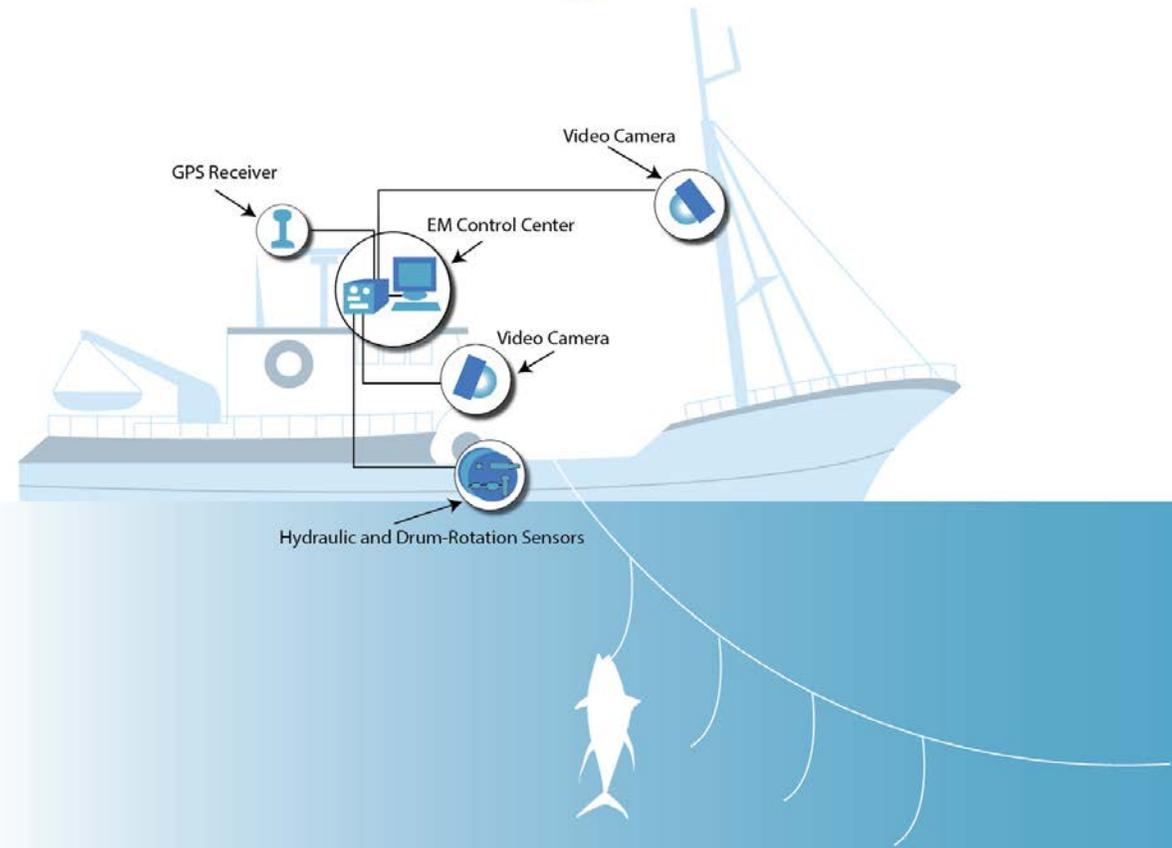




Electronic Monitoring



Electronic Monitoring in Alaska: Lessons Learned

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Why the Council developed an EM application for fixed gear vessels



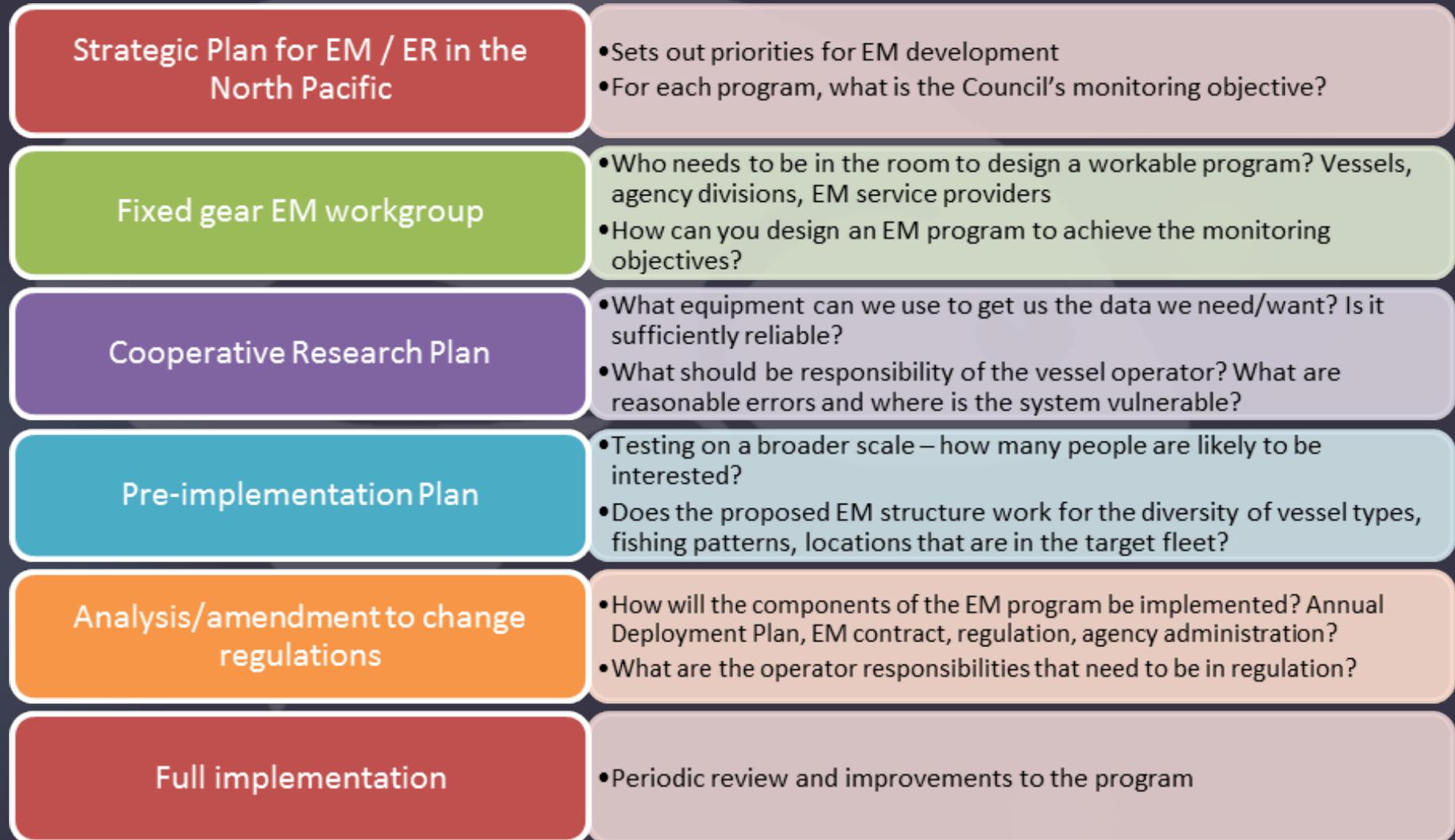
- ▶ Several electronic technologies already in some or all Alaska fisheries – landings reports, VMS, eLogbooks, cameras for compliance
- ▶ NPFMC/NMFS had recently expanded observer requirements to halibut longline fleet.
 - ▶ Objective: to get unbiased estimates of catch/bycatch
- ▶ Halibut fleet - many small boats, limited crew space
 - ▶ Difficulty accommodating human observers

Fixed gear groundfish and halibut fleet

- ▶ Originally developed for longline vessels, expanded to pot vessels
 - ▶ ~1,100 Longline vessels primarily target halibut, sablefish, and Pacific cod
 - ▶ Many small, family-run vessels
 - ▶ ~140 Pot vessels target Pacific cod and sablefish
- ▶ Fisheries are subject to partial observer coverage
- ▶ All vessel owners pay a landings fee (1.25% of ex-vessel value) to support monitoring program
- ▶ Observers are randomly deployed based on a scientific deployment plan that is adopted annually based on available funds



History of the Council's fixed gear EM development



Council's Fixed Gear EM Workgroup

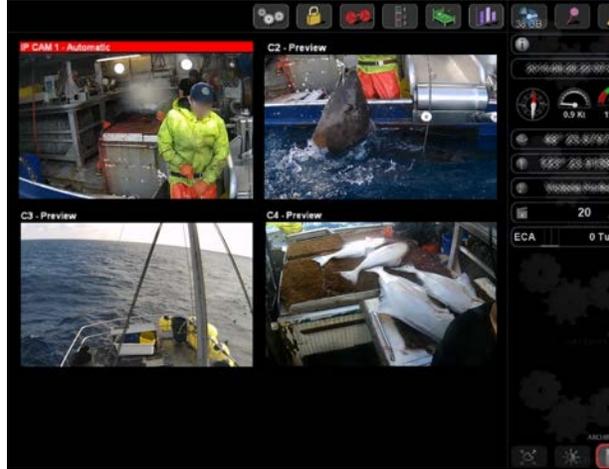


- ▶ Council committee, est April 2014
- ▶ forum for all stakeholders:
 - ▶ commercial fishing industry
 - ▶ agencies – Council, NMFS region and observer program, enforcement, GC, other partners
 - ▶ EM service providers
- ▶ Purpose: cooperatively and collaboratively design, test, and develop EM systems that are consistent with Council goals to integrate EM into the Observer Program

Success!

- ▶ In 2018, the fixed gear EM program was implemented.
- ▶ Ongoing, adaptively managed program, designed to:
 - ▶ accommodate changing data needs
 - ▶ incorporate improved technologies
- ▶ Voluntary program: vessels can choose annually whether they want to stay in the observer pool or opt into the EM pool
 - ▶ Funding for EM systems is limited, so the Council/NMFS establish criteria for who may opt in to the pool if demand is high
 - ▶ Participating vessels must comply with program requirements
 - ▶ 141 vessels opted in to the program in 2018

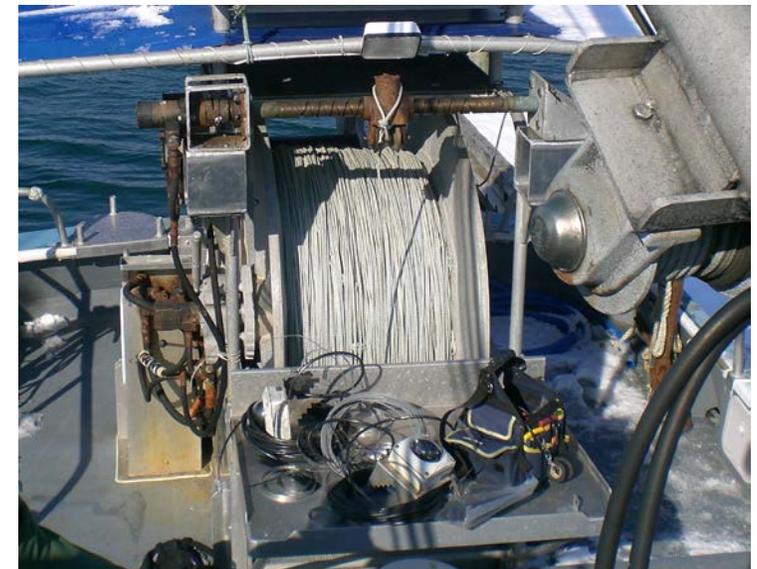




Lessons
learned

Plan ahead

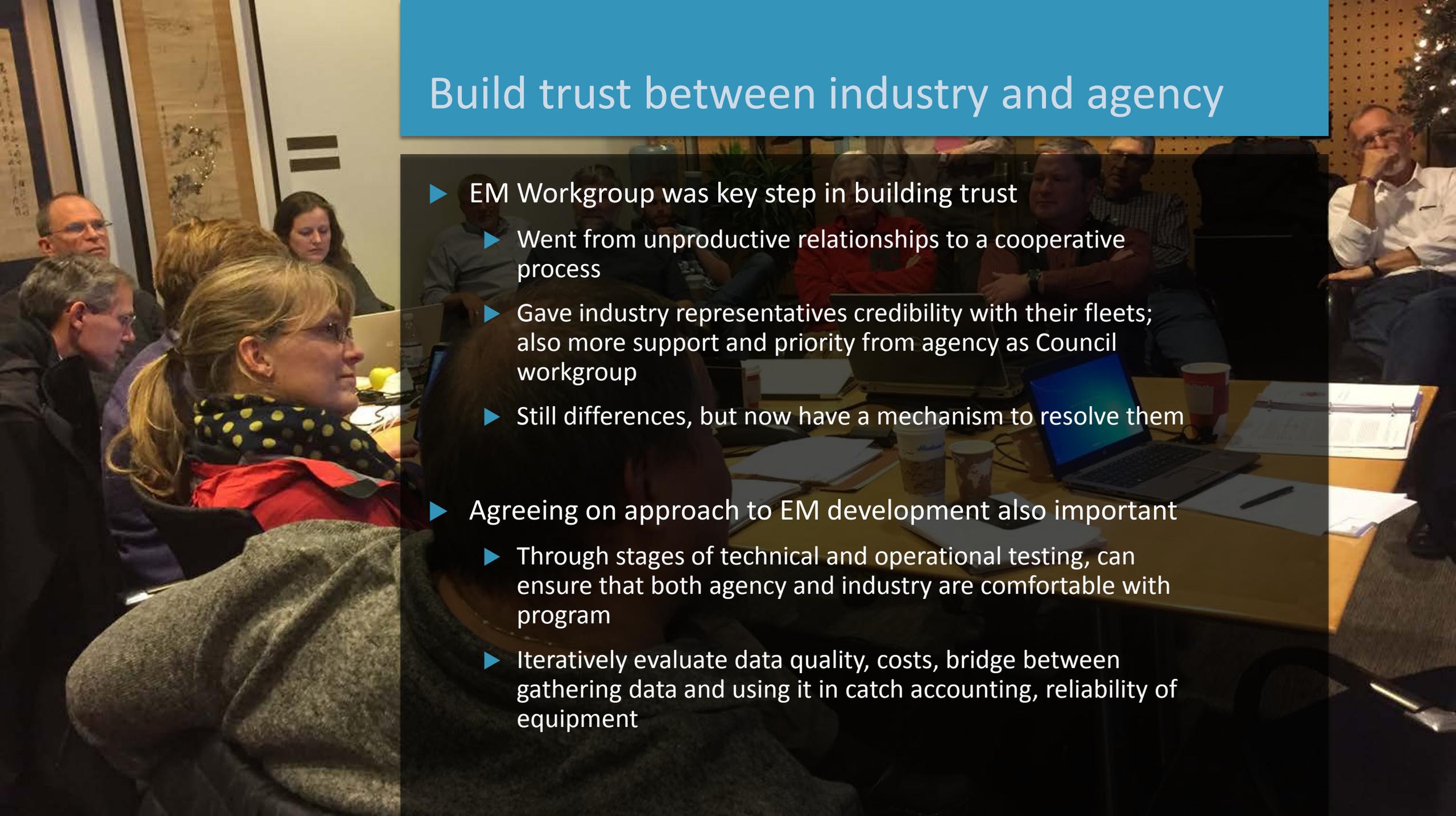
- ▶ Clearly identify the program objective up front.
 - ▶ Cost effectiveness was not the primary objective for fixed gear! Would have been a very different program. A voluntary program that is accessible to all is more expensive. So is an EM program for vessels that only take 1-2 trips a year.
- ▶ If possible, plan for a comprehensive implementation rather than a narrow one.
 - ▶ Developing the regulations is complicated and time-consuming.
 - ▶ Many advantages to a single rule-making package that applies to multiple sectors, as long as vessel responsibilities are similar.
- ▶ Integrate EM with the Observer Program, so that deployment and funding decisions can take into account the whole monitoring context.





Parity between observer and EM programs

- ▶ Important for this program because partial coverage and voluntary
- ▶ EM for catch estimation, rather than EM for compliance verification of a logbook
 - ▶ Mirrors vessel operator requirements for an observer. Small fixed gear vessels are not currently required to complete a logbook for groundfish.
 - ▶ Intent is not to affect the vessel's normal fishing practice.
- ▶ Similar observer / EM selection rates
 - ▶ Need to avoid disincentivizing participation in the EM pool, especially in early years.



Build trust between industry and agency

- ▶ EM Workgroup was key step in building trust
 - ▶ Went from unproductive relationships to a cooperative process
 - ▶ Gave industry representatives credibility with their fleets; also more support and priority from agency as Council workgroup
 - ▶ Still differences, but now have a mechanism to resolve them
- ▶ Agreeing on approach to EM development also important
 - ▶ Through stages of technical and operational testing, can ensure that both agency and industry are comfortable with program
 - ▶ Iteratively evaluate data quality, costs, bridge between gathering data and using it in catch accounting, reliability of equipment

EM data quality considerations for catch estimation

Video and sensor completeness

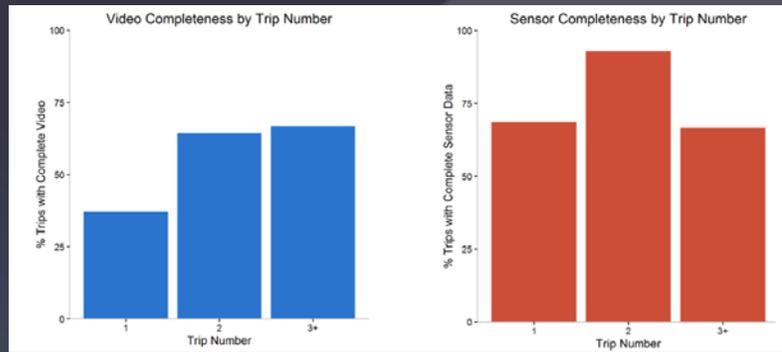
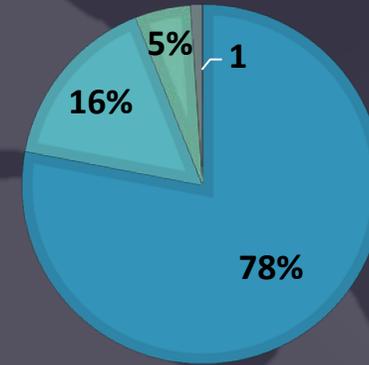
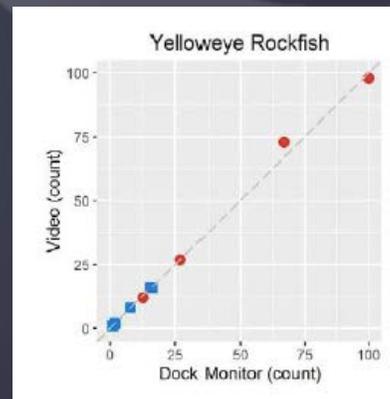


Image quality



Species identification



Timeliness

- Average video review times
- Average data turnaround times

- Some data elements will continue to rely on observer data

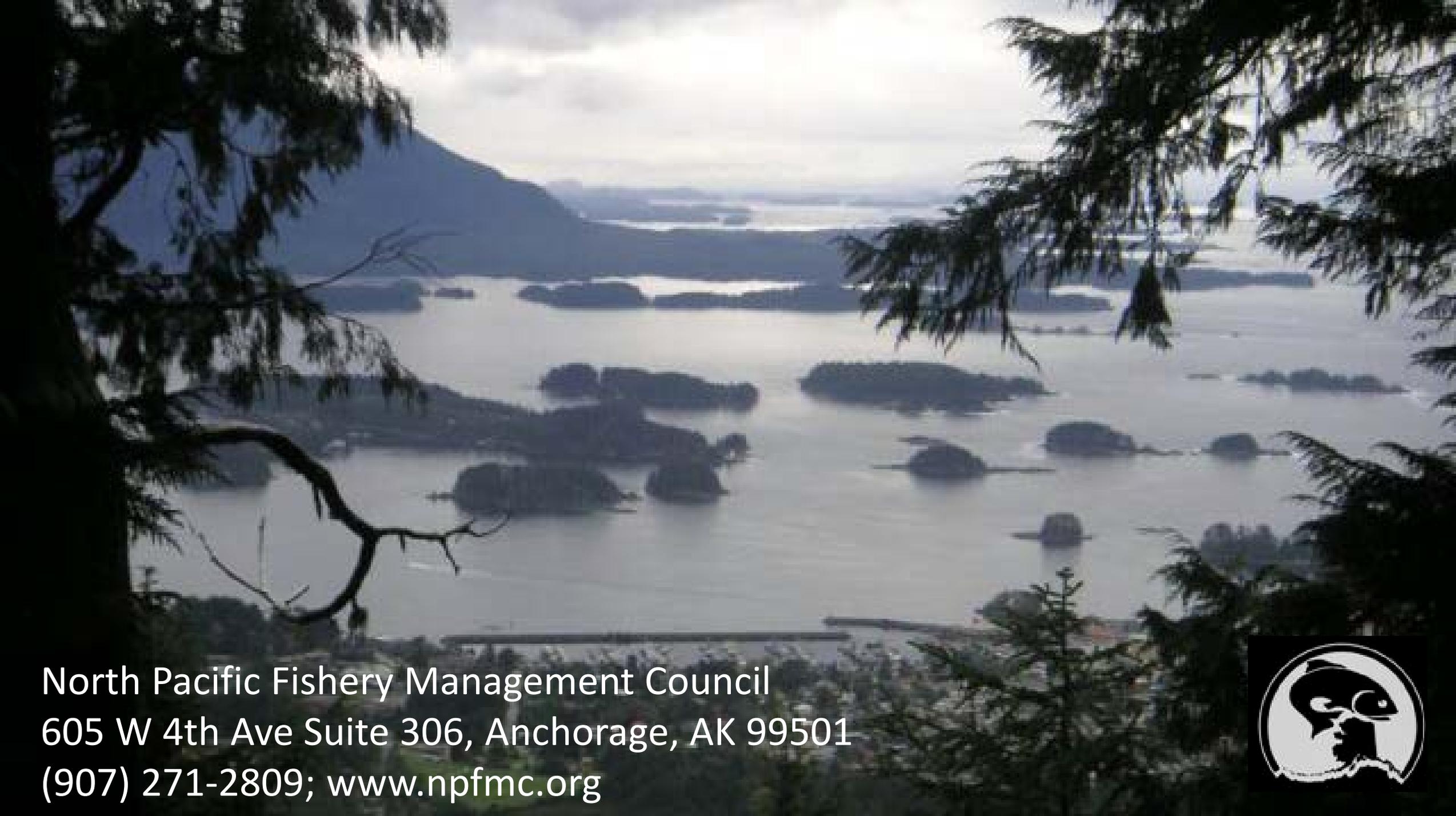
EM Development Stages

	Goal	Programmatic development
Proof of Concept	Adaptive development of new technologies	Scale - a few volunteer boats Data Use - Program design Costs - Gathering cost data
Pilot Program	Standardized testing	Scale - a few volunteer boats Data Use - Program design Costs - Gathering cost data
Operational Testing	Independent evaluation under operational conditions	Scale - A diverse portion of the fleet Data Use – Use fishery demographics to enhance program design Costs - initially promising, now independently evaluated
Pre-Implementation	Building scale/ finalizing program design	Scale - All EM candidate vessels Data Use - Gap analysis + limited use for fisheries management Costs - Start-up costs funded, long term costs-effectiveness deemed sustainable. Refinements to reduce costs being tested.
Mature	Productive use of EM data	Scale - All EM candidate vessels Data Use - Data routinely used to meet mgmt objectives Costs - sustainably funded, cost effective and decreasing

New EM direction

- ▶ Council recently reconstituted its EM Workgroup to focus on trawl issues
- ▶ Report on first meeting at June Council meeting
- ▶ Fleet's motivation:
 - ▶ Cost savings for BS pollock catcher vessels that are required to carry an observer at all times but discard very little catch at sea
 - ▶ More accurate accounting of salmon bycatch for GOA trawl vessels in partial coverage that are subject to a hard cap for salmon
 - ▶ Opportunity for vessel-specific bycatch accountability?
- ▶ Trawl EM program can build on fixed gear and other Alaska compliance programs, but will still need to work out trawl-specific issues of handling and full retention requirements





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