

EXCERPT: DRAFT REPORT
of the
SCIENTIFIC AND STATISTICAL COMMITTEE
to the
NORTH PACIFIC FISHERY MANAGEMENT COUNCIL
February 2nd – 4th, 2015

The SSC met from February 2nd through 4th at the Renaissance Hotel, Seattle, WA.

Members present were:

Farron Wallace, Chair <i>NOAA Fisheries—AFSC</i>	Robert Clark, Vice Chair <i>Alaska Department of Fish and Game</i>	Milo Adkison <i>University of Alaska Fairbanks</i>
Chris Anderson <i>University of Washington</i>	Sherri Dressel <i>Alaska Department of Fish and Game</i>	Brad Harris <i>Alaska Pacific University</i>
Anne Hollowed <i>NOAA Fisheries—AFSC</i>	George Hunt <i>University of Washington</i>	Seth Macinko <i>University of Rhode Island</i>
Steve Martell <i>Intl. Pacific Halibut Commission</i>	Lew Queirolo <i>NOAA Fisheries—Alaska Region</i>	Kate Reedy <i>Idaho State University Pocatello</i>
Matt Reimer <i>University of Alaska Anchorage</i>		

Members absent were:

Jennifer Burns <i>University of Alaska Anchorage</i>	Alison Dauble <i>Oregon Dept. of Fish and Wildlife</i>	Terry Quinn <i>University of Alaska Fairbanks</i>
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SSC Election of Officers

The SSC appointed Farron Wallace as chair and reappointed Robert Clark as vice chair.

C-2 EM Cooperative Research Plan

EM Field Projects

Diana Evans (NPFMC) presented the Cooperative Research Plan (CRP) for deploying Electronic Monitoring (EM) systems on 13 vessels in the Gulf of Alaska for the 2015 season. The SSC was tasked with reviewing the CRP and providing comments. Public testimony was provided by Dan Falvey (self).

The overarching goal of the project is to evaluate the efficacy of EM in combination with other tools for an accounting of retained and discarded catch. An additional goal is to identify decision points for operationalizing EM systems into the Observer Program for fixed gear fleets that are currently subject to partial (vessels 40 to 57.5 feet) or no observer coverage (vessels less than 40 feet). Current research projects being conducted in 2015 are intended to identify procedures for operationalizing EM and test the efficiency of EM to provide data to estimate discard. The field work outlined in the CRP is intended to address four elements:

1. Deployment of EM systems.
2. Research and Development of EM technologies.
3. Infrastructure to support EM implementation.
4. Analysis to support EM implementation and decision points.

The Council adopted a Strategic plan for EM and reporting in the North Pacific, including Goal III, Objective 1: “Implement EM/ER technology where appropriate and cost effective to improve catch estimation and better inform stock assessments.” Estimation of at-sea catch and prohibited species catch (PSC) is of high priority for stock assessment and estimation of ABCs and OFLs. The SSC acknowledged the breadth of work that has been done to date in the development and appreciated the presentations in the EM workshop.

The SSC recognizes the importance of the Council’s program goals of providing accurate catch accounting for improved information from the small boat fleet and for preventing displacement of family members and deckhands by observers on small vessels. The SSC appreciates the ongoing research in EM technology being done by NMFS staff. Although the technology appears to be sufficient to enumerate catches directly, it is not clear how quickly a fully automated EM catch accounting system can come online. Simpler systems have been developed in the BC fixed gear fisheries. These systems have been in use for over a decade now, and are providing detailed catch accounting through a combination of logbooks, dockside monitoring, and partial audits of the EM data to provide for compliance with logbook reporting on discard and retention. Expanding the BC program to Alaska may pose many logistical problems in terms of gear maintenance, recovering hard drives from the numerous ports, and providing dockside monitoring where there is none. Presumably these logistical issues are just as problematic for a fully automated EM system. The SSC encourages the EM workgroup to continue to consider the development and use of a combined logbook and partial audit method.

Howard McElderry of Archipelago Marine Research (AMR) summarized the operational testing plan for deployment of standard EM systems within the Alaska fixed gear fleet. In his presentation, he also discussed key program design considerations from the perspective of *Management Goals*, *Operational Goals*, and *Operational Objectives*. The SSC noted that the Council’s objectives may need to be further articulated with respect to the Operational Objectives of the EM program. Specifically, there is no clear statement in the Council’s vision about the importance of detecting a rare event (e.g., capture of a short-tailed albatross) with a given probability. In addition, the objectives for the EM program should contain quantifiable goals such as estimating the uncertainty in PSC estimates and bycatch mortality. Public testimony also cautioned that EM should not be intended to replace observers on vessels. **The SSC recommends that prior to implementation of EM, the Council clearly articulate quantifiable program goals for implementation such that EM coverage rates can be determined.** Once quantifiable program goals are developed, the SSC recommends a time and motion study to assess efficiencies and dis-efficiencies of the program (e.g., estimate the time required to analyze the video and produce an estimate of catch and the associated uncertainty).

Farron Wallace (NMFS-FMA) presented operational plans for enhanced EM system testing on one pot fishing vessel and several long line vessels to determine the accuracy of this system for direct accounting of catch by species. In these experiments, EM will be paired with onboard sea samplers to assess directly the species identification and counting capabilities of: a single camera, stereo camera and a camera chute system on a pot vessel; standard camera and stereo rail on the IPHC long line survey; and standard camera, stereo rail, and camera chute system on a long line vessel. The SSC appreciates the technology development aspect of these projects that serves as a parallel development track to the more established project fielded by AMR. Statistical analyses described in the literature allow comprehensive comparisons

across species and across reviewers, and allow inclusion of descriptive variables such as length that may help describe why potential differences between observers and/or EM reviewers occur.

Considerations for Cost Data Collection

The SSC received a presentation from Sam Cunningham (NPFMC) on plans to establish a cost accounting study of the implementation and operating costs of EM on fishing vessels. The report identified major cost categories about which data needs to be collected: field services, data services, operational impacts, and administrative costs. The first two categories are primarily accounting of costs paid during the pilot study. Operational impacts are more difficult to quantify because the costs involved are foregone benefits of actions that are no longer possible due to EM implementation, for example reduced catch due to harvesting only in certain light conditions, or with fewer crew to make deck, bunk or life raft space for an observer. The SSC agreed this is the sensible set of costs to track.

The SSC is supportive of the proposed emphasis on the operational impacts of EM, which is not common in studies of similar electronic or human monitoring programs. These costs are particularly salient in this small boat fishery because high operational impacts have been previously used to justify exempting this fleet from trip selection, and therefore demonstrating reduced monitoring costs and other impacts relative to human observers is a significant enticement to EM adoption by individual vessels. However, precisely quantifying operational impacts—as relative to the operational impacts of some baseline monitoring policy—is a complex and demanding data collection and analysis task. The SSC did not have sufficient information about how the cost analysis would affect the outcome of the policy process to determine whether this warrants the required resources.

The SSC strongly encourages identifying a particular baseline monitoring policy (e.g., trip selection by human observers), for which a comparable set of costs is assessed. One proposed strategy is for study vessels to report their operational impacts on an industry-developed questionnaire. This is practical, but needs to use objectively quantifiable metrics to the extent possible to prevent misrepresentation of costs. Anecdotal experiential information should be used to help guide the interpretation of these metrics. The SSC also encourages including ‘control’ vessels (perhaps those applicants who are not installing EM systems) in the survey, which would capture important effects of the status quo program, including the rate of displacing crew and rerouting vessels to different ports.