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Discussion and Preliminary Agreements About Catch Monitoring for Sectors Among Northeast Groundfish Associations

Report of October 11, 2007

Sheraton Harborside, Portsmouth, NH

PRELIMINARY AGREEMENTS APPROVED BY:

Cape Cod Commercial Hook Fishermen's Association/Hook Sector
Cape Cod Commercial Hook Fishermen's Association/Fixed Gear Sector
Mid-coast Fishermen's Association
Northeast Seafood Coalition

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Meeting Summary and Preliminary Agreements

Background

A meeting was held on Thursday, October 11 to discuss monitoring issues that need to be resolved in order to move sector management forward in New England. The specific purposes of this meeting were:

- Develop ideas and a conceptual agreement on the monitoring and reporting objectives for sectors and
- Generate ideas on design and implementation of a monitoring and reporting system to meet those objectives.

Participants heard from others who have helped design and implement new monitoring systems for output-controlled multispecies groundfish fisheries in other regions (British Columbia and West Coast). After some initial discussion of the existing monitoring and reporting system in New England, participants agreed on basic monitoring and reporting objectives and standards that sectors should meet. We also discussed the desirability and feasibility of developing a standardized system of monitoring and reporting to which all sectors will adhere. Below are the agreements made at the meeting.

Meeting Participants

This meeting brought together the organizers and or representatives of current and proposed groundfish sectors. The goal was to have an initial meeting with a small group of the industry working together to agree upon and understand how a new system may be developed. Future meetings will bring a broader group of stakeholders with an interest and role in monitoring (i.e. NMFS, Council Members, NEFMC staff, etc.)

Participants Included:
John Pappalardo, Cape Cod Commercial Hook Fishermen's Association/ Hook Gear Sector
Eric Brazer, Cape Cod Commercial Hook Fishermen's Association/Fixed Gear Sector
Gary Libby and Kim Libby, Mid-coast Fishermen's Association
Jackie Odell, Peter Libro, and Frank Mirarchi, Northeast Seafood Coalition/Sector Leaders
Steve Freese, NMFS Northwest Region (via phone)
Shawn Stebbins, President of Archipelago Marine (via phone)
Dan Holland, Cindy Smith, Meredith Mendelson, and Laura Singer of GMRI

Preliminary List of Agreed-Upon Sector Monitoring and Reporting Standards

1. Vessels should be required to retain and land all legal size multispecies fish (initially), with a goal of full retention of all multispecies fish over a phase-in period.
2. A dedicated, privatized, at-sea catch monitoring program should be established (separate from the NMFS scientific observer program) to monitor catch for groundfish sectors.

3. Electronic monitoring should continue to be explored as a supplementary monitoring tool, along with a process to work through any problems in order to expedite their acceptance by NMFS.
4. Vessels should be required to hail in/out with estimated catch and landing location.
5. The number of landing locations should be restricted in order to account for catch. (Each sector plan decides what those locations are going to be.)
6. There should be third-party verification of landed catch.
7. Sector landings should be reported to the sector manager no later than 24-48 hours. (This does not preclude a requirement for real-time reporting of landings as may be deemed necessary for an associated Sector management program.)
8. A specified percentage of at sea catch monitoring needs to be developed, with a percentage of the TAC rather than trips considered.

Meeting Discussion Details

Expectations for the Meeting

Following are the list of responses given by individuals when asked what they hoped to get out of the day:

- Better understanding of the existing system and its potential
- To learn where we are and how far we need to go
- Firm next steps to move forward
- Trying to make this [sectors] work
- Use it as part of a whole to make community-based fisheries stronger
- Importance of working together to establish standards
- Define minimum requirements that need to be in place for sectors to move forward
- Agreement on a standardized system and a process for moving forward collectively
- Technology and communications are vital to sector success

Clarifying What Monitoring is Conducted

Cindy Smith lead off the discussion by giving an overview of the current monitoring system based on recent conversations she and Dan Holland have had with staff from the Northeast Regional Office (NERO), National Marine Fisheries Service (NMFS) Statistics Office, NMFS Sustainable Fisheries Office, and Vessel Monitoring System. Conversations have not yet been initiated with the Observer Program.

At-Sea Monitoring

A vessel monitoring system (VMS) is now required for all boats in the fishery, and boats are pinged hourly. For the special access programs, B DAS, and US/CA areas, NMFS is receiving almost real-time data from VMS and observers, but this only for certain stocks (stocks of concern and GB haddock) and only for about 150 vessels (~25% of the active fleet). The NMFS Fishery Statistics Office has one staff who processes and posts the cumulative data on the web on

a weekly basis. NMFS does not feel they could process and post this data for the full fleet at the same speed without significant additional resources. The Service can't currently provide sector managers with VMS data, but this might be resolved if sector managers worked through the VMS vendors directly.

An Electronic Vessel Trip Report (EVTR) system is currently being tested on a study fleet of forty vessels. At present, the Cape Cod sectors are only using EVTR on approximately eight vessels. However, as the NMFS infrastructure develops and transmission (satellite and VMS vendor problems) are resolved the Cape Cod sectors foresee expanding operations to all members of both Sectors (~40 vessels), especially if they reach the point where EVTR reporting can replace the paper VTR. Specialized software that runs on a laptop is needed to use the pilot study fleet EVTR system.

Observer data is used for monitoring interactions with protected species and developing vessel discard estimates for assessments and also for the management of Hard TAC's in the special access programs and the US/Canada Areas. In general, it takes two to three weeks to process most of the observer data from each multispecies trip. Observer coverage in the multispecies fishery is estimated at roughly 3-5%, but with a higher target intended. For the special programs mentioned above, the observer coverage is estimated at 30% coverage, though current regulations call for 50% coverage. The major difficulty with increasing observer coverage is the cost. According to the Northeast NMFS Observer Program, observers cost NMFS about $1100-1200 per day [including training, vessel time, data entry and overhead costs]. In the Northeast region, only the limited access scallop fishery has to pay for their own observers at the rate of about $750 per day.

Dockside Monitoring

Each fishing vessel is required to submit a paper VTR data by the 14th of the month for the previous month's fishing activity. However, there is no mechanism for NMFS to enforce the VTR submission requirements until the end of the year when vessels must renew their federal permit for the coming year. VTR data takes several months to process, though the target turnaround is two weeks. Also, while fishermen are supposed to fill out a new VTR in each statistical area that they fish, NMFS acknowledges that most fishermen report fishing in only a single statistical area.

The vessel name, VTR serial number, and landings by species are reported by dealers. NMFS port agents collect data on gear used and area fished which, when combined with VTR and observer data, is used to develop estimates of fishing effort by area. However, because of the limited number of port agents, and the necessary delays in processing VTR and observer data, NMFS has significant concerns about their ability to enforce TAC's by stock area. When there are several sectors operating in a given stock area, it would be easier for tracking the amount of fishing effort and progress toward attaining the annual TAC if vessels were restricted to fishing in only one stock area per trip. This would enable NMFS to more accurately assign catch and discards to the proper stock's TAC. It has been suggested that if vessels are not restricted to one stock area then it may be necessary to assume all landings and discards of a given species are from the area with the smallest TAC. It is important to note that this something under

consideration by NMFS, and it has *not* been made as policy decision. NMFS is grappling with how the monitoring for multiple sectors would work, and the industry may need to lead the Service on this issue. The various NMFS offices have not yet reached agreement amongst themselves on the standards needed.

Monitoring Under the Current Groundfish Sectors

Fishermen are required to notify sector manager when they leave the dock, and to provide a copy of the VTR and dealer pack-out slip within 48 hours of landing. This data allows sector managers to keep tabs on what is happening within the fishery in real-time. Sector managers report monthly to NMFS, and as they approach the TAC it shifts to weekly then daily reporting. Weekly and daily reporting has never been required since neither Cape Cod sector has come close to reaching its TAC.

Sectors are required to have a Board of Directors and an Infractions Committee with according investigative procedures if infractions are occurring that include fees and penalties. Penalties are over and above anything NMFS would assess. The sector Infractions Committee and the Manager utilize penalties such as fines, a stop-fishing order, or expulsion from the sector (which affects the violator's ability to fish for the remainder of the fishing year).

The Fixed Gear sector is pursuing include an additional sector monitoring program, with trained individuals who are collecting data on catch and discards by species, as well as verifying landings. These individuals are not trained the same way as federal (NMFS) at-sea observers, however, because their emphasis is placed on discards.

The Fixed Gear sector is also experimenting with two kinds of electronic monitoring. The first is on board video monitoring and the second is a radio-frequency identification system that identifies tags on gear, allowing monitoring of time and locations. It has not been used on the east coast of the US before, but it has been used in Japan and the Bering Sea.

Electronic VTR (trip reporting) is being developed, but it is currently only used by the study fleet vessels. The sector manager also receives daily electronic feed from NMFS on observer, DAS and VMS information. This gives sector managers additional information to check against what they receive from fishermen. These are some of the tools the Fixed Gear sector is using, and they would need to be modified and advanced to cover a larger portion of the fishery.

Group Discussion

Comment: There are many technologies to measure other items that could be proxies for what the boat is doing.

Question: Do the observers used by the fixed gear sector provide information to NMFS that the Service will use?

Response: No, but that wasn't the intent of the program. The purpose was to put a third party onto the boats to be transparent about what was happening onboard the boats. Ultimately we're going to have to privatize observation.

Question: Is it your idea that the sector manager and the Service would get the electronic information at the same time?

Response: The goal is to go fully electronic but during a phase-in period you'd probably need to keep the paper reporting as well. It depends on the frequency of reporting that the government and Council want to see. At first, I think it would be beneficial to go to the Service and the sector manager at the same time, but ultimately, it would be good if the sector manager held all the information so they were able to audit it and make corrections before they report what's going on, and just report to the government on a schedule that NMFS can handle, and maybe that's monthly and then weekly/daily as the TAC is approached.

Question: Would NMFS be able to allow direct feed of dealer data to the sector managers?

Response: Concern was expressed that the Service would probably not support this idea as they are using that data as the check against Sector reporting.

Question: Can the Cape Cod sectors require people to hail before they land?

Response: Yes. The Hook Sector has used this, when they were experimenting with all the tools available in the first year. One fisherman was fined for an infraction and the sector manager made that person call in after that. If the sector manager is going to monitor the boats and have hands-on accountability, they have to limit the places the boats can land to a geographic area that one or two people can monitor.

Question: *Has NMFS indicated ownership of the information provided by fishermen entering information? Since the fishermen have provided it, can it be sent to a third party?*

Response: The Service can't stop fishermen from reporting that information to another party. We [Cape Cod] are going to start collecting the same data that fishermen and dealers report to the Service, integrated with their protocols in data transmission. It may be because we're so narrow in the dealers we use and where we land, that we may have to get this information from the dealers instead of through the Service.

Comment: Maybe we would have more leverage on this if half the fishery is landing through sectors.

Question: Who's accountable for enforcement—is it sector managers? Is it the individual within the sector? Do you like how you have set it up, and would you recommend any changes?

Response: In a broad sense, everyone is accountable for everything. A black mark on an individual is a black mark on the sector. All sector members sign a binding contract with joint and several liabilities, so there is a lot of self-enforcement. The sector participants are accountable to the sector manager and vice versa. Even though a fisherman is in the sector, they still have to fill out VTRs, etc. If something is going on and sector managers (or sector participants) don't realize it's happening, and NMFS enforcement discovers it, then the individuals who are responsible are definitely on the hook, but each member of the sector is also jointly and severally

liable. The sector could perhaps use additional penalties to punish the responsible individuals above and beyond what the Service might assess.

Question: Is Infractions Committee a subset of the Board?
Response: No. It is not a subset of Board, but Board members can be on it. The make-up of the committee rotates, and it's blind — committee members are not supposed to know who they are reviewing. The sector manager writes a blind narrative. However, in a small group, folks may be able to figure out who the individual is.

Monitoring and Reporting Ideas for an Output-based System

The group was asked to step back and brainstorm about the components of an ideal monitoring and reporting system for sectors. If there were no constraints (financial, political, etc.) what would the ideal system look like? What standards would you want sectors to live under?

The following list reflects the discussion and is in no way qualified or prioritized:

- Electronic reporting system (not paper based)
- Electronic monitoring system
- Ability for sector management to audit
- Full retention of all fish (not just legal-sized) and dockside monitoring
- Modification of gear to larger mesh
- Reduction of legal sized fish
- Change tow duration…make short tows just to see what's there before making longer tows…could reduce catch of spawning fish, or dogfish, or small fish. This doesn't happen now due to DAS restrictions.
- Information sharing between fishermen
- Limit places to land
- Hail requirement in and out with catch estimate by species
- Reported location of landing
- Reported place of sale
- Shift catch monitoring to target coverage of a percentage of catch, not a percentage of trips
- Capacity to identify hotspots based on catch rates for information sharing either internal to sector or across whole fleet to reduce unwanted catch of limiting species
- Capacity to ensure full retention—we don't yet know what this means: is it cameras? Humans?
- Levels of certainty needed should be taken into account when determining observation coverage needed
- Chain of custody—Interstate Shellfish Sanitation Program (ISSP) model?
- Forensic accounting—systems need to be able to be cross-checked with each other
- Monitoring and reporting system should to include an analysis function
- Value added to seafood
- Dockside monitoring with weighmasters

- Concern about small harbors having a weighmaster for small number of vessels—we need to have alternatives to this. Maybe a system on boat that had a barcoded tag for each fish box.

- A suggestion was made to invest in disproving NMFS current assumed discard rates and their assumptions; build in economic incentives to improve and challenge fishermen to have a goal of zero discards.

Lessons Learned from the Pacific Groundfish Fishery

Steve Freese, National Marine Fisheries Service, Northwest Regional Office

Steve Freese is currently working with the Pacific Fishery Management Council and the groundfish trawl fleet to design a new monitoring system. The west coast groundfish fishery includes 83 species, one of which is pacific whiting. Some of the fishery is handled similar to New England where vessels go out to harvest and deliver their catch to shoreside processors. There are also vessels that both catch and process at sea (catcher-processors); and other vessels that receive catch from harvesters but process at sea (motherships). The catcher/processors which handle whiting have formed a cooperative and the Pacific Council allocates them a portion of that species.

In terms of monitoring, vessels delivering shoreside report by filling out a state "fish ticket", and for vessels in Oregon and Washington, they must also file a paper logbook similar to the VTR used on the East coast. NMFS has about 20% observer coverage on vessels that land shoreside, Catcher-processor and at sea processor vessels in the whiting fleet must have two observers on board at all times. For those whiting vessels that land shoreside, NMFS uses a camera monitoring system. There is supposed to be no discarding, but it has recently been discovered that there are "operational discards". The Agency, Council and industry are working to improve communication and intent with regard to catch monitoring.

The Pacific groundfish fisheries are managed based on a hard Optimum Yield (OY). There are bycatch caps for certain species, and some, if met, can shut down the whiting fishery. NMFS is currently subject to a series of lawsuits claiming they are not doing enough for bycatch, that monitoring is not effective, and accounting is not adequate. Aside from the whiting fishery, the groundfish fishy is managed with bi-monthly trip limits to spread the fishery year round. Mesh size is not used as a management tool, but many other traditional tools, like large area closures, seasons, etc. are used on the west coast.

The Pacific Fishery Management Council has been trying to move to Individual Transferable Quotas (ITQs) for groundfish for several years; but whiting has wanted to go to a co-op. The catcher-processor co-op is nice and steady, operating for several years and doing well. However. interest from by the Alaska-based catcher-processors in whiting has driven the Pacific whiting catcher-processors to ask for limited entry to protect their co-op. The same is being requested in the mothership and shore-based whiting co-op request. There's a question of whether co-ops can do a better job of making sure the quotas aren't exceeded or if ITQs can do a better job.

In development of co-op systems, several issues have come up. Will you allow discarding at sea or not? And if so, how do you measure and account for them? What is acceptable? Cameras have shown there are operational discards occurring despite NMFS' intent for no discarding at all. Terminology and communication is important. NMFS needs to inform the co-ops and come up with agreed-upon rules of how the co-op should operate. Tracking catch and monitoring is not yet resolved. Everyone is calling for 100% monitoring at sea, but no one is quite sure what that means and how to pay for it? Does it require human observers at all hours? What's the role of cameras? Of VMS? Of logbooks?

This summer NMFS is experimented with gear sensors and electronic logbooks linked to the vessel's VMS, so they can identify when vessels are setting nets in particular areas.

The Pacific Council has stated goals and objectives:

- to provide a mechanism for total catch accounting,
- to minimize ecological impacts,
- to take into account and ensure total biological catch isn't exceeded,
- to provide efficient and effective monitoring and enforcement,
- to take into account management and administrative cost of overseeing IFQ and monitoring programs given limited state and federal resources.

The best method for industry to pay for monitoring and reporting is unclear.

Group Discussion

Question: What is an "operational discard"?
Response: Fish left in the net after being dumped into the hold. The fish being hosed out of the net are called operational discards. The price of whiting has doubled in recent years, so the pressure not to report landings of these bycatch fish is high, and the pressure to not be the fisherman who closes the whole fishery down due to bycatch is also quite high.

Question: Could you explain more about the dockside monitoring component?
Response: At the moment, port sampling is done primarily by state samplers funded by the states; additionally, NMFS funds some port samplers through a grant to the Pacific States Marine Fisheries Commission. In some cases, industry itself has hired extra people to monitor catch. They tend to be processing plant employees, which causes NMFS a bit of concern since they may not be objective. There is an estimated 20-25% dockside monitoring. NMFS is asking processors to pay for data quality monitors—people who are trained to count, measure, and identify fish—trained by a third party and hired out by the processors. There is also 100% state fish ticket reporting dockside. The fish tickets are filled out by the processor but signed off by *both* processor and fishermen. The purpose is for state tax revenue, even though they're used for management as well. There is also about 95% compliance with the mandatory trawl logbook (which provides tow by tow information).

Question: Can you give us an idea of the general sentiment out there? How do fishermen feel about this? Has their mindset changed at all during progress in monitoring shifts?
Response: NMFS started this discussion five years ago, and the fishermen are coming around on the 100% observer coverage.

Question: What does the observer coverage cost? It is estimated at about $1100 per day in the northeast, including overhead for data processing, but the contract with the observing company is believed to be about $700 per day.
Response: For whiting, it's $600-700 per day. However, in the North Pacific, it's $300-350 per day because they can put an observer aboard the boat for a month or two at a time, while on the west coast the trips are shorter so you have to have more observers waiting for the boats to show up. It is estimated $300 per day for the Canadian groundfish fishery. The advantage for the Canadians are the limited ports and limited trawlers, so the logistics for picking up an observer are easier due to smaller coastline. Costs associated with observers are a function of the fishery itself, the number of boats, the length of coastline, etc. In Canada, employees don't have to pay health care and insurance costs that can be substantial in the United States.

Question: What is the makeup of the fleet and their daily gross revenues?
Response: For the shoreside trawl fleet, there are 120-160 vessels with an average length 60-70 feet. Daily revenue figures would need to be calculated.

Observers versus Catch Monitors

The group discussed clarifying the terms "observers" and "catch monitors". There are observers for at-sea monitoring and data collection for assessments and interaction with protected species. Alternatively, there are "catch monitors" for monitoring and enforcement of catch and discards at sea. The cost associated with an observer includes all the training and biological data collection that NMFS requires. Meeting participants agreed that this level of training required for at-sea observing may not be necessary for sector monitoring and there should be a clear distinction made in discussions with fishermen and others. Monitoring needs for sectors are different than the monitoring needs of NMFS and others. Steve mentioned that his observers are used primarily for catch monitoring, which is very different than how NMFS in the Northeast uses their observers. There is shoreside and at-sea catch monitoring, and each of those needs to be discussed separately.

In the Northeast, NMFS has maintained that observers should not perform an enforcement role, and they don't want to put them in that position.

As long as it is only bycatch being monitored, the cost should be less expensive because a trained biologist is not necessary, but it's still costly to send someone to sea. An estimated $200 is going directly to the observer, so maybe the overhead costs can be reduced in some manner.

If the groundfish fishery goes to a no-discard policy (and we haven't defined what that is) then the role of the observer becomes very different. Right now, observers are measuring something that can only be sorted aboard the boat. Much of that function could be absorbed dockside if

everything is landed. On the other hand, science on spawning concentrations, gear impacts, etc. needs to continue.

There was significant agreement on the importance of making a clear distinction between catch-monitoring and scientific observers. Catch monitoring and scientific monitoring need to be disassociated. Catch monitoring should be made more pervasive, while scientific monitoring may go on as usual with no enforcement role at all.

The Fixed Gear Sector has been using interns to identify and enumerate the catch. Their role is to see everything brought up in the nets and where it goes from there. They are trained in identification on land, then taken on the water for further training. They are monitoring gear limits, recording protected species interactions, as well as taking location, length and weight data. Primarily they are monitoring discards of cod. Thus far, the Sector considers it a successful data collection program and it is continuing through the fall. Catch monitors are insured through the CCCHFA insurance.

Lessons Learned from Atlantic Canada

Cindy Smith gave a brief overview of the monitoring system in Atlantic Canada. She spoke with a vessel and quota owner of five boats, which run 5-7 day trips from Nova Scotia.

Weighmaster
The weighmaster system they are required to use was started by the government but is now conducted by 5 or 6 private companies. The companies have to be accredited by the government. The company he uses most often charges a flat rate of $225 for 2 hours, and if it takes longer, then there is an hourly rate added. The catch is not weighed at the dock, but the vessels are required to have a weighmaster witness the unloading of the vessel. At the processing plant, the weighmaster witnesses and records the catch by volume and species.

Observers
Observers are required at the request of the government. They aim for about 10% in the nearshore fisheries and as close to 100% as they can get for the Georges Bank ITQ fishery. Vessel owners pay about $350 per day for the observer and the government pays the administrative costs because they use so much of the data that the observer collects. The government has about 2 or 3 contractors that supply observers for the fishery.

Interactive Voice Recording
Vessels are require to call in when they leave the dock and report where they expect to be fishing and when they expect to be back. When they are offshore they must call in every day and report how much fish of each species they have on board. They have to call in 3 hours before arriving at the dock so the weighmaster can meet them. At that call they have to report where they will land, when they will be unloading and who will be doing that unloading. They cannot move fish without a weighmaster present.

Lessons Learned from British Columbia

Shawn Stebbins, Archipelago Marine Research Ltd.

Archipelago started as at-sea observers in foreign fisheries and has now shifted over to 95% domestic fisheries. Archipelago made this shift and grew because of increased desire from industry and government for increased monitoring in the late 80's which further increased in the 90's. Archipelago was well poised to participate in those processes, primarily in groundfish but also in some shellfish species as well. It was not all government funded, rather the majority was industry funded. What motivated the change was concern about stock management, but largely the business of fishing and a desire to move to share-based systems, or ITQs. The industry wanted to be able produce a better quality, higher valued product, and they wanted to ensure that they could catch their allocation and that no one in the fishery was exceeding their allocation (thus threatening the whole fishery). Monitoring changes included an improved logbook system, hailing requirements, observer coverage, dockside monitoring and verification of landed weights. These things were all useful for managers and scientists, but were driven by industry who wanted a transparent system to show that everyone was only taking their fair share. One would need to talk to industry to find out if they think they've been successful, but from Shawn's perspective the monitoring programs have all been quite successful and have produced useful and defensible data that serves as a basis for defense against environmental groups or fisheries managers. Industry is really finding this as a benefit and they have even seen some increases in quotas as a result of the data.

Archipelago has a variety of monitoring programs for the various fisheries on the West Coast of Canada, including the larger offshore commercial groundfish trawl fishery of over 100 boats, both large and smaller vessels that fish inshore and offshore, midwater and bottom trawling. This is a year round, large fishery that was shut down for a while due to low stocks. One condition for re-opening was 100% at-sea observer coverage for the trawl fishery. The industry was opposed at first because it was intrusive and expensive, but as mentioned previously, it ultimately produced real, defensible data that could use in management meetings, and that was beneficial to the industry. Once everyone was comfortable with the numbers, they moved to an ITQ system. The species in the fishery are divided into 56 different regional quotas o it's a complex system. When BC moved to ITQs, there was already a dockside monitoring program in place but it became more important to measure landed weight by species as well as by location from which fish were removed. The dockside reporting was used as groundtruthing for the at-sea reporting.

The inshore smaller boat fleet required a different strategy to monitor their catch and releases at sea. There was only ten percent observer coverage at one point, but now the inshore fleet is using electronic video monitoring and there's an audit program of the video monitoring. It's still too early to gauge the efficacy of video monitoring, both from an economic and management perspective.

The longline fishery used to have individual quotas but they had no way to account for bycatch, so there was lots of discarding of non-target species. But now any boat with a license has a quota of every type of fish they might catch, and they can purchase additional quota if they didn't have it at the time of catch. This is has provided the incentive for fishermen to avoid

bycatch of non-targeted species. In this fishery, while 100% of certain species must be retained, for other species there are minimum sizes. The video cameras are being used to monitor fish being returned to the water to verify the species and size of those particular species.

Different fisheries are looking at what it's going to take to meet the more stringent monitoring requirements, and it appears that changes in Magnuson Stevens will require the US to go through similar changes.

Archipelago is currently doing a 10% audit of fishing activities due to the desire to minimize costs. The fishermen's logbook is the primary tool for monitoring bycatch and catch. The dockside monitoring verifies landed weight. For fish released at sea, Archipelago audits 10% of the tow. That's the way it has to work in the BC fishery, but the northeast could have a different unit, like a day or trip based on how the fishery works.

Group Discussion

Question: Can you elaborate on the inshore small boat fishery?
Response: They land daily and may fish a few days a week. A variety of triggers for the camera are used to identify that fishing activity is occurring, whether it's a drum sensor, or something else. The objective is to minimize the amount of data collected due to storage and cost minimization. Data is not collected daily, but only when they are actually hauling back, actively fishing. Archipelago is currently using removable media because of data size limitations, again. In the future they are looking to reduce labor costs by having the fishermen remove the data themselves and sending it in. These programs are administered by an independent third party (Archipelago), and that has offered a lot of credibility to the process because the company has no stake in the fishery other than doing a good job of what they've been hired to do.

Question: What are the tradeoffs between at-sea monitoring and dockside monitoring?
Response: There's a tradeoff between providing good services and also providing the most cost-effective service. It's possible for a service provider to provide service in every nook and cranny along the coast, but it's also expensive. Part of this is travel, and part is maintaining a staff of trained professionals capable of meeting the landing patterns of the fleet. Archipelago has primary landing ports, which are full service landing ports, which is the most cost-efficient way to land, but levels of service can also be created in other locations and the extra cost associated with using those ports is cost-recovered from those who use them.

In terms of observer coverage, it's a fairly costly proposition, and the vessels are trying to reduce their costs of course. So the offshore trawl fleet also wants to use electronic monitoring, but it isn't going to offer an effective mechanism to enumerate catch by species. That being said, if you had a rule that if a boat went out, they agreed to only fish in one region and not discard anything, then you can use video cameras to verify that there's no discarding. We use that in the whiting fishery and it's fairly effective. But then you need a dockside monitoring program to verify catch, and you have to be willing to give up space and land everything you catch.

Question: Since you have a hail in requirement, why did you go with 100% dockside monitoring, instead of an audit of some percentage?

Response: That would be a better question for the fishermen and regulators who made the regulations. Perhaps the biggest reason is a desire from the fleet for internal fairness. They don't want any possibility that another fisherman can take advantage of the system. But it's worth exploring a lower level of coverage. What would be important is what the consequences would be if someone were found to be out of compliance with the landing requirements. The agency's enforcement funds are really low in Canada, and so that has pushed the way a lot of things have evolved.

Question: Can you talk about what the fishery was like before this program went into place?

Response: In the halibut fishery, it used to be open for a couple months a year, and that went down to one day per year, and there were significant market competition and safety issues that went along with that. Overnight, when we went to IQs, each business would work their fishing around other fisheries, fishing when it was convenient, developing long-term employees with increased professionalism, increased level of quality of catch and increased value. Now they're looking at tagging, traceability MSC certification—trying to get each penny out of their catch instead of just trying to catch as much as they could in a short period of time. In other fisheries, there is also increased flexibility, so they're looking at live delivery instead of iced. That's one of the trends here in terms of value-added. So overall, there has been increased opportunity to develop the business plan, increase quality, and professionalism of the fleet.

On the downside, there are increased costs to monitoring. However, the positive increases in price have more than compensated for increased monitoring costs. Hailing is a bit of a hassle for the boats, as is decreased flexibility on landing locations since a dockside monitor is not always available exactly when needed. Logistics are a little more involved for the fishery, but it's not too bad. The other downside can be fleet consolidation. Now the focus is on efficiency - the most efficient size and capacity of a boat and number of trips per year. Quota can now be consolidated onto one boat instead of spreading it across several. That's a significant change, and the government has been happy with that because it's easier for them to monitor fewer vessels on the water. Confidence levels in the extraction has been improved as a result of better monitoring, though, and that has had a positive impact.

In the trawl fishery, it was formerly a freewheeling fishery with no limits on days that could be fished but sometimes monthly trip limits were implemented when it was clear that quotas were being exceeded. There was no understanding of what was being discarded at sea because there was no at-sea monitoring. Basically it was a formula for heavy discarding at sea. Finally this came to a head when a few fishermen brought it to the government and made it an issue, and also when a few species were overfished. The fishery was shut down overnight, and it was only reopened on the condition of full observer coverage. That's how observers got implemented in the trawl fishery. Within two years of having observers, they moved

to an IQ fishery and the fishery was open year round with increased flexibility and increased value with very few restrictions on what they could do due to the ability to trade quota based on what they wanted to and could catch.

Question: What does the industry have to pay for observing coverage?
Response: For at-sea observing, the government subsidizes the cost based on the difference between administrative and observer-based costs. Administrative costs include training observers, management of the program, and processing of data. These costs are paid by the government. Anything related to the observer such as the briefing, debriefing and travel and labor costs of the observer is paid by the industry. Archipelago charges by the sea day, at about $345 per day, starting the minute the observer steps onto the vessel through the moment they step off. In terms of the government's cost, it's about $150 per day, which makes a total of about $500/day. Dockside monitoring costs are by the monitoring hour at the dock, which might be $30-35 per hour. But with administrative costs and data recording/reporting, management, etc. included, the range is from $60/hour (from the largest volume, lowest cost program) to $140/hour (smallest volume, highest cost). That's for a full-service program, including the logbook and hail program, as well as the dockside monitoring. Electronic monitoring is hard to nail down due to scope of programs, but in terms of services associated with electronic monitoring program, the cheapest one is around $120 per sea day, and the most expensive are over $250 per day.

Question: What are the up-front costs of the electronic monitoring package?
Response: This depends on what is required, but the lowest cost would be in the neighborhood of $2,500-$4,000 for a small volume fishery, without cameras (like VMS, but with sensors to determine fishing activity and where it takes place). A full system, including a few hard drives for data and cameras, more like $8,000. Each fishery's circumstances require an individual analysis to determine the needs and costs.

Refining Objectives and Standards

The group refined the original list of monitoring and reporting ideas into the following categories and started to work through defining what was intended by the idea and agreeing on standards.

At-Sea Monitoring
- Discards—legal and sublegal / Full retention
- Human data collection: x% of TAC
- Electronic verification--video

Dockside
- Hail requirement in and out with catch estimate
- Reported location of landing
- Reported place of sale
- Dockside monitoring with weighmasters
- Chain of custody—ISSP model?

Reporting

- Frequency
- Transparency of information
- Technology
- Privatized
- Analysis

Cross-System

- Information sharing between fishermen
- Value added to seafood
- Technological solutions
- Forensic accounting

At-Sea Monitoring

Full retention of all fish?

- This may be the goal, but not sure it's attainable yet.
- If we don't have it, do we accept assumed discard rates? Or what?
- Sectors may want to pay the costs for increased monitoring to show that they are below the assumed discard rate.
- This gets more complicated with species that are not part of the multispecies plan. So maybe you could have full retention of multispecies and eventually, full reporting of all species, even those that are discarded.
- But if you don't have 100% human data collector coverage, will NMFS accept at face value that no groundfish is being discarded?
- We may need to consider what Alaska is doing—phasing in increased retention over time.
- Aren't we creating a loophole for the common pool then to have small fish unaccounted for? Does it create a black market for common pool fishermen to bring fish into a port without any oversight, trucked it to the market and compete against sector fish which are legitimately landed and accounted for?
- That just underscores the need for dockside monitoring and a chain of custody program.
- Yes, change brings new problems, but we have to be vigilant not to dismiss the possibility of improvement with the unknown and new just because it may not be perfect. What we have now isn't perfect either.

Human data collection: what percentage of TAC?

- We don't know. We have to see what we find out after we pick a number and try it.
- You can't rely on past observer data to determine what we can expect to see under sectors—it's a whole new world.
- What percentage of certainty do you want? 100%? 90%?

- I want a better than 50% chance that we're right. In some cases, higher than that.
- Bias is inevitable since a person with data collectors on board has different incentives than one who doesn't have a collector on board.
- No one wants to answer this question—that's why NMFS said they would take it off the top.
- I'd like to see 100% coverage at sea and dockside, but not have the industry have to pay for it! But that's not realistic, and I know it's going to be expensive.
- Perhaps we should substitute an electronic monitoring system with some amount of human observation component.
- I don't think we can get to a number.

Electronic Verification

- Electronic monitoring should continue to be explored/developed, but not required.
- The Standard Bycatch Reporting Mechanism rejected it because it has not yet been approved…I would advocate for expedited approval process.
- Using video to monitor discards under a full retention policy would be relatively easy because it can be audited at high speeds. But if you want to use video for monitoring size and species caught, that would not be possible with current technology.

Dockside Monitoring

Landing Designations

- There should be a limited number of places to land if you're in a sector; it can't just be anywhere a truck can pull up to a pier. But it should be reasonably in line with current landing practices.
- It might be sufficient to combine a hailing requirement with the threat that ten or twenty percent of the time someone will be there to confirm that what you reported about where and what you're landing is true.

WeighMasters/Monitoring Off-loading

- We're going to have to make provisions for top-tier weighmasters. In the Canadian Maritimes, there are authorized transporters who can transport the fish to the weighmaster at the major ports. Of course there's an associated cost, and the farther you are from the major ports, the more expensive it is for you to land your fish.
- You could also push your town selectmen or regional councils to help subsidize those costs if it's economically valuable to your communities.
- Or you could have people in the community who are certified as both weighmasters and at-sea observers.
- The more often fish are handled, the more the quality is degraded, so I'm not wild about this idea. Part of our quality control is the lack of handling until the fish is being processed. Having someone at the processor doesn't help, because how do you verify that the fish that went into the truck in one place are the same fish that

came out at the processor? I think weighmasters at the dock may be more than we need.
- That highlights one of the benefits of at-sea monitoring. If it's being monitored before it's boxed and iced and certified at sea, then the fish don't need to be handled again.

Frequency of reporting

- VTR/VMS/dealer report needs to be linked with area-specific data
- Reporting to the sector manager within 24 hours of landing seems reasonable.

Transparency of information

- Attribution to stock areas comes into play here.
- At what point does sector manager have info? NMFS? Rest of world?

Preliminary List of Agreed-Upon Sector Monitoring and Reporting Standards:

1. Vessels should be required to retain and land all legal size multispecies fish (initially), with a goal of full retention of <u>all</u> multispecies fish over a phase-in period.
2. A dedicated, privatized, at-sea catch monitoring program should be established (separate from the NMFS scientific observer program) to monitor catch for groundfish sectors.
3. Electronic monitoring should continue to be explored as a supplementary monitoring tool, along with a process to work through any problems in order to expedite their acceptance by NMFS.
4. Vessels should be required to hail in/out with estimated catch and landing location.
5. The number of landing locations should be restricted in order to account for catch. (Each sector plan decides what those locations are going to be.)
6. There should be third-party verification of landed catch.
7. Sector landings should be reported to the sector manager no later than 24-48 hours. (This does not preclude a requirement for real-time reporting of landings as may be deemed necessary for an associated Sector management program.)
8. A specified percentage of at sea catch monitoring needs to be developed, with a percentage of the TAC rather than trips considered.

Next Steps

- Participants agreed another monitoring meeting was needed but perhaps further down the road after operating plans are worked out.
- Synthesis of these minutes and redistribution to group for sign-off and use with organization Boards and membership was identified as the most immediate step.
- A suggestion was made to pass-off the notes to Associated Fisheries of Maine as well for their review and use.
- It was noted that the group really needs to get more specific in order to hand something useful to the Council.

Appendix

Agenda

9:30 **Opening and Introductions**

Review meeting objectives, agenda and ground rules

9:45 **Clarifying What Monitoring is Conducted Now – (Discussion led off by reports from Cindy and Eric)**

There are established at-sea and dockside monitoring programs currently being conducted by NMFS and existing sectors. The goal is to establish mutual understanding of where we are currently before we launch into a discussion of what changes are needed for a new monitoring system.

10:15 **Initial Agreement on the Requirements of an Output-based System**

What are the elements of the current system that are not satisfactory for an output-based management system such as sectors? What are the critical components for objectives and standards? Will there be different incentives that create different monitoring needs?

11:15 **Lessons Learned from the Pacific US**

On the Pacific coast of the US, NMFS is working to establish a new system to monitor quotas in the groundfish fishery. We will hear from Steve Freese (NMFS Northwest Region Economist) what the standards are, how they are being implemented and lessons learned.

12:30 **Lunch**

1:30 **Lessons Learned from Atlantic Canada**

The groundfish fishery in Atlantic Canada operates under output controls has 100% dockside monitoring using weighmasters, daily at-sea catch reporting and varying degrees of observer coverage. We will hear a brief description of the monitoring and reporting system used in the Atlantic Canada groundfish.

2:00 **Lessons Learned from British Columbia**

The groundfish fishery in British Columbia implemented an ITQ system several years ago and implemented a new dockside and at-sea monitoring system with it. Shawn Stebbins, President of Archipelago Marine will join us (via telephone) to discuss the monitoring system in place in B.C. groundfish. Archipelago currently has contracts with the industry and the government respectively to run the dockside and at-sea monitoring programs for the fishery. Although their system may not be appropriate for New England, there is a great deal to be gained from learning about their experiences.

3:00 **Refining Agreed Upon Objectives and Standards for Monitoring and Reporting of/by New England Groundfish Sectors**

We will try to agree on the objectives of the monitoring and reporting system and the elements of a comprehensive system including at-sea and dockside monitoring and reporting requirements.

3:45 **Generating Ideas for How this Would be Implemented**

New monitoring systems require innovation and resources. We will begin the discussion of how a new monitoring system may be further developed and implemented in New England; what role the industry wants to play; and how to move forward.

4:30 **Next Steps and Follow-Up Dates**

We will define a specific action plan for next steps with dates and assignments (as appropriate).

5:00 **Adjourn**

Ground Rules

- Interests before positions.
- Look for areas of agreement.
- Offer solutions.
- Listen to understand.
- No need to repeat.
- Minimize distractions.
- We all have a piece of the answer.