STUDY FLEET
&
INDUSTRY-BASED SURVEY

MEETING SUMMARY

November/December, 2000

Organized by the

NATIONAL MARINE FISHERIES SERVICE

CONNECTICUT D.E.P. MARINE FISHERIES OFFICE

MAINE DEPARTMENT OF MARINE RESOURCES

MASSACHUSETTS DIVISION OF MARINE FISHERIES

NEW HAMPSHIRE FISH & GAME DEPARTMENT MARINE DIVISION

RHODE ISLAND DIVISION of FISH & WILDLIFE

Funded by the

NATIONAL MARINE FISHERIES SERVICE

Submitted by the

GULF OF MAINE AQUARIUM

January 14, 2001

TABLE OF CONTENTS

STUDY FLEET
&
INDUSTRY-BASED SURVEY

MEETING SUMMARY

Introduction:

The Gulf of Maine Aquarium (GMA) was commissioned by the National Marine Fisheries Service (NMFS) to conduct a series of day-long workshops with the groundfish industry in November and December, 2000 to discuss issues associated with two industry/science collaborative research programs: study fleets and industry-based surveys.

Workshops were held with representatives from the fishing industry in the following ports and dates:

Portsmouth, NH	Nov. 17
Portland, ME	Nov. 20
Rockland, ME	Nov. 21
Gloucester, MA	Nov. 28
Chatham, MA	Dec. 4
New Bedford. MA	Dec. 5
Narragansett, RI	Dec. 8

After discussion at the first two meetings about what types of projects fell within each program, the following operational definitions were adopted:

> Study Fleets: A sample of fishing vessels from which high quality data on catch, fishing effort, gear characteristics, area fished and biological observations are collected. These vessels fish in "normal" commercial mode, and are selected to be representative of the larger fleet, over time.
>
> Industry-based Surveys: A scientifically-designed fishery research project to monitor the abundance and biological health of target populations of fish through the use of test fishing with specific gear(s) in specific locations.

Study fleets are primarily intended to provide detailed information on catch amounts, by-catch, discards and fishing locations to contribute to fishery-dependent indices of stock abundance. In addition, study fleets should facilitate biological sampling of catches, provide new paths for feedback and communication among fishermen and scientists, and provide a mechanism of monitoring changing fishery practices.

Industry-based surveys are expected to provide additional abundance measures to supplement existing monitoring programs, primarily by increasing the spatial and temporal resolution of local area surveys. Industry-based surveys should also include

detailed biological sampling of the catch and supplemental environmental observations (e.g., temperature, salinity, etc.), and produce greater industry exposure to scientific survey methods. Some survey projects may provide platforms for special experiments (e.g., tagging, gear development). Although the industry-based survey concept is loosely based on Canada's sentinel survey program, sampling will not be focused exclusively on closed areas (as in the Canadian example).

Workshops followed a common format in all locations. Discussions were preceded by brief presentations on the study fleet and industry-based survey concepts by NMFS (Steve Murawski), and on initial concerns about program implementation by industry representatives from each port. Additional presentations by state scientists were included if the host state had already developed ideas about industry-based surveys. (A complete list of presenters and workshop participants is included in the Appendix A.) Although the format was relatively constant across all meetings, the flavor of the discussion varied markedly as a function of the participants and local port concerns. Some discussions were conducted on a rather philosophical level and dealt mainly with conceptual issues; others focused on the details necessary to make these programs work.

The following narrative attempts to summarize the major issues raised and discussed in this series of workshops. In the interest of providing an overview, this document does not address every specific concern expressed. However, we have attempted to incorporate more major concerns that were of local interest, and to indicate when different solutions to a common issue were suggested in different ports. Detailed notes from each of the meetings are provided in Appendices B-H.)

Concerns Common to Scientists and Fishing Industry:

Overall, representatives from both science and industry were very enthusiastic about the two programs. Scientists perceive an opportunity to both enhance fishery-dependent data collection (via study fleets) and improve the spatial and temporal resolution of current NMFS trawl surveys (via industry-based surveys). Industry members see an opportunity to document spatial and temporal abundance patterns that they feel are missed or overlooked in the current assessment process, and to address specific problems of local interest. Both groups agreed on the importance of establishing a productive working relationship and potentially being able to present a united front within the regulation/management process. Although the list of concerns that constitute the remainder of this document is far longer than this list of benefits, that extensive coverage is provided in the interest of resolving these issues and developing productive programs, and should not be interpreted as negativism about the overall concepts.

Industry and science shared two concerns that are applicable to both programs. First, if this process goes forward, it absolutely cannot afford to fail. Failure could do irreparable harm to future cooperation between industry and federal scientists. Consequently, both groups must make long-term commitments to the process. However, continued success will also require long-term funding, which is not guaranteed under the current funding

structure. Both groups recognize that they must play a role in securing continued funding, and acknowledge the political nature of that process. Given that framework, it is vital that initial funding target some projects that can be expected to produce results in the short term (1-2 years) to demonstrate the efficacy of collaborative research to funding sources and politicians. However, many of the expected benefits of both programs will accrue only in the long-term. Hence it is essential that initial funding target a mix of projects with long and short-term payoffs.

Second, both groups acknowledged the potential for collaboration with science to create divisions within industry. While incentives must be devised to encourage industry participation in projects, efforts should be made to avoid instituting incentive systems that create unfair advantages for participants at the expense of non-participants. Similarly, at least some (if not most) of the data produced by collaborative research activity should benefit the fleet as a whole, rather than just the participating vessels.

Scientific Community Concerns:

Science representatives highlighted three additional concerns that are applicable to both programs:

1. Use Collaborative Research to Support Improved, Single Assessment Process:

   It is essential that study fleets and industry-based surveys be used to provide better data for the existing assessment process; these programs should not be used to create alternative assessments. Participation by NMFS and state assessment personnel in project development and oversight committees is crucial to ensure that projects are designed with scientific rigor and that data produced by these projects are of adequate quality.

2. Develop Strategy to Assure Gear Consistency and Calibration in Industry-based Surveys:

   All long-term monitoring projects require some consistency in equipment and techniques. However, the commercial fishing industry is inventive and changes constantly. Gear design and type change over time, as do fishing schedules and locations. Consequently, there are questions about whether it will be feasible for industry to meet long-term research commitments as equipment and fishing opportunity varies. All long-term projects will need to carefully consider how to sustain consistency in equipment and technique and/or how to calibrate new equipment/techniques with old in order to acquire the long-term data that are so important to the assessment process.

3. Develop Infrastructure for Close Science/Industry Communication:

   NMFS scientists are concerned about the communications logistics of working with commercial vessels. Maintaining a productive working relationship with

fishermen requires a substantial time commitment from scientists. Recent increases in the number of different fisheries covered by each individual NMFS scientist has made it impossible to maintain close personal contacts with a substantial number of individual fishermen across multiple fisheries. The most practical solution appears to be to use intermediaries (state scientists, industry cooperative groups, local non-profit research organizations, NMFS port agents,) as links between individual vessels and NMFS. These intermediaries are interested in working with NMFS to fulfill such a role.

Fishing Industry Concerns:

Fishing industry representatives expressed the following concerns:

1. Address Mistrust of Science/Management:

   The fishing community has a profound distrust of the management process. Because the boundaries between science and management are not always clearly defined, some of the distrust of management spills over to science. Although both fishermen and scientists present voiced frustration with the management process, industry representatives felt substantially more "burned" by the interaction than scientists (especially in ports with predominantly a small-boat fleet that is highly affected by localized closures). Participants from both science and industry acknowledge that they cannot control the management process, and so no attempt was made to resolve this issue. Both groups agreed that a united front backed by the best possible science was probably the best hope for more enlightened management decisions, but nobody expressed much faith in the eventual regulatory outcome.

2. Encourage Public Appreciation of Fishing Industry Commitment to Conservation and Research:

   Industry representatives expressed grave concerns about public perceptions of the fishing industry in general, and particularly emphasized the failure of their past research and voluntary effort reductions to gain public sympathy. There was a clear sentiment that collaborative research projects should serve in part to highlight industry concerns about the resource to the public.

3. Demonstrate Long Term Commitment to Collaborative Research by NMFS:

   Industry representatives emphasized the need for a long-term commitment to a collaborative approach by NMFS. A NMFS failure to maintain analysis programs initiated with current funds would further damage relationships with industry. A major goal of the collaborative research process should be to build relationships between NMFS and the fishing community. In particular, the ability to communicate with fishermen should be considered when scientists and project coordinators are selected.

4. Insure Timely Analysis and Accessibility of Data:

   Fishermen highlighted the need for data analysis to occur in a timely fashion. Current management decisions are often based on 18 month-old data. This time lag is partly caused by the annual schedule of the management process and the timing of decisions relative to the NMFS trawl surveys and subsequent data analysis. Vessel trip report (VTR) data currently requires more than six months for manual entry and auditing. Industry data collected via either study fleets or industry-based surveys should be analyzed quickly enough to enable within-season changes in fishing regulations. Timelier processing should be possible in this era of digital communications. Industry representatives also expressed a strong desire to have greater involvement in the analysis process.

Study Fleets:

Members of the fishing industry attending the meetings were keenly interested in the study fleet concept. They immediately appreciated the value of providing more detailed data concerning fishing activity to the science and management process. They were insightful about the following challenges of making such a program work.

1. Define the Goals of Any Study Fleet Program:

   At virtually every meeting, industry representatives wanted the purpose of collecting detailed catch and by-catch data in the study fleet program to be clearly stated at the outset. Although fishermen appear amenable to providing these data if the objectives of the study are clearly defined at the outset, they are much less willing to do so just to support an undirected hunt for useful information. Moreover, clearly defined goals provide the basis for monitoring performance. The overall objective of improving the stock assessment process was well received. However, assessment scientists acknowledged that the data will inevitably be used for some purposes not defined in the original objectives because management needs will change over time.

2. Prevent Use of Study Fleet Data for Enforcement Purposes:

   Fishermen unanimously felt that data collected for assessment purposes should not be used for enforcement purposes. Several people cited cases in which relatively minor discrepancies (>10%) between VTRs and actual landings have resulted in punitive actions. There was no complete resolution of this issue. While data can (and presumably will) be shielded from routine enforcement actions (i.e., hunting for violations without probable cause), there is no way to prevent information from being obtained by subpoena during legal actions.

3. Provide Opportunity to Experiment with Different Data Collection Approaches:

   There was substantial discussion of the logistics involved in collecting and transmitting the required volume of data, but no clear consensus on whether this placed an unreasonable burden on the captains and crew. Some fishermen felt that they would be too busy to accurately record the necessary information, while others felt that that the time commitment was relatively minor.

   On a related subject, there were discussions of the wisdom of having observers collect and record all data, and of the need for weighing or counting vs. estimating catches. There was a general consensus that fishermen can estimate catches well enough that the added time and cost of weighing or counting is not necessary. However, there was no consensus on the need for observers. It appears that observers would be valuable on some types of vessels, while completely extraneous on others.

   Discussions also considered whether the data should be recorded electronically or on paper. Electronic collection and transmission would greatly reduce the turn-around time for analysis, but electronic systems would have to be easy to use and water-resistant (especially on smaller vessels). Regardless of the actual data collection method employed, industry representatives unanimously requested that the system replace existing paperwork (e.g., VTRs), instead of requiring duplication of effort.

   NMFS scientists emphasized the importance of continuing and expanding biological sampling of catches (i.e., collect data on size and age distribution, gut contents, etc.), but felt that it was probably easiest to use the existing port agent system (perhaps with some expansion) to accomplish these tasks. Hence the only additional burdens placed on fishermen participating in the study fleet would be to know which hold contained the catch from which tow, and to notify port agents each time they return to port.

   Given the diversity of vessels and crew capabilities that would be involved in a study fleet and the rapid development of digital technology for data recording and transmission, it would make sense to encourage experimentation with different data collection strategies in order to test and refine different approaches rather than simply specify a single approach at the outset.

4. Make Data Easily Accessible But Protect Proprietary Aspects of Data:

   There were extended discussions about a variety of issues surrounding access to data collected by industry. The industry (and presumably the public) should be permitted to access the data with some level of resolution, but there is also a clear need to protect proprietary information (as required by existing government regulations). One solution that received general support was to make data available via a website, but only post data that had been compiled ("binned")

within larger spatial blocks to shield the data provided by individual vessels. Squares of 10 minutes latitude or longitude on a side seem to yield sufficient resolution for management purposes, while still protecting fishing locations used by individual vessels. Similarly, some temporal compilation seems to be necessary to prevent the fleet from over-exploiting specific aggregations; two-week intervals were acceptable to most participants.

In several meetings, participants strongly suggested that a third party (institution(s) independent of NMFS) should initially collect data from vessels and provide preliminary processing before making it available to both industry and NMFS. Such independent data collection, which is apparently used successfully in Alaska, could enhance industry confidence in a study fleet program and further separate vessel data from the enforcement side of NMFS. If a third party data collection strategy is employed, a significant consideration will be a means of archiving data at some mutually acceptable level of aggregation to insure that it is available to NMFS and other interested parties over time.

Industry clearly would also like to have greater involvement in the assessment process, but there was little discussion of how to implement this request. The current assessment process does require external review prior to adoption, and there are provisions for industry involvement, but individual fishermen nevertheless feel completely shut out of the process. Greater transparency would be highly desirable. At the Chatham meeting, there was strong support for the creation of a joint industry-science study fleet steering committee with industry representatives from each significant port or fishery. It was noted that such a committee could be created informally, provide that NMFS respect its importance and legitimacy, in order to implement this idea quickly.

5. Compensate Participants Indirectly (e.g., Free VMS, Relief from VTR, etc.):

The issue of compensation was discussed at each meeting, but was not very contentious. A few vessel owners felt that they should be compensated if they had to collect and record the data (instead of having an observer serve this function), because they would have to hire an additional crew member to do the work. Declining profit margins have resulted in personnel reductions so that crew workloads on some vessels are at the maximum level. However, most fishermen felt that they could handle routine data collection (i.e., catch, by-catch, location, and weather conditions) as long as the data entry system was designed for ease of use. Relatively minor compensation (e.g., exemption from call-ins to monitor days-at-sea, provision of data transmission system, access to messaging capabilities built into a data transmission system, etc.) appeared to be sufficient to motivate participation.

Industry-Based Surveys:

Industry representatives in virtually all ports supported using surveys by commercial vessels to address three issues of common interest:

1. Increase Spatial and Temporal Resolution of Data Used for Assessments:

   There is intense industry interest in increasing the spatial and/or temporal resolution of the NMFS trawl survey. NMFS scientists acknowledge that the trawl survey does not provide good spatial coverage in shallow coastal waters. As a result, local abundance patterns noticed by fishermen may not be apparent in the NMFS data set. Fishermen are also uncomfortable with the assumptions behind the random stratified sampling design used in the NMFS survey; a grid or transect-based design would be a scientifically-valid complementary design. The use of multiple gear types (e.g., trawls, gill nets, hooks) would permit different habitats to be surveyed by the fishing method normally used in that habitat. However, using a mix of gear types presents calibration challenges. While it is not likely that all vessels and gears types in a large survey could be directly calibrated against every other, it would probably be adequate to calibrate each against its nearest neighbor, especially if sampling included a temporal component that provided replication.

2. Calibrate NMFS Trawl Survey Vessel with Industry Vessels:

   Industry is keenly interested in calibrating the NMFS trawl equipment via side-by-side tows with commercial vessels and equipment. The NMFS trawl was adopted years ago, and is used to provide a relative abundance index. For this purpose, it is vital to maintain consistency with past methods. Variation in the catch efficiency for different species will not bias the data set, because only relative temporal patterns are evaluated. Nevertheless, if that trawl consistently under-samples fish of different size classes, those biases will influence the assessment, and hence these potential biases are well worth evaluating.

3. Use F/V's to Survey Closed Area's Before Closure and During Closures:

   There was consistent industry interest in using surveys to evaluate the effectiveness of closed areas (both rolling and permanent closures). The specific closures of interest varied predictably with geography. Because most of the closures are designed to protect spawning aggregations, it is particularly important to evaluate the timing of spawning relative to rolling closures. The effect of the closure on spawning success is also of considerable interest.

Discussion about the issues involved in executing these industry-based survey projects centered on two topics: compensation and permitting:

1. Compensation Considerations:

   An appropriate compensation strategy must be devised. The daily compensation rate is likely to vary with vessel (as a function of size and operating and maintenance costs). Vessel owners must consider all of their expenses when developing a budget, including but not limited to dockage, communications, fuel, loan payments, crew expenses, food, insurance, and repairs. A less tangible expense is the "opportunity" cost of giving up a day's fishing, which is likely to vary throughout the year with fish abundance, market price, and seasonal openings. Projects that require sampling throughout the year must adequately compensate for vessel time during peak times so that fishermen can meet research commitments. Other considerations include whether to compensate for days lost to weather (consensus that weather risk should not be compensated), and who bears the expense (in time and labor) of re-rigging gear when projects require different equipment than fishing.

2. Permitting Considerations:

   A second major issue revolved around permitting, keeping or disposing of the catch, and the use of days-at-sea. Surveys performed under a charter arrangement and a research permit do not count as days-at-sea, but the catch cannot be sold. Industry representatives and scientists both objected to throwing fish overboard, but selling the catch generally requires counting the trip toward days-at-sea (unless special permitting requirements can be negotiated). Active fishermen were generally unwilling to use days-at-sea for research, though holders of latent permits (who were not represented at the workshops) would probably be more amenable. The permitting issue for industry-based surveys merits further attention.

The following industry-based survey projects that address local research and management concerns were discussed:

- Portsmouth: Permanent and rolling closed area monitoring (baseline and year to year), ongoing transect survey on seasonal or monthly basis.

- Portland: Local input for more tightly targeted closures (e.g., Wood Island rather than 900 square miles), spawning success indices, monthly transect surveys, integrate offshore and inshore data; study target species spawning behavior in order to determine spawning closure requirements, look at broader ecosystem impacts (e.g., herring feeding on shrimp eggs, gray sole protected as unintended result of Cashes Ledge closure), comparative gear analyses to calibrate gear for surveys.

- Rockland: Monkfish discards, blackback flounder failure to rebound in Maine, inshore pollution effects on juvenile fish, closed area surveys before/after closure

to track closure timing with fish presence/absence, monthly or seasonal transect surveys.

- Gloucester: Assess rolling closures in the western Gulf of Maine, monitor Stellewagen Bank Jeffreys Ledge closures, transect surveys.

- Chatham: local stock analysis, cod substock analysis, traditional fishing grounds (which have few fish) monitoring on a monthly basis, monitor the Figs, current fishing ground monitoring on monthly basis, local stock structure analysis (age and size), predator/prey analysis via gut contents, cod adaptation to gear, transect survey, integrate transect survey with USGS habitat survey.

- New Bedford: Closed area surveys, marine protected area cost/benefit analysis, hydroid/juvenile cod/trawling interaction (or lack thereof), yellowtail surveys, assess size/shape of spawning closures originally proposed by industry vs. adopted by management (for areas near lightship, off toward Hague Line and along 30 fathom line off Block Island), cod tagging to assess transboundary (42°20" N) movements, stock survey in shallow waters off Nantucket.

- Narragansett: Rhode Island summer flounder and scup survey, R/V Delaware and Albatross calibrations with F/V's, small mesh fishery analysis, impact of surf clam fishery on closed areas (e.g., NW corner of Nantucket Lightship closure), closed area effectiveness, management of harvest over longer season to spread out supply and maintain market price.

Specific Recommendations:

Recommendations contained within the first portions of this document reflect our renditions of sentiments directly expressed in the workshops. In contrast, this concluding section represents GMA's attempt to synthesize multiple ideas into a more coherent operational strategy. We believe that the following six specific recommendations are supported by the general discussions.

1. Develop Diversified Portfolio of Projects (Projects with Short-Term Payoffs; Projects Requiring Multi-Year Funding; and Equipment/Infrastructure that will Support Continued Collaborative Research Efforts):

   Because many of the benefits of collaborative research projects will not be apparent until several years have passed, it is imperative that substantial attention be paid to securing continued funding. To facilitate that process, portions of the current funds should be allocated to projects with expected short-term payoffs. Industry-base surveys will require continual funding at levels near first-year start-up costs in order to be successful. However, the same is not necessarily true of study fleets. Of the different compensation and operational models considered, some lend themselves better to future funding uncertainties than others. In

particular, we recommend prioritizing a portion of current funds for equipment and infrastructure to minimize future operating expenses and permit continued operation even in the face of possible funding reductions. For example, the up-front provision of automated data loggers to enable study fleet fishermen to quickly and efficiently enter their own catch and by-catch data may make more sense than the continual funding of observers to collect similar data.

2. Use Technology Investment as Primary Incentive for Study Fleet Participation:

   Many of the suggested features of a study fleet program (e.g., timely data analysis, industry access to data, up-front loading of costs) can probably best be implemented with an automated data logging and transmission system. Such a system might include the following features: a) automated vessel tracking (interface to boat's GPS), b) easy entry of catch and by-catch data on tow by tow basis (e.g., numeric keypad with buttons for target and by-catch species, rather than an entire computer keyboard), c) water resistance (key pad usable with wet hands/gloves), and d) electronic data transfer in near-real time with minimal operator input. Various existing commercial systems have subsets of these features. However, much of the expense of some existing systems (both acquisition and operating cost) is incurred by transmission of data at sea (i.e., by satellite). For virtually all current and near-term management applications, data transmission at the end of the trip (e.g., by dockside or cell phone line) is sufficient and vastly more cost-effective. The only financially defensible rationale for incorporating at-sea transmission into these systems appears to be the opportunity for incorporating messaging features (e.g., email) as part of the compensation system and to enable management of closure decisions on a real-time, daily basis.

3. Make Data Rapidly Available and Open Analysis Process as Means of Rebuilding Science/Industry Trust and Communication:

   Industry should be permitted full access to all data collected, and should be invited to participate in the data analysis process. Open access to study fleet data is probably best accomplished via the web. Confidentiality issues can be avoided by compiling data into temporal and spatial blocks prior to release. Two-week time intervals and areas of about 10 minutes latitude or longitude per side appear to be a reasonable compromise between accuracy and confidentiality. Industry involvement in the analysis process might be facilitated via project oversight committees with representatives from both science and industry.

4. Develop Incentive Systems that Recognize Industry Economic Realities and Practical Permitting Solutions:

   There is significant opportunity to develop collaborative research incentives that utilize a mix of cash, in-kind and regulatory relief incentives. For study fleets, cash charter fees should not be necessary. Provision of free data logging and

transmission equipment (VMS or competing technology), combined with relief from current VTR filing requirements (since the study fleet data will exceed VTR requirements), should attract sufficient vessels to initiate a prototype study fleet program.

For industry-based surveys, cash charter fees or an equivalent monetary incentive will be necessary since there will be no revenue generated from sale of catch. Provision of data logging and/or transmission equipment could reduce the charter fees required, but nonetheless, monetary compensation will be required. Creating a permit option that allows sale of research catch without loss of a Day at Sea and/or the award of extra Days at Sea for participating in collaborative research could be a comparable monetary incentive for vessels participating in industry-based surveys; moreover, such incentives are more familiar to fishermen than charter fees. The advantages of a research permit that allows the sale of catch are that it would generate research funding and avoid the discarding of research catches, which is senseless, if not criminal, act in the eyes of fishermen; the disadvantage is that the incentive to catch marketable fish would become a priority over fishing for data. The advantages of awarding extra Days at Sea are that they do not require a budget appropriation and they avoid the competition between research and fishing activity that the sale of research catch creates; the disadvantage is that they would have to be factored into the management decision process on a conservation-neutral basis, which could lead to contentious allocation debates.

Given the strong sentiment the industry has against discarding fish that are injured or killed in the course of research projects, NMFS would be wise to create a research permit option that allows participating vessels to sell research catches rather than discard them, with revenue from the sale of research catch going into a self-perpetuating research fund. Such an approach would put an end to the wasting of research catches, address a significant industry complaint about the research permit framework, and serve a highly visible example of NMFS being responsive to pragmatic industry suggestions. Deposit of revenues in a research fund rather than returning revenues to the vessel as compensation would reduce the likelihood that research activity would become second priority to fishing for marketable catches.

5. Consider the Following Guiding Principles for Study Fleets:

    a. RFP should clearly state goals of program, the variables to be measured, and the reporting format (units of measurement, geographical resolution, timing, form layout, file format, etc.). On the other hand, it should not specify the methods for collecting or communicating data in order allow for creative ideas about method development.
    b. RFP should provide a mechanism for local entities (state, non-profit) to assume the lead data collection role on a local basis to insulate data collection

from the enforcement arm of NMFS and cultivate the development of a local, distributed, accessible science/industry communications infrastructure.

c. If a third party data clearinghouse is to given serious consideration, it may make sense to issue a specific RFP for this purpose.
d. RFP should require the development of a program oversight committee and a thoughtful strategy for how to bring science and industry together on such a committee.

6. Consider the Following Guiding Principles for Industry-based Surveys:

a. Develop an open RFP for industry-based survey projects to encourage innovative proposals; focus proposals by requiring them to address a set of high priority research questions.
b. Structure high priority research questions to accommodate projects of local fishing industry interests, the variation of information needs across the region, and the variation of management challenges across the region.
c. Reduce survey sensitivity to consistency and calibration through the use of a larger number of vessels that increase survey sample size.
d. Expand sampling coverage across diverse demands of different habitat and life stage/size of target species through the use of multiple gear types in industry-based surveys.
e. Permit landing of survey catch, without any Days at Sea requirement, to avoid discards; the industry views the requirement to discard research hauls, if the fish are weakened or dead, as criminal.

Attachment A:

MEETING PARTICIPANTS

Portsmouth	Portland	Rockland	Gloucester
Yoshiki Matsushita	Kevin Chu	John Williamson	Steve Parkes
Tim Feehan	* Steve Murawski	Linda Mercer	Dave Lincoln
Jeffrey R. Reid	John Vavrinec	* Steve Murawski	Kevin Chu
David Goethel	Arthur Odlin	† Craig Pendleton	* Steve Murawski
* Steve Murawski	Stephen E. Cossar	Roger Libby	Nick Anderson
Kevin Chu	Scott McNamara	Jim Davenport	Earl Meredith
Nick Anderson	Earl Meredith	Kevin Chu	§ David Pierce
Earl Meredith	John Williamson	Earl Meredith	Eve Lyon
Cheri Patterson	† Craig Pendleton	Rick Albertson	Jennifer Brener
Maggie Raymond	Carla Morin	Dale Witham	Chris Glass
Bonnie Spinazzola	David Gallagher		Gregg Morris
Carl Bouchard	Steve Link		† Vito J. Calomo
Daniel J. Dunbar	Linda Mercer		Dave Ellenton
Rollie Barnaby	Nick Anderson		Bob Morrill
Nick Jenson	Gordon Viola		Barbara Taormina
John Williamson			Bruce Bornstein
Erik Anderson			
Doug Grout			

Chatham	New Bedford	Narragansett
Stuart Tolley	§ David Pierce	† Fred Mattera
Nick Anderson	Kevin Chu	Mark Gibson
* Steve Murawski	Chip Ryther	Ralph Boragine
Isac Da Lomba	Nick Anderson	Kenneth Ketcham
† Mark Simonitsch	Dan Holland	Carl Granquist
Loraine Spenle?	Steve Correia	David Bom
John Mahoney	* Steve Murawski	Gregg Morris
Julie Early	Mike Pol	Walter Anoushian
Kevin Chu	Stephen J. Brady	Ed Everich
John Our	Steven E. Wilkes	Donald Devine
Gregory Connors	Luis Martins	William J. Cote, Jr.
Andrew Baler	Manuel Marquintios	Alan Glidden
Azure Westwood	Dave Martins	David R. Blaney
§ David Pierce	Gregg Morris	Kevin Chu
	Bob Lane	Victor Gadrow
	Anqstasia Braz	Bruce Knigh
	Carlos Braz	Joel Hovanesian
	Rani Nathaniel	Craig Nevilly
	Joe Deck	David Simpson
	Wendell Brown	April Valliere
	† Bob MacKinnon	David Dowdell
	Vito Calomc	Jeremy Collie
	† Jim Kendall	David Gallagher
	Rodney M. Auila	Bob Mevey

Ross K. Kessler	Geir Monseu
Luke Wheeler	Dan Orchard
Dennis Main	* Steve Murawski
Chris Newhall	§ David Pierce
Kevin Stokesbury	
John Williamson	

In addition, Don Perkins and Phil Yund (both of GMA) were present at all meetings.

* Presented NMFS scientific perspective
§ Presented state industry-based survey concept
† Presented industry perspective