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**Testimony on Data Collection Issues**

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**Subcommittee on Fisheries, Wildlife, Oceans and Insular Affairs**
**Natural Resources Committee**
**United States House of Representatives**

Chairman Fleming and Members of the Subcommittee, thank you for this opportunity to testify on data collection in our Nation's fisheries.

I am a commercial fisherman and have been for 30 years. I served on the North Pacific Fishery Management Council from 1992-2001 and continue to actively participate in the Council process. I am the Executive Director of the Alaska Longline Fishermen's Association (ALFA), based in Sitka, Alaska, and am representing ALFA's over 100 members with this testimony.

ALFA members participate in the halibut/sablefish catch share fisheries, which are fixed gear or hook and line fisheries managed with Individual Fishing Quotas (IFQ). Our members are deckhands or owner/operators of vessels that range in size from open skiffs to 72 foot vessels, but the majority of the vessels are less than 60 feet in length. ALFA is a community-based organization with a strong commitment to sustainable fisheries and healthy fishing communities.

ALFA recognizes the importance of accurate data collection and the role it plays in science-based fisheries management. Over the years, our Association has engaged in multiple research projects, including a number of cooperative research projects with the National Marine Fisheries Service ("NMFS") in order to improve the data collection program so that we can better manage our Nation's fisheries. Of particular relevance to this hearing is ALFA's recently completed two-year electronic monitoring pilot program. This pilot program was funded by a

National Fish and Wildlife Foundation Fisheries Innovation Fund grant. Our project partners were the NMFS Alaska Fisheries Science Center and other Alaska-based fishing organizations. Our goal was to assist in developing an electronic monitoring ("EM") system that could be used to improve fisheries data collection when Alaska's Restructured Observer program would be expanded to include small boats. We were specifically interested in improving deployment efficiencies and paving the way for a full scale cost effective EM program that met NMFS' data needs in the halibut/sablefish IFQ fisheries. More on that project later; but first some background on Alaska's observer program.

**North Pacific Observer Program**

The Alaska groundfish industry has operated with an industry-funded observer program for over 20 years. Until 2013, observer coverage requirements were based on vessel size, with vessels between 60 feet and 125 feet required to carry observers for 30% of their fishing time, and vessels over 125 feet operating with 100% coverage requirements. Halibut boats and boats less than 60 feet were exempt from coverage. Vessel owners were responsible for arranging observer coverage with observer contractors. Vessel owners also paid for that coverage through a "pay-as-you-go" system – vessels that carried an observer paid a daily fee to the observer contractor. Vessels that did not carry an observer, or were exempt from coverage, did not pay a fee. For years, NMFS has managed major groundfish fisheries based on the data collected from these observers and has opened and closed target fisheries when bycatch caps for halibut, salmon or crab were reached. NMFS and the International Pacific Halibut Commission ("IPHC") have also successfully managed the non-observed groundfish and halibut fisheries relying on stock assessment surveys and dockside sampling for biological data and shore-side delivery systems for catch accounting.

**Restructuring the North Pacific Observer Program**

In 2010, the North Pacific Fishery Management Council ("Council") initiated amendments to change the observer fee structure and the observer service delivery model for partial coverage vessels. The Council also identified an interest in additional at-sea monitoring of halibut vessels and groundfish vessels less than 60 feet. NMFS clarified that the agency's

"primary monitoring need" for the halibut/sablefish fleet was "total catch composition and species discards, to complement the existing [International Pacific Halibut Commission] dockside monitoring program.**"**[1]

In 2013, the restructured observer program was implemented. Under the new program, all fishermen operating in federally managed halibut and groundfish fisheries off Alaska pay a percentage-based observer fee on ex-vessel price[2] of the fish they deliver, whether the boat carries an observer that year or not. The program also authorizes NMFS to require observers on any size vessel and, for the first time, on halibut vessels. In these first years of the program, boats 40 feet and longer are being randomly selected for coverage.

Early in the restructuring process, ALFA and other organizations representing small, fixed-gear boats made clear to the Council and NMFS that our members support at-sea monitoring and are willing to pay a fair share of at-sea monitoring costs. We believe in improved data and support that objective. However, small boats represent 90% of the vessels directly regulated under the new observer program, and placing human observers on these vessels presents special problems.

Two options are available for gathering at-sea data: human observers or EM. EM uses cameras, video equipment, and sensors on fishing vessels to record catch and vessel position. For the small boat fleet, EM is a better option to gather needed data. EM is a better option because working space on Alaska's small boat fleet is limited and living space is cramped at best. Fishermen, fisher women, and fishing families spend months living in a space that is roughly equivalent in size to a station wagon. Fishing time is weather-dependent, and boats can wait in town for weeks for fishable weather. Few boats have an extra bunk to offer an observer, and almost none can provide privacy. Observers must be fed and housed during and between fishing trips and vessel owners must purchase personal indemnity insurance and add safety equipment to accommodate observers. Observers need space for their sampling equipment and room to work both on deck and in cramped living quarters. In sum, human observers impose costs, safety issues, intrusions, and disruptions for small fishing boats and their crews.

In contrast, EM equipment collects necessary data without any of these issues. An EM unit sits idle while the boat waits for safe fishing weather, requiring neither a hotel nor food. EM

[1] http://alaskafisheries.noaa.gov/npfmc/PDFdocuments/conservation_issues/Observer/311_OACreport.pdf

[2] In theory, the observer fee is to be paid equally by fishermen and processors. In practice, NMFS and the Council acknowledge that the entire fee will likely be charged to fishermen.

units do not need bunk space to sleep. EM units do not get seasick, nor are they precluded from working on deck by safety concerns during particularly rough weather.[3] Vessel owners do not have to buy additional safety equipment or purchase liability insurance for EM units. EM automatically turns on when a boat sets or hauls gear, providing an accurate and re-creatable record of catch. And EM is accurate. To quote a 2009 article that evaluated EM monitoring of yelloweye rockfish:

> Since these data come from video footage collected at the moment of capture, the video estimate cannot be corrupted by misreporting of discards or by dumping fish after being retained. Thus, the video data provide an unbiased and virtually independent catch estimate – rare in fisheries monitoring – that captures the extent to which the official catch accounting systems might be biased.[4]

Alaska's halibut/sablefish fleet uses hook and line gear to harvest fish. Fish are hauled aboard one at a time, which makes this fleet particularly well suited to EM. As each fish is brought aboard, it can be recorded on video. Likewise the gear, a single line with hooks attached, is deployed from one point on the boat and can easily be video monitored. In short, EM can be used to secure the catch and bycatch data NMFS identified as its objective for this fleet.

To ensure EM was ready for implementation concurrent with the 2013 launch of the restructured observer program, ALFA initiated the EM Pilot Program mentioned in the opening paragraphs of this testimony. Likewise, the Council signaled its intent that EM be used as an alternative to human observer coverage. The Council stated:

> "The Council also approved a motion to task the Observer Advisory Committee, Council staff, and NMFS staff to develop electronic monitoring as an alternative tool for fulfilling observer coverage requirements with the intent that it be in place at the same time as the restructured observer program."[5]

[3] http://www.afsc.noaa.gov/Publications/AFSC-TM/NOAA-TM-AFSC-213.pdf. *See* page 54.
[4] http://dx.doi.org/10.1577/C09-005.1.
[5] http://alaskafisheries.noaa.gov/npfmc/PDFdocuments/conservation_issues/Observer/ObserverMotion610.pdf

In the pilot program, ALFA's responsibility was to refine EM deployment and operation, capturing costs and equipment effectiveness. NMFS' role was to identify the performance standards and regulatory structure necessary to integrate EM with the restructured observer program. As the Council noted, the pilot program was "intended to provide operational experience and thus a basis for adding any necessary specificity to the regulations."[6] I have included a copy of ALFA's EM Pilot Program Final Report with this testimony, but have summarized the results below.

EM lived up to the fleet's expectation regarding performance, dependability and costs. ALFA contracted with Archipelago Marine Services (AMR), the Victoria-based company that has so successfully developed and deployed EM systems on Canadian halibut and groundfish vessels, to provide the necessary hardware and software for the pilot program. AMR's expertise and knowledge of the fishing fleet were significant factors in the pilot program's success. Over two years, EM systems were deployed on 41 fishing trips and monitored 215 longline hauls. The EM systems captured a complete video record of 95.3% of the hauls. Notably, 94% of captured fish were identified by species, with the remainder identified to a species grouping (*e.g.*, rougheye/shortraker rockfish). It is also significant that at $200-$330 per day**,** EM monitoring costs were less than observer costs under Alaska's previous "pay as you go" observer program and less than 1/3 of the observer costs under the 2013 restructured observer program. In short, EM proved reliable, cost effective, and fully capable of providing the assessment of catch and catch composition that NMFS identified as the primary monitoring objective for this fishery.

Bolstered by this success, EM was included as an alternative to human observers for the halibut/sablefish IFQ fishery in the proposed rule that was reviewed by the industry and recommended by the Council. To our dismay, NMFS subsequently dropped EM as an alternative to human observers, stating the observer amendment lacked the necessary specificity. In its place, NMFS is providing a voluntary EM pilot program that supplements, rather than acts as an alternative, to human observer coverage.

[6] http://alaskafisheries.noaa.gov/npfmc/PDFdocuments/conservation_issues/Observer/Council_EMLtr051412.pdf.

**Where We Are Now**

Although the cooperative research program conducted by ALFA and NMFS, the Canadian experience, and 20 other EM pilot programs demonstrate the success of EM, NMFS remains reluctant to use EM as an alternative to human observers. We understand that the technology will continue to evolve and improve but we feel strongly that we should not let the perfect be the enemy of the good. Alaska's small boat fishermen believe NMFS' fears are inconsistent with the proven history of EM in the U.S. and Canada, and that adequate technology is available now to integrate EM with Alaska's restructured observer program. I would like to take this opportunity to address some of the issues that have been raised and to relate some of the ways those issues have been resolved.

**What EM Can Do**

Biological data

NMFS and the IPHC currently secure "biological samples" from the sablefish and halibut stock assessment surveys and from the commercial fishery through at-sea and/or dockside samplers to meet stock assessment needs. Both sablefish and halibut fisheries have annual, resource-funded surveys (i.e., the fish are sold to off-set survey costs) that collect most of the information needed for stock assessments. The sablefish stock is managed with an age structured model that uses approximately 1,200 otoliths, or ear bones, collected from harvest in the commercial fishery each year. Currently, observers at-sea and in shore-based processing plants collect 3,000 to 5,000 sablefish otoliths each year, but only 1,100 to 1,200 are actually aged and used in the assessment.[7] The IPHC uses dockside samplers to collect biological information from the commercial fishery for the halibut stock assessment.[8] This collection program is funded and conducted independent of the observer program. Of the bycatch species taken in these fisheries, only rougheye rockfish has an age structured model and this model uses approximately 300 to 400 otoliths in total which are currently collected from the fixed gear and trawl fisheries. All other rockfish species taken as bycatch have stock assessments that do not

[7] http://access.afsc.noaa.gov/al/searchform.cfm.
[8] http://www.iphc.int/publications/rara/2010/2010.67.Commercialcatchsampling.pdf.

rely on biological samples from the commercial fisheries. In other words, EM does not need to provide biological data for the halibut/sablefish fisheries. A working system is already in place.

When designing a monitoring program, it is essential that managers first conduct this kind of fishery specific assessment. Managers should ask: what data and biological samples do fishery managers need and how much of that data will be used? These questions should be separated from: what data and biological samples can be gathered? For example, if stock assessment scientists are not using an age structured model, how relevant is age data? If they are using an age-structured model and that model requires 1,000 samples – who benefits by observers collecting 3,000 samples?

Second, managers need to consider the full suite of management tools available to collect necessary data, including biological samples. To quote one of the Guiding Principles identified by a team of fisheries experts who met in April, 2011 to develop guidelines for fisheries monitoring programs: "Monitoring programs should consider a comprehensive suite of monitoring options and should be as thorough as possible at the outset of the program."[9] Can the data be collected shore-side through dockside sampling? Can sufficient samples be collected from survey boats or larger commercial boats harvesting the same species? If some at-sea biological sampling is needed beyond what is currently gathered – how much? Collecting more data than NMFS has the resources to analyze or use accomplishes nothing at great cost to the industry. A careful evaluation of the data that is actually needed dictates the type of data collection program that is required. As to our fisheries, biological data is already being gathered. If there is, in fact, a need for more such data, it can be gathered when the vessels bring their catch to shore or by the larger vessels participating in the fishery.

Length and Weight Data

EM is currently used to gather length and weight data from commercial fisheries. In Canada's west coast halibut and groundfish fisheries, vessel owners have the option of attaching a brightly painted "measurement board" sporting horizontal stripes of contrasting colors to the side of their boat where the fish are brought aboard so the EM unit can record the length of any released fish. Remember that in these hook and line fisheries fish are brought aboard one at a time, with the "rollerman" carefully assisting each fish onto the boat. For catch that is retained,

[9] http://www.archipelago.ca/docs/GuidingPrinciplesForMonitoringPrograms.pdf, p. 23.

weight and length data are captured when the catch is brought to shore. To secure length data from fish that will not be retained, these Canadian fishermen are required to hold the fish over the measurement board for 3 seconds, which allows video reviewers to estimate length. Length is then converted to weight using species specific tables that have been developed over the years during stock assessments and catch monitoring. If the footage fails to adequately capture length, or a measurement board is not used, an average length and weight is assumed and assigned.[10] This low technology alternative is effective and time tested. It can be deployed immediately in Alaska's small boat fishery.

In time, EM systems can be expected to automate the length/weight conversion process and we are prepared to work with NMFS to test and improve automated systems. In the meantime, **we should be using reliable and cost effective monitoring technology** to gather the necessary data. That technology and equipment exist, are dependable, and are already in use.

Species Identification

Multiple pilot studies have compared the ability of human observers and EM to identify fish to the species level. While some species (small flounder and some rockfish) are more difficult to identify than others, when data produced by human observers and trained EM reviewers are compared, there is almost no difference in species identification accuracy. A 2010 IPHC study that compared human observers to EM reported:

> Comparison of species identification of catch between standard observer estimation, complete hook-status observer coverage, and EM coverage showed statistically unbiased and acceptable comparability for almost all species except for some that could not be identified beyond the species grouping levels used in management. Similarly, comparisons of total species-specific numbers of fish estimated using EM collected and hook-status observer-collected data showed few statistically significant differences. Based on this study, although limited in scope, EM can provide an additional tool for catch monitoring in the commercial halibut fishery.[11]

[10] http://www.iphc.int/documents/commercial/bc/ifmp2011.pdf , Appendix 2
[11] http://www.afsc.noaa.gov/Publications/AFSC-TM/NOAA-TM-AFSC-213.pdf, p. iii.

The 2011 Morro Bay pilot program concluded:

> Consistent with the findings of the 2008 study, EM has been demonstrated to be an effective tool for at sea monitoring, delivering fishing effort and catch data comparable to on-board observers. There is no need for continuing to concentrate future research efforts on comparing EM data with observers.[12]

Likewise in the previously referenced 2011/12 ALFA pilot program, 94% of the fish captured were identified to the species level.[13] EM can and is identifying fish to the species level and EM compares very favorably to human observers in doing so.

Cost Data

When NMFS analyzed options to restructure the North Pacific Observer Program, the agency estimated an observer day would cost $467.[14] When the 2013 Annual Deployment Plan was released last fall, the cost of an observer day had increased to $980. (4,153 days purchased with $4.4 million.)[15] Although federal start-up funds are paying 2013 observer costs, fees are being collected from the industry this year and the industry will foot the entire bill from here forward.

In comparison, EM pilot programs in the US and the EM program on the West Coast of Canada have daily costs that range from $194 per day to $580 per day, with the upper end cost in a Canadian trawl fishery.[16] Costs in ALFA's EM halibut/sablefish pilot program were $200 per day for Sitka-based boats and $330 per day for Homer-based boats. In short, EM promises significant cost savings to the fishing industry, where observer programs are industry funded, and savings to NMFS where the federal government is footing the bill.

Funding EM

Section 313 of the Magnuson-Stevens Act authorizes the North Pacific Council, in consultation with the Secretary of Commerce, to establish a fee system to fund Alaska's observer

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[12] http://www.pcouncil.org/wp-content/uploads/EM_AttB2b-Att1_FG_MorroBayPilot.pdf, p. 36.
[13] http://www.alfafish.org/observer-programelectronic-monitoring.html.
[14] http://alaskafisheries.noaa.gov/npfmc/PDFdocuments/conservation_issues/Observer/Observer_restructuring910.pdf, p. A-23.
[15] http://alaskafisheries.noaa.gov/npfmc/PDFdocuments/conservation_issues/Observer/2013DeploymentPlanFiinal.pdf.
[16] http://www.pcouncil.org/wp-content/uploads/EM_AttB2b-Att1_FG_MorroBayPilot.pdf, p. 31.

program. That fee may be used to "…station observers or electronic monitoring systems on board fishing vessels..." [17] At present, the full revenue stream from the industry is dedicated to deploying human observers on boats in Alaska and EM deployment is dependent on grant money or other opportunistic sources. That needs to change. Since the our fleet is better suited to EM than human observers, EM is cost effective, and observers fees paid by the industry may be dedicated to EM deployment, some or all of the observer tax revenue generated by the sablefish/halibut fleet should be dedicated to EM deployment in this fleet. Then EM will have a sustained, industry-funded revenue source.

**Why Not EM?**

EM provides a verifiable and permanent record of catch. EM can be used as part of an integrated monitoring program to meet indentified management needs. EM is currently used with a high degree of accuracy to identify fish at the species level and to obtain length/weight measurements. EM is cost effective, less intrusive, and avoids safety issues associated with accommodating extra people on small boats. The fleet supports data gathering through EM. Yet, right now in Alaska, long-time small boat owners are selling their quota and federal licenses, unwilling or unable to bear the extra burden of carrying an observer. By way of example, ALFA has a member I will call Dave who has been halibut fishing for 40 years. Dave, like many fishermen, is more comfortable with fish than with people he doesn't know. Even the potential of being selected for observer coverage this year has caused him to place his quota on the market. Dave told me: "I would rather face a gale than the strain of keeping someone I don't know safe and comfortable on my boat." The job loss and impacts to communities of this additional consolidation of the fleet will be long-term and irreversible unless EM is implemented as an alternative to human observers.

In the Final Rule that implemented the Alaska restructured observer program, multiple commenters posed the question to NMFS: Why not EM? In one response, NMFS stated that EM cannot be required because the Agency has not yet "developed performance standards and technical specifications" but that they are committed to further development of EM.[18] After 20 U.S. pilot programs and watching our Canadian neighbors successfully implement an integrated

[17] http://www.nmfs.noaa.gov/sfa/magact/
[18] http://alaskafisheries.noaa.gov/frules/77fr70062.pdf, p. 70081.

EM program we can only ask—what can we do to make sure this proven technology is used in 2014? We thought we had done what was needed with our pilot program but are standing by to do whatever else is in our power to do to secure an EM alternative for our fleet by 2014.

**Building Better Data Collection Systems**

Data collection is critical to fisheries management. Monitoring fisheries catch is an important element of data collection. In designing monitoring systems, managers need to first identify goals and objectives. As a recently released document titled "Fisheries Monitoring Roadmap" states, "once monitoring objectives are clearly identified, only then can an appropriate combination of monitoring activities and tools be identified to successfully achieve these goals."[19] (Emphasis added.) To ensure these tools are used in the most effective, efficient and least burdensome way, stakeholders should be actively engaged in designing the monitoring program. To quote another monitoring study: "From the outset of planning a monitoring program stakeholder engagement is crucial in effectively garnering support from diverse constituents to work towards common goals, avoid redundancies, and utilize knowledge within the fishery."[20] Once objectives are indentified, stakeholders and managers can work together to identified the right suite of monitoring tools to secure the necessary data. We stand ready to work with NMFS to improve data collection and to add capabilities to the existing EM technology. But, as I stated earlier, we should use what we have that is proven. The perfect should not be the enemy of the good. Finally, we are willing to pay for EM deployment in our fleet and urge 30% of the observer program revenue collected from our fleet be dedicated to EM deployment on halibut/sablefish IFQ vessels.

**What Can Congress Do To Improve Data Collection?**

ALFA's recommendations for improved data collection on a National scale are:

- Direct NMFS to identify fishery specific monitoring objectives and to work with stakeholders to identify the right combination of cost effective monitoring tools to achieve objectives while "providing for the sustained participation of … communities."

[19] http://www.nmfs.noaa.gov/sfa/reg_svcs/Councils/ccc_2013/K_FisheriesMonitoringRoadmap.pdf, p. 3.
[20] http://www.archipelago.ca/docs/GuidingPrinciplesForMonitoringPrograms.pdf, p.5.

- Direct NMFS to move beyond pilot programs to full integration of EM into fisheries monitoring programs, and to provide EM to small fixed gear boats now, as an alternative to human observer coverage, where at-sea monitoring is required.

Specific to improving data collection in the Alaska halibut/sablefish IFQ fisheries, ALFA recommends the following:

- Integrate EM now, as an alternative to human observer coverage, in the halibut/sablefish IFQ fishery with the initial focus on assessing catch and estimating discards;

- Don't let the perfect be the enemy of the good: recognize that EM is part of an adaptive, integrated approach to at-sea monitoring that will accommodate additional or changing monitoring objectives and technological improvements;

- Work with industry and EM experts to deploy vessel appropriate and reliable technology, resolve logistical details, and achieve monitoring goals within cost targets;

- By 2014 and beyond, adequately and sustainably fund EM deployment by dedicating 30% of the observer fees collected from halibut and sablefish vessels to EM implementation in these fisheries;

- Release vessels carrying EM from human observer coverage in 2013 and beyond, or change policy as needed to allow an Exempted Fishing Permit to engage the halibut/sablefish fleet in a full-scale EM program by 2014.

Thank you for the opportunity to testify. I would be happy to provide any additional information that might help you in your work on this important issue.