

North Pacific Fishery Management Council and Electronic Monitoring

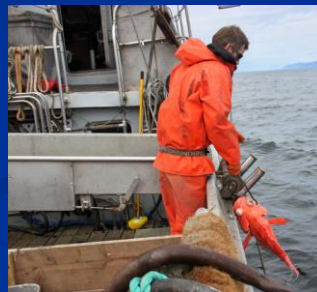


Bill Tweit and Diana Evans
North Pacific Fishery Management Council
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Developing an EM application for fixed gear

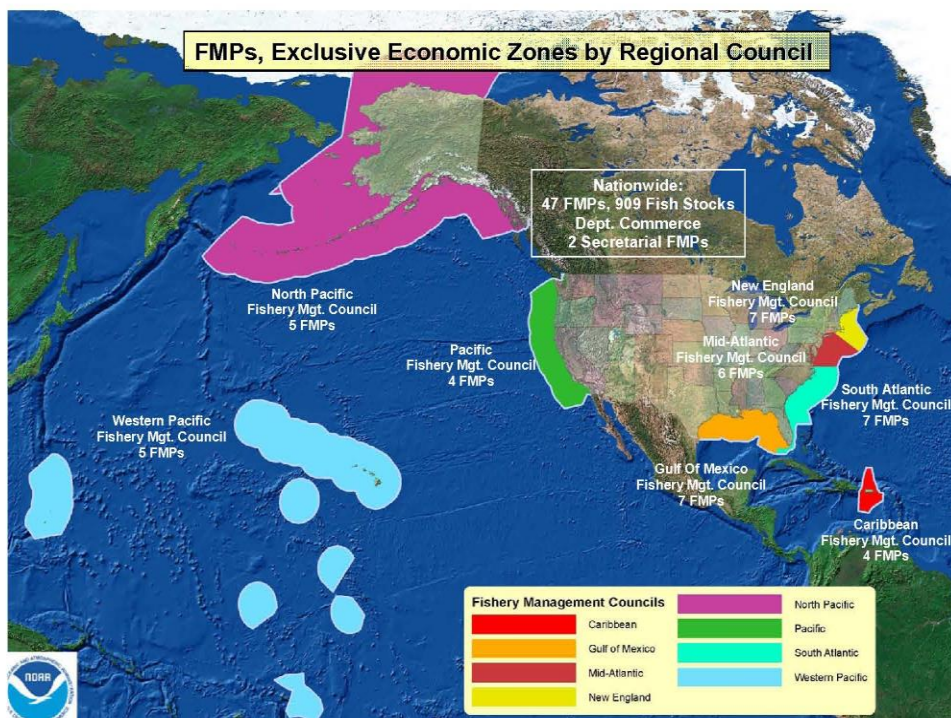
- Recently expanded observer requirements to halibut longline fleet.
- Objective is unbiased estimates of catch and bycatch.
- Many small boats, limited crew space
- Difficulty accommodating human observers
- Challenging conditions for EM as well
- Managing people and technology



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



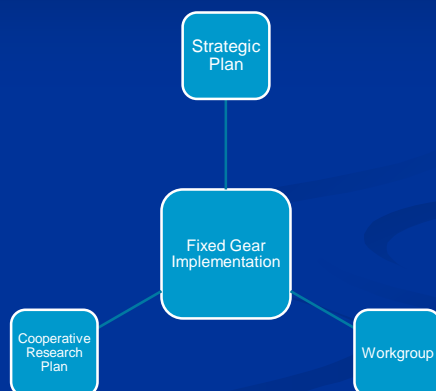
Current application of EM

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

Current applications

Program Type	Fishery	Current Requirements										Additional ER Potentially Suitable?	Potential EM Application?
		ER for Landings &/or Production (ERS)	Paper logbook ¹	ER for logbook (eLogbook in ERS)	ER for Observer data (Atlas)	Flow Scale	VMS	Video	Observer Coverage	2 nd Observer			
Catch Share	BSAI pollock trawl CP & motherhip (AFA)	Y	N	Y	Y	Y	Y	Y	100%	Y			
	BSAI non-pollock trawl CP (Amendment 80)	Y	N	Y	Y	Y	Y	Y	100%	Y		Y - video and/or flow scale to monitor deck sorted halibut PSC	
	Central GOA Rockfish Trawl CP	Y	N	Y	Y	Y	Y	Y	100%	Y			
	BSAI Pacific cod Longline CP	Y	N	Y	Y	Y	Y	Y	100%	Y			
	BSAI rationalized crab CP	Y	Y	Fee-voluntary	N	Y	Y	N	100% - not IMPS		Y - eLogbook		
	BSAI pollock trawl CV (AFA)	Y	Y	Fee-voluntary	Y/N ¹	n/a	Y	N	100%	N	Y - eLogbook; Atlas		
	CGOA Rockfish Trawl CV	Y	Y	N	Y	n/a	Y	N	100%	N	Y - eLogbook	Y-compliance monitoring & estimation of halibut PSC	
	IFQ Sablefish CP	Y	Y	Fee-voluntary	N	N	Y - AI only	N	100%	N	Y - eLogbook		
	IFQ Halibut CP	Y	Y	Fee-voluntary	N	N	Y - AI only	N	100%	N	Y - eLogbook		
	IFQ Sablefish CV	Y	Y	N	N	n/a	Y - AI only	N	Partial	N	Y - eLogbook	Y - video for catch estimation	
Non-Catch Share	IFQ Halibut CV	Y	Y ¹	N	N	n/a	Y - AI only	N	Partial	N	Y - eLogbook	Y - video for catch estimation	
	IFQ Halibut & Sablefish <40 LOA CV	Y	Y ¹	N	N	n/a	Y - AI only	N	None	N	Y - eLogbook	Y - video for catch estimation	
	BSAI Turbot longline CP	Y	Y	N	N	N	Y	N	100%	N	Y - eLogbook		
	GOA Trawl CP	Y	Y	N	N	N	Y	N	100%	N	Y - eLogbook		
	GOA Longline CP	Y	Y	N	N	N	Y	N	100%	N	Y - eLogbook		
	BSAI Pacific cod Trawl CV	Y	Y	N	N	n/a	Y	N	Partial; some vessels 100% voluntarily	N	Y - eLogbook		
	GOA pollock Trawl CV	Y	Y	N	N	n/a	Y	N	Partial	N	Y - eLogbook; (Landings for tenders; Atlas)	Y-compliance monitoring of no discard	
	GOA non-pollock Trawl CV	Y	Y	N	N	n/a	Y	N	Partial	N	Y - eLogbook; (Landings for tenders; Atlas)	Y-compliance monitoring & estimation of halibut PSC	
	Pot CP	Y	Y	N	N	N	Y	N	100%	N	Y - eLogbook	Y - video for catch estimation	
	Longline & Pot >=40 LOA CV	Y	Y	N	N	n/a	Y	N	Partial	N	Y - eLogbook; (Landings for tenders)	Y - video for catch estimation & PSC monitoring	
Longline & Pot <40 LOA CV	Y	N	N	N	n/a	Y - AI only	N	None	N	Y - eLogbook	Y - video for catch estimation & PSC monitoring		
Jig	Y	Y	N	N	n/a	Y - AI only	N	None	N	Y - eLogbook			

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

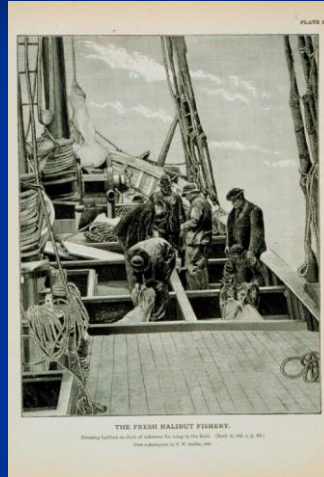
- Went from unproductive relationships (esp 2012 to early 2014) to a cooperative process
 - Still differences, but now have a mechanism to resolve
- Time commitment by members
 - Met 4-5 times in 2014 and 2015, likely a similar commitment in 2016
 - Some financial support for industry participation from 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.

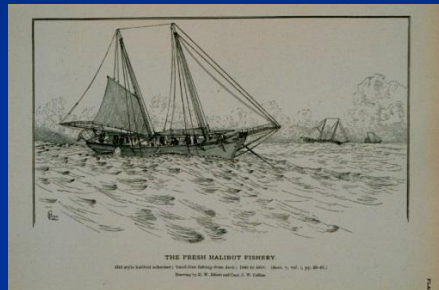
Cooperative Research Plan

- 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.



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

Year	Fieldwork / Pre-implementation (Pre-Imp)	Council process, Regulations	Observer Program/ Annual Deployment Plan (ADP)
2014	Fieldwork	EMWG developing purpose & need, alternatives, 2015 Cooperative Research Plan (CRP)	October – 2015 ADP places 10 vessels that are participating in EM research into the no selection pool
2015	Jan-Feb – stereo camera field research on pot vessel (RFP)		
	Feb – SSC reviews CRP	Feb – SSC reviews CRP	
	Mar-Apr – stereo camera field research on longline (RFP and NPRB) Mar-Sep – operational research (other fieldwork too)	EMWG evaluates field data October – present a refined 2016 Pre-Imp concept to Council	October – 2016 ADP proposes all EM Pre-Imp vessels in no selection pool
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

