Developing an EM application for fixed gear

- Recently expanded observer requirements to halibut longline fleet.
- Objective is unbiased estimates of catch and bycatch.
- Many small boats, limited crew space
- Difficulty accommodating human observers
- Challenging conditions for EM as well
- Managing people and technology
What is the Council?

The North Pacific Fishery Management Council (Council) and National Marine Fisheries Service (NMFS):

- Together manage U.S. Federal fisheries off Alaska (3-200 miles)
- Management is coordinated (and in some cases jointly managed) with the State of Alaska
- Council makes recommendations to NMFS
- NMFS approves, implements, and enforces them
Current application of EM

- VMS requirements for most fisheries.
- Cameras to assist observers on catcher processors, primarily compliance function.
- eLogbooks for several fisheries.
## Current applications

<table>
<thead>
<tr>
<th>Program Type</th>
<th>Fishery</th>
<th>ER for Landings &amp; Production (IERS)</th>
<th>Paper logbook</th>
<th>ER for logbook (ellogbook in IERS)</th>
<th>ER for Observer data (Atlas)</th>
<th>Flow Scale</th>
<th>VMS</th>
<th>Video</th>
<th>Observer Coverage</th>
<th>2nd Observer</th>
<th>Additional ER Potentially Suitable?</th>
<th>Potential EM Application?</th>
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<tbody>
<tr>
<td><strong>Catch Share</strong></td>
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<tr>
<td>Longline &amp; Pot &lt;40' LOA CV</td>
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</table>
Building Blocks of our EM approach

- Strategic Plan
- Fixed Gear Implementation
- Cooperative Research Plan
- Workgroup
Council’s EM Strategic Plan

- Adopted in June 2013
- Strategic Plan for Electronic Monitoring/ Electronic Reporting in the North Pacific
- Vision, objectives, and action items for integrating electronic technologies into the North Pacific fisheries-dependent data collection program
Goal II, Objective 1: Conduct scientific research to advance the science of monitoring and data integration.

Goal III, Objective 1: Implement EM/ER technology where appropriate and cost effective to improve catch estimation and better inform stock assessments.

Goal I, Objective 3: Continue to develop the regulatory framework to implement EM/ER requirements.

- Strategy A: Develop requirements to use EM for catch estimation.
Council’s Fixed Gear EM Workgroup

- Council committee, est April 2014
- forum for all stakeholders:
  - commercial fishing industry,
  - agencies, and
  - EM service providers
- Purpose: cooperatively and collaboratively design, test, and develop EM systems that are consistent with Council goals to integrate EM into the Observer Program
EM Workgroup

- Went from unproductive relationships (esp 2012 to early 2014) to a cooperative process
  - Still differences, but now have a mechanism to resolve
- Time commitment by members
  - Met 4-5 times in 2014 and 2015, likely a similar commitment in 2016
  - Some financial support for industry participation from NFWF grant
Council’s provided clear direction on focused EM goal

- integrate electronic monitoring (EM) tools into the Observer Program for the fixed gear small-boat groundfish and halibut fisheries.
- develop EM to collect data to be used in catch estimation for this fleet.
- pre-implementation in the small boat longline fleet in 2016, focusing on vessels that have difficulty accommodating an observer.
Cooperative Research Plan

- Overall goal:
  - Assess the efficacy of EM for catch accounting of retained and discarded catch,
  - Identify key decision points related to operationalizing and integrating EM systems into the Observer Program for fixed gear vessels.
Cooperative Research Plan

- Multiple research projects for 2015 and 2016
  - Collect information that will help inform pre-implementation decisions and future Council alternatives for integrating electronic monitoring (EM) into the Observer Program.
Elements of CRP

- Deployment of EM Systems
  - Operational testing with standard camera
  - Self-reported data elements
- Research & Development of EM Technologies
  - Assess the feasibility of EM data to estimate catch by weight
    - Pot Gear, IFQ setline, IPHC survey
  - Integration of Sensor Data with e-logbook
Elements of CRP

- Infrastructure support EM implementation
  - Application development to support EM data integration into the observer database
- Analyses to support EM implementation decision points
Where are we headed?

2016

- Pre-implementation for small longline
- R&D on aspects – pot vessels, stereo cameras, broadening longline to <40 and >58
- Continuing to build infrastructure to use data in management
- Draft analysis to incorporate EM in observer program

Longer term

- Ongoing, adaptively managed program, accommodating changing data needs and incorporating improved technologies.
## Timeline

<table>
<thead>
<tr>
<th>Year</th>
<th>Fieldwork / Pre-implementation (Pre-Imp)</th>
<th>Council process, Regulations</th>
<th>Observer Program/ Annual Deployment Plan (ADP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>Fieldwork</td>
<td>EMWG developing purpose &amp; need, alternatives, 2015 Cooperative Research Plan (CRP)</td>
<td>October – 2015 ADP places 10 vessels that are participating in EM research into the no selection pool</td>
</tr>
</tbody>
</table>
| 2015 | Jan-Feb – stereo camera field research on pot vessel (RFP)  
Feb – SSC reviews CRP  
Mar-Apr – stereo camera field research on longline (RFP and NPRB)  
Mar-Sep – operational research  
(other fieldwork too) | Octerber – present a refined 2016 Pre-Imp concept to Council |  |
| 2016 (Pre-imp 1) | Pre-implementation will likely focus on longline vessels <57.5’. Size of fleet will be dependent on available funding (independently sourced) and Council requirements.  
Fieldwork as necessary/ possible for other elements (e.g., pot vessels, >57.5’) (requires independent funding) | October – initial review for EM analysis. Focus on what type of EM program should go forward, and what regulatory changes are needed to allow it | October – 2017 ADP proposes all EM Pre-Imp vessels in no selection pool  
December – final action on EM analysis |
| 2017 (Pre-Imp 2) | Pre-Imp 2, potentially expanded to include other fixed gear vessels (requires independent funding) | Develop regs for integrating EM | June – 2016 Observer Annual Report provides preliminary analysis to support how to allocate observer fee between observer and EM deployment  
October – 2018 ADP allocates funding between observers and EM deployment |
| 2018 | | Integrated observer/EM monitoring program | |
Goal

- In 2018, halibut longline data collection program comprised of mix of human and EM elements.
  - Funded by NP Observer Program fees collected from fishermen
  - Work underway to tackle next challenges: longline < 40’, other fixed gears
  - Open source code allows competition and collaboration among vendors
  - Work to reduce costs and increase efficiencies
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