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.
Building Blocks of our EM approach

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
Council’s EM Strategic Plan

- **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.

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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>
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<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>
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<td>2015</td>
<td>Jan-Feb – stereo camera field research on pot vessel (RFP) &lt;br&gt; Feb – SSC reviews CRP &lt;br&gt; Mar-Apr – stereo camera field research on longline (RFP and NPRB) &lt;br&gt; Mar-Sep – operational research (other fieldwork too)</td>
<td>EMWG evaluates field data</td>
<td>October – present a refined 2016 Pre-Imp concept to Council &lt;br&gt; October – 2016 ADP proposes all EM Pre-Imp vessels in no selection pool</td>
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<td>2016</td>
<td>Pre-implementation will likely focus on longline vessels &lt;57.5’. Size of fleet will be dependent on available funding (independently sourced) and Council requirements. &lt;br&gt; Fieldwork as necessary/ possible for other elements (e.g., pot vessels, &gt;57.5’)(requires independent funding)</td>
<td>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</td>
<td>October – 2017 ADP proposes all EM Pre-Imp vessels in no selection pool &lt;br&gt; October – final action on EM analysis</td>
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<td>2017</td>
<td>Pre-Imp 2; potentially expanded to include other fixed gear vessels (requires independent funding)</td>
<td>Develop regs for integrating EM</td>
<td>June – 2016 Observer Annual Report provides preliminary analysis to support how to allocate observer fee between observer and EM deployment &lt;br&gt; October – 2018 ADP allocates funding between observers and EM deployment</td>
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<td>2018</td>
<td></td>
<td>Integrated observer/EM monitoring program</td>
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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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