assessments for flatfish?
- Is there critical research that needs to be done to complement existing assessment data, especially for the more critical flatfish, which would help reduce uncertain stock assessments?

Hot Spot/Avoidance
It was suggested that there would be more interest in hot spots and avoidance, but the communications systems are a key component that must be designed with industry involvement so that they are on spatial and temporal scales that are beneficial to industry. The committee identified yellowtail and windowpane flounder as priority species of concern for avoidance programs.

Closed Area Catchability
An audience member commented that the Regional Office is interested in closed area research that would help inform management decisions about opening groundfish closed areas. The primary research need includes basic catch composition and catch rate data, which could inform questions about potential resource impacts as well as economic opportunities for industry, including questions relative to industry funded monitoring costs.

Research Question Overview

In an effort to be more specific and utilize the input provided by the committee and the audience, the RSC suggested an approach to refine the significant research questions by outlining the management/research focus by species and areas of study. The suggested species that were chosen due to a high level concern include:

- *Yellowtail flounder (YTF) - Georges Bank specifically (GB)*
- *Windowpane flounder (WPF) – Southern New England specifically*
- *Cod (GOM and GB/SNE)*
- *Haddock*

The areas of study include:

- *Survey Gear Research relative to flatfish catchability estimation in assessment models and swept area biomass estimation for NEFSC and industry based surveys,*
- *Conservation engineering research to reduce bycatch of low ACL stocks*
- *Recreational Discard Mortality*
- *Spawning/age and growth/fecundity*
- *Stock structure*
- *Closed areas*
- *Catchability*

RSC Research Questions: A-D are by species and E is by gear.

A. Haddock

1. What is the recreational haddock discard mortality rate?

B. Cod

1. To examine the timing and distribution of cod spawning in GOM and GB/SNE stocks.
2. To refine biological stock structure for GOM Cod and GB/SNE cod.

C. Yellowtail Flounder

1. What are the gear engineering solutions that could reduce bycatch of GB YTF?
2. Identify GB YTF hot spots and develop an avoidance system.

D. Windowpane Flounder

1. What are the gear engineering solutions that could reduce bycatch of SNE WPF?
2. Identify SNE WPF hot spots and develop an avoidance system.

E. Swept Area biomass

1. Examine species-specific net herding/effective swept area characteristics of the NOAA survey trawl net?

Priorities List

A brief discussion on whether to prioritize the research questions was brought up and there was a consensus that to create a priority list at the present time would be premature and that further thought and input is needed, especially from the Groundfish PDT and AP.

Other Business
There was a consensus that the research questions from the RSC should go in front of the Groundfish AP and committee for further input. A discussion on evaluation criteria will be a priority agenda item at the next meeting. No further business was addressed.

The RSC meeting adjourned at approximately 4:30pm.

New England Fishery Management Council
50 WATER STREET | NEWBURYPORT, MASSACHUSETTS 01950 | PHONE 978 465 0492 | FAX 978 465 3116
E.F. "Terry Stockwell III., *Chairman* | Thomas A. Nies, *Executive Director*

Attachment 1
NEFMC RSC March 14, 2014 Report

The following statement was given by Dr. John Hoey on March 14, 2014 to the NEFMC Research Steering Committee as an update on the NEFSC Northeast Cooperative Research Program (NCRP) and those research studies that are nearly complete.

Previously, I've briefed the committee on cooperative research annual spending plans and the committee and council were significantly involved with the NEFSC in strategic planning during 2009 and in the finalization of the 2010-2014 strategic plan for Northeast Cooperative Research. So it is particularly timely for us to get together and re-engage in discussions about cooperative research priorities during these tight fiscal times and to prepare for a follow-up strategic plan.

I'd like to provide a quick overview of the activities that have been funded to address the 2010 - 2014 strategic plan and comment on timing – so that this committee and the council can be fully aware of the funded projects and areas of research. My goal is to assure the Council that their funded projects do not overlap with federally funded activities.

In 2013 the NE cooperative research funding level (@ $4M) was comparable to funding in 2008. Recall that at that time, several regional earmarks were eliminated. To partially compensate, the Northeast Cooperative Research program received higher funding from 2009-2012 (supplemental sector funds), including @ $28M in the first three years. The strategic plan directed us to focus on 2 areas: 1) support development and implementation if innovative monitoring tools (fishery dependent) and pilot programs (fishery independent industry surveys & specialized biological sampling programs) to address critical data gaps, and 2) develop a comprehensive conservation engineering program to achieve regional coordination and technology transfer.

Between 2010 and 2012 we funded six (6) network projects that are listed on our website (**www.nefsc.noaa.gov/coopresearch/**). We also provided funding (in 2009 and 2010) for the Commercial Fisheries Research Foundation (CFRF) and the Northeast Consortium (NEC) to support additional research competitions (these awards are also listed on our website) . A significant number of those projects involved the same researchers involved with the network programs. Network programs focused on conservation engineering for small mesh fisheries GOM Redfish (REDNET) and Mid-Atlantic squid and whiting (Cornell Squidnet – GSSA-Rutgers), along with conservation engineering to reduce bycatch on choke stocks, specifically for sectors (GEARNET & CEMFIN). Contracts also

supported information sharing networks to enhance real time reporting and avoidance of choke stocks (FAST – GMRI) and spatial analyses supporting "Move-on" rules (CCCHFA – Duke). Smaller contracts addressed peer review comments through 2 yrs of supplemental research on the scup – black sea bass ventless trap protocols relative to gear saturation and randomization studies. The key point to emphasize for the Committee and Council is that **most of these projects have or will end by this fall. Some of those activities may be of interest to the Council for ongoing funding.**

For the NMFS component of the NCRP, between 2009 and 2012 we implemented an enhanced biological sampling program (flatfish reproductive studies YTF, winter flounder and fluke resulting in revised bio reference points) and expanded the number of vessels involved in the study fleet program. We also initiated an extensive survey gear research project, including 53 twin trawl comparison tows of cookie and rock hopper sweeps with Bigelow nets and protocols in 2009, followed by 320 paired vessel comparison tows during 2 seasonal trips to GOM, GEB, and SNE during 2010. We tagged @ 34,000 dogfish on simultaneous cruises in three areas (GOM, GEB, SNE) during fall and spring of 2010 and 2011. We also initiated a contract for the development and testing of a wireless TD probe that would provide real time info on bottom temps immediately after the trawl door breaks the surface on haul back. Several smaller conservation engineering projects w/ protected resources staff were supported, along with expanded work with oceanographers from the NEFSC, an SMAST post doc, and Rutgers and MARACOOS staff on bottom temperature modeling to inform species distribution modeling and hot spot bycatch mapping.

In 2013 we received funding for a central & western GOM bottom long-line survey (delayed by furlough), which is scheduled early May and Nov 2014. In August 2013, NEFSC survey and cooperative research staff implemented an IBS GEB survey for YTF and winter flounder, accounting for 169 stations. Analysis of the data from that survey will be presented at the upcoming GEB YTF empirical stock assessment meeting. The data from the paired vessel cookie - rock hopper sweep study will also be considered. The sweep studies were designed to address survey net efficiency questions that can inform assessment modeling and swept area biomass estimation. We also received HQ funding for a second GEB YTF survey (delayed until this fall by the furlough) using side-by-side catch comparisons between Bigelow and industry vessels with habcam video coverage of the same strata.

The only other activities planned for 2014 that I am aware of, include: initiation of a cod acoustic project related to detection of spawning aggregations ($140K from 2014 National Cooperative Research competition), with the NEFSC PRD, SMAST, MA DMF, and Nature Conservancy. The Cornell SQUIDNET program is partnering with the NCRP on a YTF and windowpane flounder bycatch reduction study in the winter GEB squid fishery and a second component for YTF and windowpane bycatch reduction in the summer cultivator shoal whiting fishery. Both are evaluating the performance of large mesh belly panels.

Additionally, a portion of NCRP funding has consistently been provided to several long standing projects, including: NEFMC RSC funding until 2013, the Marine Resource Education Program (MREP), a supplement for the ME-NH inshore trawl survey, and the Univ. of Maine – Penobscot East Sentinel bottom long-line and jig survey since 2012. We also support administrative costs for 4 RSA programs (scallop, monkfish, Mid-Atlantic mixed species, and herring).

As the Committee and Council discussions about research priorities for the available funds proceed, I will keep you all informed and advise on whether there are similar ongoing activities that are planned with either remaining network funds or supplemental allocations.

In preparation for this meeting and during initial discussion w/ Council staff and Dr. Karp, I was asked to consult with NEFSC Divisions and Branches relative to activities that they would recommend as top priorities, given the goals described by Council staff and the caveats associated with one time funding, a groundfish focus, and a significant industry involvement in designing and conducting at-sea activities. I've spoken with NEFSC staff in survey, population dynamics, habitat, oceanography and ecosystem programs and a clear consensus emerged. Additional studies of Bigelow survey net efficiency that would build on the cookie - rock hopper sweep comparison, specifically looking at flatfish and skate herding relative to bridle length, would be the most likely to have significant implications for improving stock assessments in the near term, as well as addressing questions about bias in swept area biomass calculations. Other survey net efficiency aspects, including; escapement under or over the net, tow duration and speed were discussed but rated lower specifically with respect to groundfish assessment questions. Mr. Chairman, Thank you for the opportunity to brief the committee on current and recent cooperative research activities.