

C3 TRAWL EM FINAL REVIEW

Presenters: Anna Henry (NPFMC), Maggie Chan (NMFS),
Melanie Rickett (NMFS), Darrell Brannan (Brannan & Assoc.)

Council Meeting, October 2022



Prepared by: Darrell Brannan (Contractor in support of NOAA),
Maggie Chan (AKRO), Anna Henry (NPFMC), Josh Keaton (AKRO),
Megan Mackey (AKRO), Melanie Rickett (AKRO)

OUTLINE

-
- Introduction
 - Updates since initial review
 - GOA opt-in threshold approach
 - MRA/trip limit incentive plans
 - BSAI EM review fee
 - CMCP updates
 - Cost estimates
 - At sea estimates-fishing days
 - Shoreside cost estimates
 - Partial coverage fee
 - Incentives to participate in EM
 - Outstanding policy decisions

TIMELINE OF TRAWL EM DEVELOPMENT

- 2018 Trawl EM Committee Formed
- 2018-19: Pilot Projects
- 2020-now: Exempted Fishing Permit
- June 2021: Council initiated analysis, approved purpose and need and alternative set
- February 2022: Preliminary review (SSC only)
- June 2022: Initial review
- **October 2022: Final review**
- October 2022-June 2023: Development and publication of proposed/final rule
- January 2024: Regulatory program begins



PURPOSE AND NEED

To carry out their responsibilities for conserving and managing groundfish resources, the Council and NMFS must have high quality, timely, and cost-effective data to support management and scientific information needs. In part, this information is collected through a fishery monitoring program for the groundfish fisheries off Alaska. While a large component of this monitoring program relies on the use of human observers, the Council supports integrating electronic monitoring and reporting technologies into NMFS North Pacific fisheries-dependent data collection program, where applicable, to ensure that scientists, managers, policy makers, and industry are informed with fishery-dependent information that is relevant to policy priorities, of high quality, and available when needed, and obtained in a cost-effective manner.

*The Council and NMFS have been on the path of integrating technology into the fisheries monitoring systems for many years, with electronic reporting systems in place, and operational EM in some fisheries. **An EM program for compliance purposes on pelagic pollock trawl catcher vessels and tenders both delivering to shoreside processors will obtain necessary information for quality accounting for catch including bycatch and salmon PSC in a cost-effective manner, and provide reliable data for compliance monitoring of a no discard requirement for salmon PSC. This trawl EM program has the potential to advance cost efficiency and compliance monitoring, through improved salmon accounting and reduced monitoring costs.***

Regulatory change is needed to modify the current retention and discard requirements to allow participating CVs to maximize retention of all species caught (i.e., minimize discards to the greatest extent practicable) for the use of EM as a compliance tool on trawl catcher vessels in both the full and partial coverage categories of the Observer Program and meet monitoring objectives on trawl catcher vessels in the Bering Sea (BS) and Gulf of Alaska (GOA) pelagic pollock fisheries.



ALTERNATIVES

- Alternative 1, No Action
- **Alternative 2, Electronic Monitoring implemented on vessels (both catcher vessels and tenders) in the Bering Sea and Gulf of Alaska**
- Alternative 3, Electronic Monitoring implemented on catcher vessels delivering to shoreside processors (CVs only, no tenders)
 - Option 1 Bering Sea
 - Option 2 Bering Sea and Gulf of Alaska

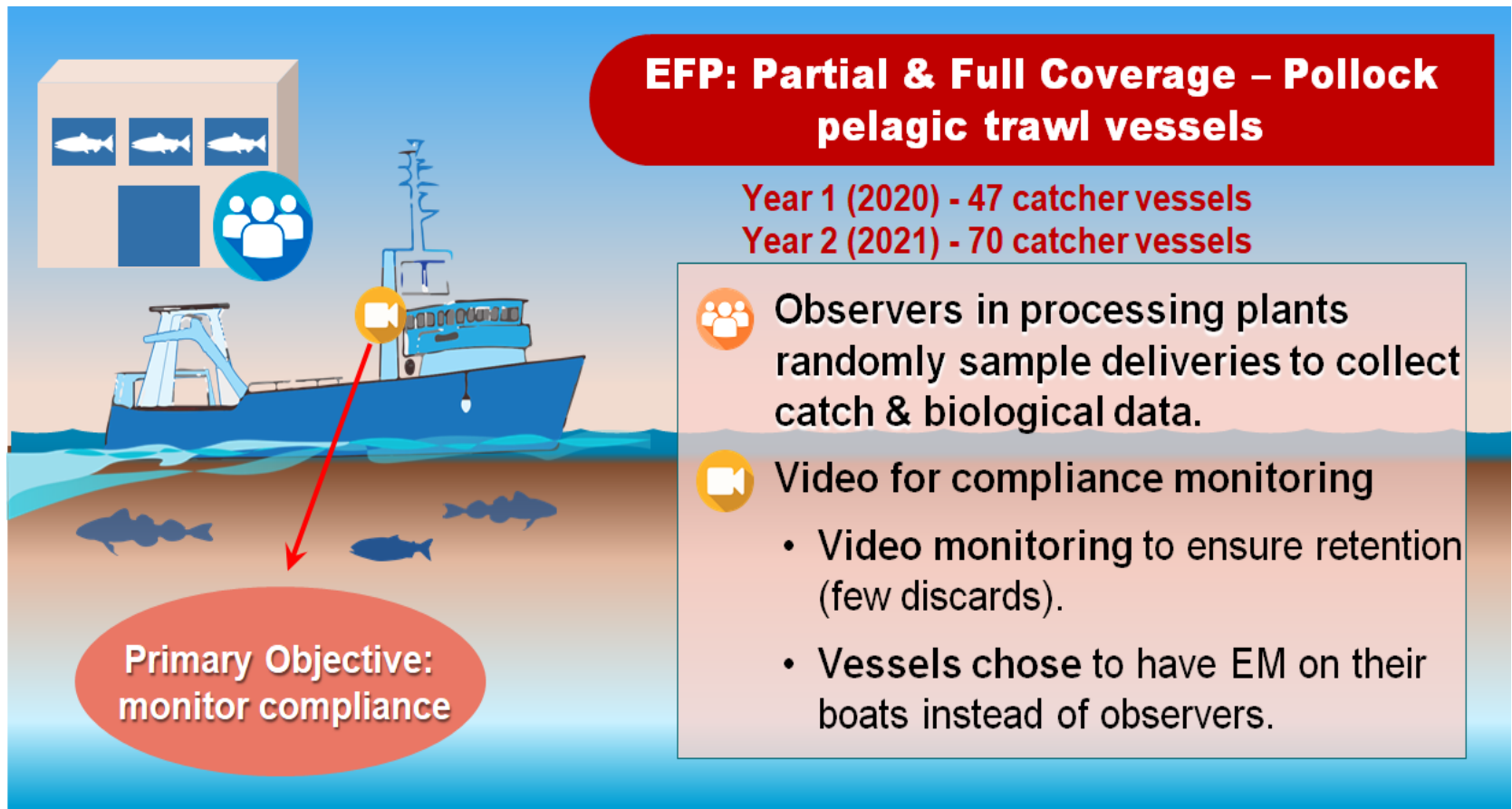


JUNE 2022 COUNCIL MOTION

- Identified Alternative 2 as the preliminary preferred alternative.
- Recommended that the analysis provide additional information on the following elements to help guide final policy decisions for the program:
 - Use of the partial coverage 1.65% fee to pay for:
 - EM equipment, service, and maintenance costs for vessels that do not participate in other trawl catch share programs with an EM option
 - Housing and food for shoreside observers during deployments at processors to monitor partial coverage directed pelagic pollock deliveries from vessels using EM.
 - A threshold approach where vessels that opt into the EM program would be required to participate in the EM program for the range of 25% to 100% of all pollock fishing trips in the GOA during a calendar year.
 - The structure for incentive plans that provide incentives to meet specific goals to avoid exceeding maximum retainable amounts and GOA pollock trip limits.



OVERVIEW OF TRAWL EM



EFP: Partial & Full Coverage – Pollock pelagic trawl vessels

Year 1 (2020) - 47 catcher vessels
Year 2 (2021) - 70 catcher vessels

Observers in processing plants randomly sample deliveries to collect catch & biological data.

Video for compliance monitoring

- Video monitoring to ensure retention (few discards).
- Vessels chose to have EM on their boats instead of observers.

Primary Objective: monitor compliance



TRAWL EM PROGRAM

Trawl EM program is voluntary.

Vessels request to enter the program each year.

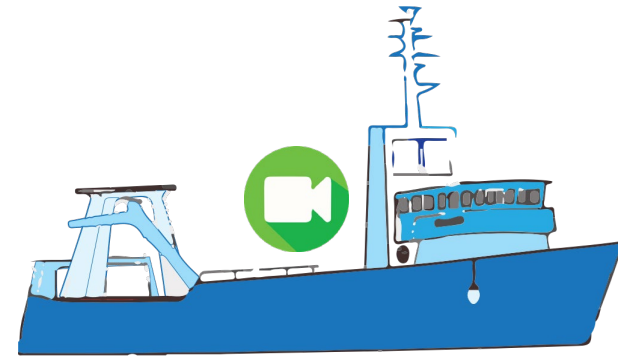
Vessels who are not in the Trawl EM program remain in full or partial coverage and remain in the observer selection pool to carry an at-sea observer.

All video is 100% reviewed.



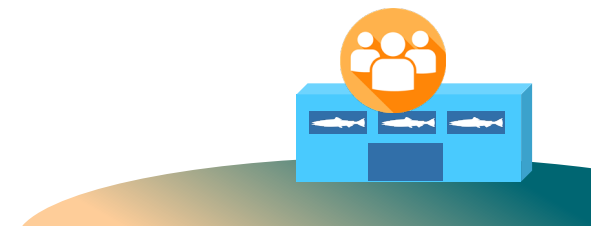
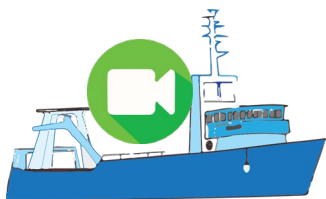
EM FOR COMPLIANCE MONITORING

- Maximized Retention rules - All catch retained for delivery
- Only exceptions to retention requirements
 - Marine mammals
 - Sharks (too big)
 - Jellyfish (product quality)
 - Discards for vessel stability and safety
- Most trips have no discard events
- ALL discards reported in logbook and eLandings
- Cameras record ALL hauls
- ALL hauls are reviewed to verify logbook and eLandings data
- Vessel logbook data, verified through EM, is used for catch accounting



TRAWL EM PROGRAM

	Bering Sea	Gulf of Alaska
Cameras recording	100% of EM trips	100% of EM trips
Video review	100% of EM trips	100% of EM trips
Shoreside observer sampling of CVs and Tenders	100% of EM trips	<u>During EFP</u> - 30% of EM trips <u>Proposed Program</u> - Determined by ADP



THRESHOLD ANALYSIS FOR GOA

GOA only

- EFP (2020-current): Vessels could opt into EM on a trip-by-trip basis during the fishing season. Vessels could indicate in ODDS if they are going on a Trawl EM trip or an observer selection trip.
- In a proposed program, NMFS recommends an Annual Opt-in.
- During Initial Review in June 2022
 - Council requested analysis on a threshold approach for opt-in for GOA CVs, where vessels that opt into the EM program would be required to participate in the EM program for the range of 25% to 100% of all pollock fishing trips in the GOA during a calendar year.



COUNCIL POLICY CALLS

Vessels request to enter the Trawl EM Program through ODDS by November 15 deadline, in order to be considered in the upcoming year.

<i>Policy call #1</i>	Annual opt-in Revised	Threshold approach
<i>If threshold: Policy call #2</i>		<p>Option 1: Threshold is summed across the calendar year</p> <p>Option 2: Threshold is summed seasonally: separately within A season and B season</p>
<i>If threshold: Policy call #3</i>		<p>Determine mechanism and frequency for changes to threshold</p> <p>Option 1: Council sets threshold and identifies mechanism and timeframe for revisiting threshold</p> <p>Option 2: Threshold set annually through the ADP process</p>
<i>If threshold: Policy call #4</i>		<p>Select initial threshold %</p>



ANNUAL OPT-IN REVISED

- Annual Opt-in with EM for trips using only pelagic trawl gear
- Multigear trips are in the observer selection pool, not in EM
- Similar to how EFP operated

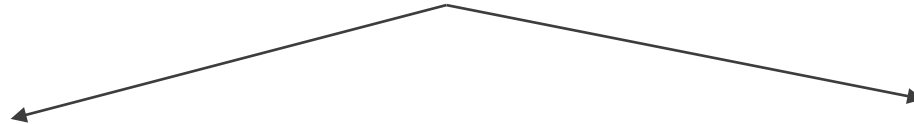


ANNUAL OPT-IN REVISED

Vessels request to enter the Trawl EM Program by November 15



If accepted into the program, vessel logs a trip in ODDS.
Q: Will you deploy non-pelagic trawl gear during this trip?



A: No

The trip is EM.

**Trips using only pelagic
trawl gear are in EM**

A: Yes

The trip is in observer selection pool.

**Multigear trips are in
observer selection pool**



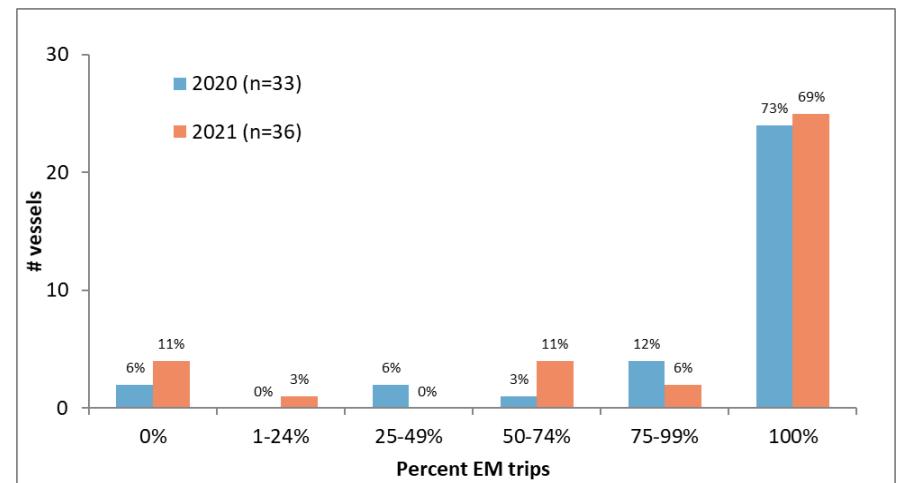
THRESHOLD ANALYSIS

- EFP data from 2020 through 2022 A season
- GOA trips where pelagic trawl gear was used and pollock was harvested
- During the EFP, multi-gear trips were required to be in the observer selection pool.
- Data from the Central Gulf of Alaska Rockfish Program are excluded
- Excludes EFP vessels that did not harvest pollock using pelagic trawl gear in the calendar year (no trips in EM or observer pool).



OPT-IN FOR GOA: ANNUAL THRESHOLD

- If 25% threshold, vessels would not have met threshold:
 - 2020: 2 of 33 vessels (6%)
 - 2021: 5 of 36 vessels (14%)
- If 50% threshold, vessels would not have met threshold:
 - 2020: 4 of 33 vessels (12%)
 - 2021: 5 of 36 vessels (14%)
- If 75% threshold, vessels would not have met threshold:
 - 2020: 5 of 33 vessels (15%)
 - 2021: 9 of 36 vessels (25%)
- If 100% threshold, vessels would not have met threshold:
 - 2020: 9 of 33 vessels (27%)
 - 2021: 11 of 36 vessels (31%)



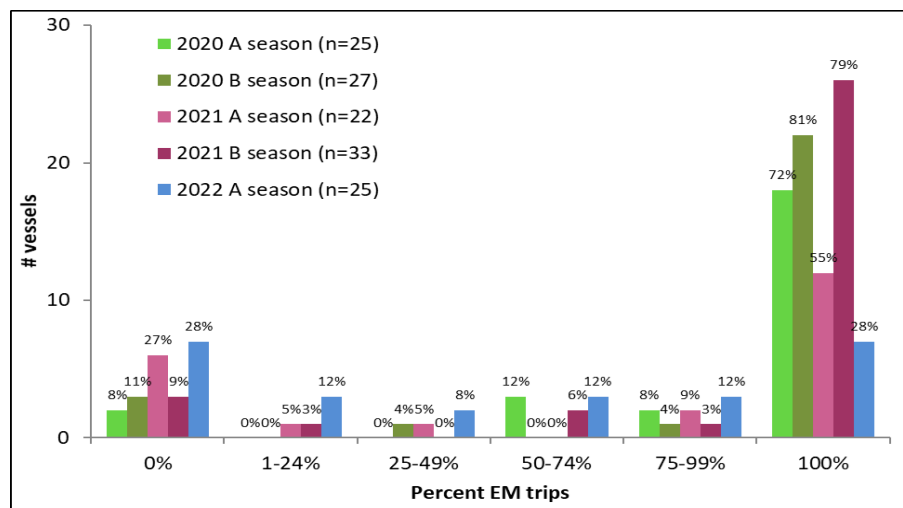
Section 3.1.2.4 final analysis

Majority of GOA CVs used EM on 100% of trips



OPT-IN FOR GOA: SEASONAL THRESHOLD

- Vessels decide by Nov 15 deadline whether they will participate in A season and B season of upcoming year
- If 50% threshold, vessels would not have met threshold:
 - 2020 A: 2 of 25 vessels (8%)
 - 2020 B: 4 of 27 vessels (15%)
 - 2021 A: 8 of 22 vessels (27%)
 - 2021 B: 4 of 33 vessels (12%)
 - 2022 A: 12 of 25 vessels (48%)
- If 75% threshold, vessels would not have met threshold:
 - 2020 A: 5 of 25 vessels (20%)
 - 2020 B: 4 of 27 vessels (15%)
 - 2021 A: 8 of 22 vessels (27%)
 - 2021 B: 6 of 33 vessels (18%)
 - 2022 A: 15 of 25 vessels (60%)













Section 3.1.2.4 final analysis

Across seasons, majority of GOA CVs used EM on 100% of trips (except for 2022 A season)



PROS AND CONS

	Annual opt-in revised	Threshold approach
Vessel flexibility	All pelagic trawl trips are EM  All multigear trips are observer pool	Vessels can chose which trips are EM 
Cost efficiency and ADP planning	More predictability, more efficient allocation of budget 	Less predictability, budget and plan for range of threshold scenarios 
Enforcement	Easier to determine vessel status. Fewer challenges with at-sea and dockside enforcement 	Harder to determine vessel status. More challenges with at-sea and dockside enforcement 
Regulation complexity	Simpler and easy to understand 	More challenging and harder to understand 
Implementation and management	Clear determination which trips are EM based on gear type 	May pose challenges with which trips count towards threshold in race for fish 



MAXIMUM RETAINABLE AMOUNT (MRA) AND GOA POLLOCK TRIP LIMITS

Trawl EM program require maximized retention (little or no discards) to allow the shoreside observer to sample unsorted catch, making it necessary to exempt participating CVs from regulations that require discarding:

- Maximum Retainable Amount (MRA) for species closed to directed fishing (50 CFR § 679.20(e))
- Pollock Trip Limits (GOA only): 300,000 pound trip limit (50 CFR § 679.7(b)(2))

EFP: Vessel performance standards were developed to limit changes in behavior from exemptions, including forfeiting value of overages and increasing fines until a potential removal from the EFP

- No vessels were actually removed due to MRA or GOA Pollock trip limits

Vessel performance standards were successful in limiting changes to behavior



See Section 3.1.5 in Final Analysis



Incentive Plan

Incentive plans are specific to a FMP and therefore plans would be specific to either the Bering Sea (BS) or Gulf of Alaska (GOA).

Incentive plans must be submitted and approved by NMFS

More than one incentive plan may be approved by NMFS in an FMP area.

- Industry developed/NMFS approved
- Publicly posted
- Flexibility- amendments can be made

Incentive plans must contain:

- 1) Name and contact information for the plan representative
- 2) A description of the incentives and disincentives that the plan imposes on vessel operators to avoid exceeding MRA and GOA pollock trip limits (if applicable).
- 3) Written statement that all parties to the incentive agree to comply with all provision of the incentive plan.



Regulation reference for IPA: 50 CFR 679.21(f)(12)(iii)(E)
Section 3.1.5 final analysis



Incentive Plan

Bering Sea: Based on communication with AFA operators, the incentive plan for the Bering Sea will likely be incorporated into AFA cooperative agreements.

Trawl EM incentive plans may be implemented in the intercoop, so that all vessels are managed consistently and should give the coops the flexibility to design the most effective plans.

Vessels operating in both GOA and Bering Sea must participate in an incentive plan for each FMP in which they participate in pollock fishing for the Trawl EM program.

NMFS expects that the incentive plan representatives be responsible for reporting any exceeding MRA and GOA pollock trip limits for participating vessels. NMFS will monitor MRA and trip limit overages and provide updates in the Annual Inseason Report if overage increase and start to impact management. Incentive plan representatives must submit a written annual report to the Council.



FUNDING FOR EM VIDEO REVIEW

Excerpt of Table 3-9 in Final Analysis

Cost Category (per NMFS Policy 04-115-02)	Trawl EM Cost	Responsible Parties	Proposed Funding Source
Sampling Cost	Video Review	EM Review service provider	Partial Coverage Observer Fee - GOA
			New BSAI EM Annual Review Fee
Sampling Cost	Data Storage	EM Review service provider	Partial Coverage Observer Fee - GOA
			New BSAI EM Annual Review Fee

- BSAI: Implement an EM review fee that would be billed annually in the spring, based on the actual landings from the previous year.



CATCH MONITORING CONTROL PLAN

What is a Catch Monitoring Control Plan (CMCP)?

Answer: Cliff Notes!

A plan submitted by the owner and manager of a processing plant, and approved by NMFS, detailing how the processing plant will meet the catch monitoring and control standards that are determined by federal regulations.

Goal of walk through:

- Discuss information observers need pre-offload

- Discuss observer access to ALL salmon

 - Discuss observers access to catch for collecting unbiased samples

 - Discuss observer sampling areas and collection points



Visit outcome:

Communications and sampling goals were discussed as participants walked the flow of fish. Industry and Agency collaborated on any potential improvements or resolutions to outstanding sampling issues. All participants (Agency, and Industry) had a clearer understanding of observer and program needs.



***May be a cost for plants, especially in the GOA**

***August 2022 outreach to Kodiak Shoreside plant completed**



SAFETY AND CATCH ACCOUNTING IMPROVEMENTS



- **Safe stable** sampling platforms!
- More precise **PSC** accounting
 - Salmon
 - Crab
 - Halibut
- Halibut measurements*
- Improved **bycatch verifications**.
- **No at -sea discard rates**



Potential for additional data collections if EM is expanded upon in plants!



REGULATORY IMPACT REVIEW (RIR)

UPDATES SINCE
INITIAL REVIEW

COST UNCERTAINTIES

Many uncertainties and challenges associated with estimating costs

- Providers do not track costs in ways that allow parsing by alternative or option (i.e., BS v. GOA, CVs v tenders)
- Vessels participate in multiple programs- some in west coast, some in BS and GOA so costs are spread across different areas, while some vessels participate in one area
- Proprietary information (less than 3 providers) requires rolling up to large categories and overall costs (for both EM and observer costs)
- Different companies have different structures and cost models, nuances to how each company defines each cost category
- Differing levels of participation, effort, scope and program design specifics will entail very different cost structures, impacting both the range of individual costs and average costs per unit.
- Different fishery operations- rationalized program, race to fish, shoreside, tenders
- Unknown future effort levels based on TACs and changes in management.
- Technology changes- some costs will decrease as technology improves- i.e., data drives; some costs will go up- i.e., control centers that can do more may cost more
- COVID- impact on costs



COST UNCERTAINTIES

fishery characteristics

- number of participants
- types of participants
- geographic location/distribution of participants
- overlapping participation in other programs
- timing and notice of scale ups
- trips per drive
- future TACs
- boat schedules
- vessel infrastructure- complexity of cable runs, camera mounts
- use of electronic vs paper logbooks
- number of tows
- number of vessels
- number of trips
- number of logbook pages
- number and quantity of discards
- length of time to complete haul-back & store catch

- amount of data transmitted
- amount of data stored
- how long data is stored
- number of drives
- length of trip
- amount of movement recorded during trip

program design

- program requirements
- maturity of program
- treatment of systems
- data review protocols
- how much data access is required
- technological, software innovations
- age of systems

external costs

- costs of broadband
- travel costs
- shipping costs
- hardware costs



APPROACH TO COST ANALYSIS

- Using effort, participation and program design of 2021 EM EFP
- Estimate range of costs of at sea observers for fishing effort from 2021 EM EFP (Alternative 1)
 - Using sea day costs reported in Observer Program 2021 Annual Report
- Estimate range of costs of 2021 EM EFP (Alternative 2)
 - EM costs reported by providers in cost categories identified by subgroup
 - Shoreside observer costs estimated based on discussions with providers
- Qualitatively describe comparisons and how costs may change with potential regulated program



AT SEA OBSERVER COSTS

Estimated observer days of EM trips in 2021 EFP x sea day cost of at sea observer

Fully loaded sea day in the observer annual report.

Full coverage: \$378-\$415/day, Partial coverage: \$1309-\$1383/day



AT SEA OBSERVER COSTS

Estimated observer days of EM trips in 2021 EFP x sea day cost of at sea observer

Fully loaded sea day in the observer annual report.

Full coverage: \$378-\$415/day, Partial coverage: \$1309-\$1383/day

Number of observer days are estimated using new method:

pelagic trawl pollock trips made
between 2017 and 2019 for
vessels that later participated in
the trawl EM EFP

Observer days deployed

Observed days fished

= Expansion ratio
(~1.3)



AT SEA OBSERVER COSTS

Estimated observer days of EM trips in 2021 EFP x sea day cost of at sea observer

Fully loaded sea day in the 2021 observer annual report.

Full coverage: \$378-\$415/day, Partial coverage: \$1309-\$1383/day

Number of observer days are estimated using new method:

$$\left. \begin{array}{l} \text{pelagic trawl pollock trips made} \\ \text{between 2017 and 2019 for} \\ \text{vessels that later participated in} \\ \text{the trawl EM EFP} \end{array} \right\} \frac{\text{Observer days deployed}}{\text{Observed days fished}} = \text{Expansion ratio} \\ (\sim 1.3)$$

$$\left. \begin{array}{l} \text{trawl EM EFP} \\ \text{trips in 2021} \end{array} \right\} \text{Expansion ratio} \times \text{Days fished} \times \text{observer coverage rate} = \text{Estimated observer days deployed}$$



AT SEA OBSERVER COSTS

		days fished	expansion ratio	coverage rate	observer days	sea day cost	Total cost
Partial coverage	low estimate	1,041	1.31	20%	273*	\$ 1,309	\$ 357,019*
	high estimate	1,041	1.31	30%	409*	\$ 1,393	\$ 569,894*
Full coverage	low estimate	3,841	1.32	100%	5,070	\$ 378	\$ 1,916,460
	high estimate	3,841	1.32	100%	5,070	\$ 417	\$ 2,114,190

*revised from document



EM COSTS

Table 5-36 Total costs and average per unit costs for the 2021 Trawl EM EFP. Numbers in parenthesis correspond to the level of participation and effort in the 2021 EFP. *Day is sum of estimated fishing days as reported in Table 5-10 and Table 5-18.

Ongoing costs	Total costs	Average per unit cost for 2021 EFP		
		CV (68)	Trip (1503)	Day* (4882)
1. Service Provider Fees and Overhead	\$188,559	\$2,773	\$125	\$39
2. EM Equipment Maintenance and Upkeep	\$86,832	\$1,277	\$58	\$18
3. Data Transmittal	\$5,720	\$84	\$4	\$1
5. Data Review	\$101,488	\$1,492	\$68	\$21
6. Data Processing and Storage	\$9,403	\$138	\$6	\$2
Total ongoing costs	\$392,002	\$5,765	\$261	\$80
One-time costs	Total costs	CV (15)	Tender (2)	
4. Equipment Purchases and Installation	\$276,653	\$17,496	\$7,106	

Source: Discussions with EFP EM service providers and data reviewers.

p. 181



Cost categories and subgroup development process described p1768



EM COSTS

Table 5-34 participation and effort by program component in 2021 EM EFP. *Metrics reported are for CVs that delivered to tenders. 4 tenders accepted EM deliveries in 2021. **Given overlapping participation totals may differ from sum of each element

Area	CVs		Trips		Hauls		Days	
	number	%	number	%	number	%	number	%
BS	34	59%	1,055	70%	3,321	78%	3,041	79%
BS and GOA	12	18%	na	na	na	na	na	na
GOA	22	41%	448	30%	951	22%	823	21%
using tenders in GOA*	3	4%	20	1%	24	1%	22	1%
Total**	68		1,503		4,272		3,864	

Cost category	Variables
1. Service Provider Fees and Overhead (Ongoing)	Related to a combination of vessels and effort- some costs are based on the amount of data generated and tracked, some based on the number of vessels participating- the variability in costs per vessel is quite large.
2. EM Equipment Maintenance and Upkeep (Ongoing)	More driven by the number of vessels
3. Data Transmittal (Ongoing)	More likely related to effort
4. Vessels Original Equipment Purchases and Installations (One time)	Dependent upon the new vessels participating and more driven by specifics such as the location and availability of the vessel.
5.Data Review (Ongoing)	More likely related to effort
6.Data Storage (Ongoing)	More likely related to effort

SHORESIDE COSTS AFA

- AFA shoreside plants located in the BSAI will realize an increase in the number of observer plant days because of additional shoreplant observer responsibilities and there is no at-sea observer support from the boat to help at the plant.
- AFA plants in Sand Point and perhaps King Cove could be impacted by how they are treated on days they only take GOA pollock deliveries (discussed later) .
- AFA will still be required to pay their portion of the partial coverage fee on pollock harvested from the GOA.
- A specific number of observers for each plant will not be defined in regulation to allow NMFS to adjust coverage to meet sampling needs as they may change.
- Increasing the number of plant observers needed is expected to increase costs plant operators must pay for coverage relative to the No Action alternative. The analysis does not address how increased plant observer costs and vessel's at-sea observer cost savings will be negotiated between the parties involved.



SHORESIDE COSTS AFA

- Table 5-42 shows estimated 2021 BS costs for plant observers using the 1,599 EM shoreside observer days and a range of shoreside observer cost per day compared to the estimated full coverage at-sea observer deployment days (Table 5-30) that would have occurred (5,070) on EM trips that year.
- Note the shoreside costs excludes the Sand Point and King Cove shoreside costs for confidentiality reasons, since they were included in the Kodiak, King Cove, and Sand Point grouping.
- Increasing the number of plant observers needed is expected to increase costs plant operators must pay for coverage relative to the No Action alternative. The analysis does not address how increased plant observer costs and vessel observer cost savings will be negotiated between the parties involved.

	Low	Mid	High
\$/day	\$380	\$410	\$430
Shoreside Cost	\$608K	656K	688K
At-sea Cost	\$1,916K	n/a	\$2,114K



SHORESIDE COSTS NON-AFA

- Non-AFA shoreside plants that take deliveries of GOA pollock will pay their portion of the partial coverage fee and that fee will cover shoreside observer costs for non-AFA plants.
 - The Council has decision points on the cost of how food and housing is paid and
 - Options for when the King Cove and Sand Point (primarily) will be in full/partial coverage
- As with the AFA plants, a specific number of observers for each plant will not be defined in regulation to allow NMFS to adjust coverage to meet sampling needs as they may change.
- Because partial coverage plant observers are paid from the partial coverage fee the plant operators will not realize a change in costs of actual coverage.



SHORESIDE COSTS NON-AFA (PARTIAL COVERAGE)

	Low	High* (mid for shoreside)
Shoreside Observer		
Cost per day	\$500	\$1,050*
Coverage Rate	30%	30%
Total Cost	\$274K	\$575K



AFA SHORESIDE PLANTS IN WGOA

Table 5-33 Potential shoreside observer coverage option

GOA Pollock	BS Pollock	Coverage	Fee	Processor Responsibility
No	Yes	Full	Pay-as-you-go	Processor must contract with observer provider for full coverage observer for all offloads
Yes	Yes	Full	Pay-as-you-go, plus 1.65% on GOA catch	Processor must contract with observer provider for full coverage observer for all offloads and notify NMFS they will be in full coverage that day
Yes	No	Partial	1.65% exvessel value	Processor must have partial coverage observer available to monitor deliveries



PARTIAL COVERAGE PLANT OBSERVER FOOD AND LODGING

- Two options are being considered
 - Paid for with the partial coverage fee or
 - The processor pays the cost in addition to the partial coverage fee.
- Per diem rates for Kodiak in 2022 are \$109 per day for food and incidentals.
- Housing costs are \$123 per day for October through April and \$207 per day for May through September.
- Based on the CAS data about 80 percent of the trips were in the October through April period.
- Applying that ratio to the total 548 shoreplant observer days yields an estimated food and lodging cost of \$136,000 per year. Assuming the number of days is relatively constant in the future and the food and lodging of \$316 per day for May through September or \$232 per day for October through April does not change.
- That cost equates to about 100 at-sea observer days in the partial coverage sector.



SUMMARY OF ESTIMATED COSTS

Estimated costs of Alternative 1 (for effort associated with 2021 trawl EM EFP)

Description	Area	Low Estimate	High Estimate
Partial coverage at-sea Observer Cost	GOA	\$357,000	\$570,000*
Full coverage at-sea observer cost	BS	\$1,916,000	\$2,914,000
Full coverage shoreside monitoring cost	BS	\$304,000	\$344,000
Total	BS and GOA	\$2,577,000	\$3,828,000

Estimated costs of 2021 trawl EM EFP (Alternative 2 at 2021 EFP level of effort, scope, scale)

Description	Area	Low Estimate	High Estimate
Ongoing EM costs (does not include one-time equipment costs)	BS and GOA	\$392,000	\$392,000
Partial coverage shoreside monitoring cost	GOA	\$274,000	\$575,000
Full coverage shoreside monitoring cost	BS	\$608,000	\$688,000
Total	BS and GOA	\$1,274,000	\$1,655,000



CONCLUSIONS OF COST ESTIMATES

- Expected overall cost savings with EM
 - Exact difference uncertain
 - Difficult to parse EM costs by sector
 - Expected substantial savings in full coverage
 - Uncertain if savings will be realized in partial coverage category
- Potential changes in distribution of costs
 - Differs by sector (pay-as-you-go vs. observer fee & at-sea vs. shoreside)
- Uncertainty of future costs
 - Program design, scope, scale, flexibilities, contracts



INCENTIVES TO PARTICIPATE

EM Incentives	BS	WG	CG	Tenders
Cost to CVs	Positive Incentive substantial cost savings	N/A: costs are paid by the 1.65% observer fee		
Cost to Processors	Negative Incentive: Increased shoreside observer costs	Depends on how Council treats AFA plants that primarily take GOA pollock deliveries. There will be increased costs associated with implementing the CMCP.	Depends if food and housing is paid by the processor or the fee. Assuming that housing and food is paid by the fee there would be no increased cost. There will be increased costs associated with implementing the CMCP and its requirements.	N/A
Cost to Tenders	Small Impact as there are few if any tender vessels used in the EEM. Those costs would be pollock fishery on an annual basis.	Costs to tender operators would increase if they use improve salmon PSC accounting and is considered a substantial benefit of the EM program.	Small Impact as there are few if any tender vessels used in the CG pollock fishery on an annual basis.	Overall costs to tenders would increase by the cost of EM they must pay because they were not required to carry observers under the Status Quo or when CVs delivering to them are not using EM.



INCENTIVES TO PARTICIPATE

EM Incentives	BS	WG	CG	Tenders
Overall cost	Positive incentive since CV cost savings would outweigh the increased costs to shoreside processors.	If costs are paid by the 1.65% fee, no change to the vessel operator, however may be changes to other partial coverage sectors.	Unknown: There are too many unknowns with the program design and future program participation to estimate	Increased monitoring costs are outweighed by benefits derived from improved salmon accounting, trip limit issues, and MRAs
Observer access	Vessels that need to carry an observer are typically able to access coverage for trips. However, in the rare cases an observer is not available, trawl EM would eliminate (except instances when a vessel could be required to have both EM and an observer) the need to access an observer.			
Observer/crew interactions	Not having an observer on a vessel would reduce any negative observer/crew interactions.			N/A



INCENTIVES TO PARTICIPATE

EM Incentives	BS	WG	CG	Tenders
Trip Limits	N/A	Could benefit CVs by determining trip limit overages based on the specifics defined in incentive plan and not each trip.		
MRA	CVs would be required to retain all catch when operating in the EM program (except for specific exemptions). Requiring CVs to retain all catch exempts them from MRAs creating a positive incentive.			
Trip Gross Revenue	Unchanged	Little change	Could decrease if multispecies trips were reduced or eliminated because of the EM requirements	Little change
Other Partial Coverage Sectors	N/A	Will depend on the relative cost of Trawl EM to total observer cost in the pelagic pollock fishery – including the increase cost for equipment and shoreside observer coverage and expenses). Total observer fees collected are not expected to change substantially as a direct result of this program. If CG revenues are decreased as a result of the issues associated with multispecies trips, revenues generated by the 1.65% ex-vessel observer fee could decline.		



INCENTIVES TO PARTICIPATE

EM Incentives	BS	WG	CG	Tenders
Observer Providers	<p>Lose observer coverage days that are billed, since it is anticipated that most vessels will opt for EM coverage. Will also lose opportunities to train observers in the BS pollock fishery.</p>	<p>Expected to lose some observer coverage days in the partial coverage category. CVs that operate mostly in the WG are expected to join the EM program. Vessels that primarily fish the CG but also fish the WG are more likely to opt out of EM than CVs that primarily fish the WG, depending in the annual opt-in requirement.</p>	<p>Depends on program design. Annual opt-in could result in small changes to observer days supplied. The difference would come from AFA vessels that also fish in the GOA but opt to use EM in both the GOA and BS.</p>	N/A
EM Providers	<p>EM providers will benefit from increasing the number of vessels using EM equipment and services.</p>	<p>EM providers will realize a small increase in CVs using EM, but there are relatively few vessels that primarily fish WG pollock.</p>	<p>Depends on the annual opt-in requirement, if an annual opt-in is required fewer vessels may participate in the EM program.</p>	<p>Few tender vessels participate on an annual basis and EM equipment could be shared by tenders. However, the salmon accounting issues are expected to provide incentives for most to use EM, creating a small benefit to EM providers.</p>



OUTSTANDING POLICY DECISIONS

- Opt-in approach for GOA vessels
 - Annual opt-in (original)
 - If vessel opts in, every trip where pelagic gear is deployed and pollock is harvested is EM for the calendar year
 - Annual opt-in (revised)
 - If vessel opts in, trips using only pelagic trawl gear are EM, Multigear trips are in partial coverage observer selection pool
 - Threshold approach
 - If vessel opts in, certain percentage of trips are required to be EM
 - Annual or Seasonal
 - Regulation or ADP
- Partial coverage fee
 - Food/lodging for shoreside observers
 - Use of partial coverage fee would be consistent with fixed gear EM program
 - If not paid for by partial coverage fee, processors pay fee and direct costs
 - EM equipment/service
 - Use of partial coverage fee would be consistent with fixed gear EM program



OTHER COUNCIL CONSIDERATIONS

- MRA/Trip limit incentive plans
 - reporting requirements
- BSAI EM review fee
- Contract/grant development and management priorities
- CDQ/AI pollock
 - if prosecuted by CVs/fishery opened EM program could apply



THANK YOU

Contributors

- Steve Barbeax, AFSC
- Jennifer Cahalan, PSMFC
- Wynn Carney, NOAA OLE
- Kelly Cates, AKRO
- Obren Davis, AKRO
- Martin Dorn, AFSC
- Anne Marie Eich, AKRO
- Jennifer Ferdinand, AFSC FMA
- Mary Furuness, AKRO
- Phil Ganz, AKRO
- Jason Gasper, AKRO
- Pete Hulson, AFSC
- Jim Ianelli, AFSC
- Wes Larson, AFSC
- Bridget Mansfield, AKRO
- Geoff Mayhew, PSMFC
- Tom Meyer, NOAA GC
- Krista Milani, AKRO
- Scott Miller, AKRO
- Jennifer Mondragon, AKRO
- Cole Monnahan, AFSC
- Alex Perry, NOAA OLE
- Julie Scheurer, AKRO
- Lisa Thompson, AFSC FMA
- Cindy Tribuzio, AFSC

Persons Consulted

- Julie Bonney and Chelsae Radell, AGDB
- Samantha Case, CDC/NIOSH/WSD
- Ruth Christiansen, UCB
- Stefanie Dukes and Mike Orcutt, Archipelago Marine Research
- Jared Fuller
- Michael Lake and David Edick, Alaskan Observers
- Charlotte Levy, Aleutians East Burrough
- Nancy Munro, Stacey Hansen, and Jo Ann Alvarez, Saltwater Inc.
- Courtney Paiva, PSMFC
- Luke Szymanski, AIS

