

Initial Report to NMFS

Exempted Fishing Permit # 2019 – 02

Prepared by dave fraser and George Pollock – Co-PI's

November 18 , 2019

EFP # 2019 - 02 authorized vessels participating in the 2019 and 2020 Aleutian Islands (AI) pollock fishery to conduct experimental fishing to provide information on methods to reduce bycatch of Pacific ocean perch (POP). This interim report includes a summary of project objectives, statistical areas fished, vessels used, a detailed description of activities, any problems and successes, and how well EFP objectives were accomplished.

Summary of project objectives (Purpose and Goals) -

The purpose of the EFP was to test an alternative management framework for limiting POP bycatch in the AI pollock fishery which could potentially provide an opportunity for the Aleut Corporation to develop an economically viable AI pollock fishery while improving safety at sea and reducing the potential overall POP bycatch mortality.

Goals included:

- Prosecuting the Aleut Corporation's AI pollock allocation while testing methods to minimize POP catch.
- Limiting POP bycatch mortality and waste in a fully prosecuted AI pollock fishery through full retention and accounting of POP bycatch while limiting of overall POP catch to 500 tons.
- Improving safety at sea by reducing the amount of time necessary to stow catch by eliminating the need to sort POP from the catch on deck.
- Gathering relevant data on timing and location of POP bycatch during the EFP AI pollock fishery that may be examined for correlations to determine means of reducing bycatch rates.

Statistical areas fished

All fishing was conducted in the eastern Aleutian Islands area 541. All hauls were within the Atka Study Area of the 2006 Aleutian Islands Cooperative Acoustic Survey Study (AICASS) conducted in March – April 2006.

Figure 1, below shows the Atka Study Area from the 2006 AICASS.

Set and haul locations were plotted on Google Maps, shown in Figure 2.

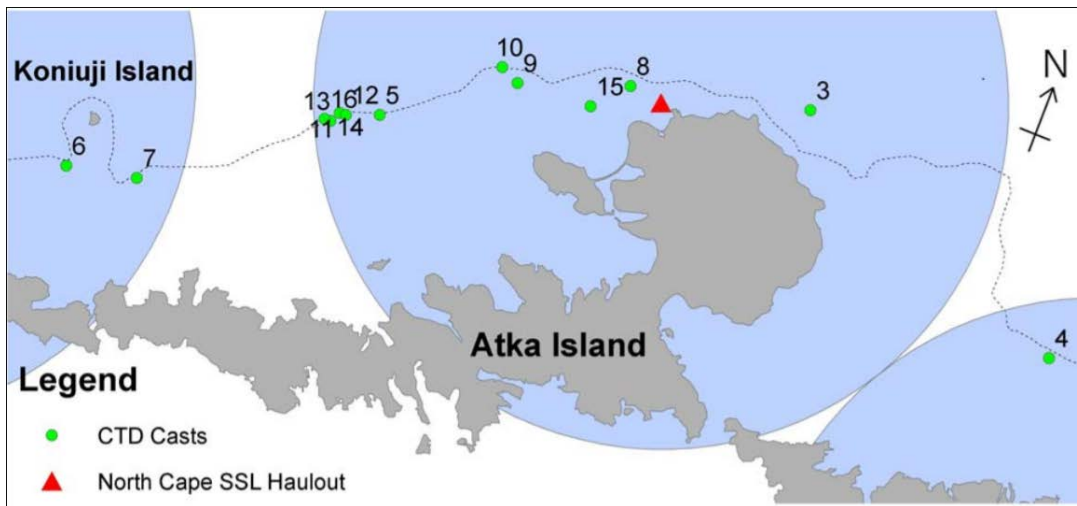


Figure 1 – Adak Study Area from 2006 AICASS



Figure 2 – Locations of Hauls for 2019 EFP

Vessels used

Two vessels were approved to participate under the EFP permit.

One was the 102 foot FV Muir Milach, which had also participated in the 2006 to 2008 AICASS study.

The second vessel was the 58 foot FV Equinox.



Figure 3 - FV Muir Milach



Figure 4 - FV Equinox

Detailed description of activities

The participating vessels were provided with log books to record potentially relevant correlative factors. Location, time, and depth data from Muir Milach's log book detailing each haul are summarized in Table 1. A copy of the logbook is attached as appendix 1.

An observer sampled each haul and provided extrapolated amounts of POP and other incidental bycatch, which can be compared to the Captain's estimates and to actual weights taken at the processing plant in Table 2 (a-d).

Current and tide data for the nearest reference stations are presented in Tables 3 and 4 for the days when tows were made, and are also shown graphically in Figures 5 and 6

Problems and successes

The intent was to commence pollock fishing under the EFP immediately following the closure of A season cod fishing in the AI which occurred on March 16th. Unfortunately a number of factors delayed the start of fishing until March 25th. These included finalizing the processor's CMCP for pollock, getting

observers to Adak for the plant and the Equinox, and the Muir Milach needed to make a trip to Unalaska to pick up their pollock net and an observer.

The Equinox attempted a pollock trip March 28th but the weather was too severe and they did not set a net. Equinox provided notice that they were suspending fishing under the EFP without having made any tows.

After its pollock delivery on the 29th, the Muir Milach switched back to cod gear for the B season opening. Muir Milach intended to make another pollock trip following the B season cod closure, but they had a mechanical problem with their hydraulic auxiliary while fishing cod. The Muir Milach determined it would take too much time needed to get parts and a mechanic to Adak to make repairs. Muir Milach notified NMFS they would not resume operating under the AI pollock EFP during 2019.

Summary of the results of the hypotheses

The underlying hypotheses being tested was whether it is possible that POP catch can be avoided or minimized based on correlations with time of day, time of year, depth of net, depth of bottom, characteristics of the thermocline, net modifications, etc. The objective was to gather sufficient relevant data that could be examined for correlations.

The 2019 data set from fishing under the EFP consists of 5 hauls. Due to the limited amount of data it was not possible to draw any statistically significant conclusions about correlations with the factors for which data were collected.

How well EFP objectives were accomplished

Full harvest of the A season DFA limit of 10,361 tons within the 500 ton POP constraint was identified in the permit as the best metric of success. By that measure the 2019 phase of the EFP was not successful.

We were able to collect relevant data on timing, depth, and location of POP bycatch during the EFP AI pollock fishery and cross reference it to environmental variables such as tide, current and time of day. With a larger data set from the 2020 season we should be able to examine the data for correlations to determine means of reducing bycatch rates.

One of the objectives was to reduce the waste of POP that would have been discarded without the EFP. All POP was retained and processed.

Data Tables:

Table 1 – Muir Milach Tow Data

Captain's Logbook Tow Data									
Haul Number	Latitude set	Longitude set	Deploy Date Time	Latitude haul	Longitude haul	Retrieve Date Time	Duration	Bottom depth	Net depth
MM 47 - EFP1	52 26.1	173 50.3	3/26/2019 2:10:00 AM	52 26.0	173 53.3	3/26/2019 3:00:00 AM	0:50	170	145
MM 48 - EFP2	52 15.6	174 51.0	3/26/2019 11:00:00 PM	52 18.9	174 46.4	3/27/2019 12:40:00 AM	1:40	190	165
MM 49 - EFP3	52 13.6	175 05.0	3/27/2019 3:50:00 AM	52 17.7	175 04.9	3/27/2019 7:00:00 AM	3:10	195	165
MM 50 - EFP4	52 14.3	175 08.5	3/28/2019 6:25:00 PM	52 15.1	175 06.8	3/28/2019 6:55:00 PM	0:30	185	160
MM 51 - EFP5	52 14.9	175 07.5	3/29/2019 1:05:00 AM	52 11.0	175 03.4	3/29/2019 3:50:00 AM	2:45	175	150

Table 2(a-d) - POP Percentage Comparisons

Captain's Estimates for Hauls EFP1 to EFP5					
Haul Number	Hail Weight LBS	POP as % of Total Wt. at Set	POP as % of Total Wt. at Haulback	POP as % of Total Wt. at on deck	POP Wt. estimate based on deck
MM 47 - EFP1	4,000	10%	50%	100%	4,000
MM 48 - EFP2	90,000	10%	15%	100%	90,000
MM 49 - EFP3	160,000	15%	15%	10%	16,000
MM 50 - EFP4	500	10%	30%	30%	150
MM 51 - EFP5	10,000	10%	10%	10%	1,000
Total (in lbs)	264,500			42%	111,150
Fish Ticket Data for Hauls EFP1 to EFP5					
Fish ticket #	Total Fish Ticket Wt.	Fish Ticket Pollock Wt.	Fish Ticket POP Wt.	POP as % of Pollock Wt.	POP as % of Total Wt.
E19-089954	-	-	-	-	-
E19-089954	-	-	-	-	-
E19-089954	234,329	143,991	90,338	63%	39%
E19-090252	-	-	-	-	-
E19-090252	13,081	10,769	2,312	21%	18%
Total (in lbs)	247,410	154,760	92,650	60%	37%
Observer Extrapolation by Haul					
Haul Number	Total Fmp Groundfish Wt.	Pollock Wt.	Pacific Ocean Perch Wt.	POP as % of Pollock Wt.	POP as % of Total Wt.
MM 47 - EFP1	1.8	0.2	1.6	994%	91%
MM 48 - EFP2	43.1	2.1	41.0	1952%	95%
MM 49 - EFP3	74.8	69.3	5.6	8%	7%
MM 50 - EFP4	0.2	0.1	0.1	92%	48%
MM 51 - EFP5	4.5	4.4	0.1	3%	3%
Total (in lbs)	274,495	167,681	106,813	64%	39%
Observer Extrapolation by Delivery					
Haul Number	Total Fmp Groundfish Weight	Pollock Wt.	Pacific Ocean Perch Wt.	POP as % of Pollock Wt.	POP as % of Total Wt.
MM 47 - EFP1					
MM 48 - EFP2					
MM 49 - EFP3	119.7	71.5	48.2	67%	40%
MM 50 - EFP4					
MM 51 - EFP5	4.8	4.5	0.2	5%	5%
Total (in lbs)	274,495	167,681	106,813	64%	39%

Table 3 – Current Data

Tidal Current Predictions for 1.2 miles SW of Fennimore Rock by Day - (Mean Flood Dir. 10 degrees, Mean Ebb Dir. 140 degrees)											
Date_Time (LST/LDT)	Event	Speed (knots)	Date_Time (LST/LDT)	Event	Speed (knots)	Date_Time (LST/LDT)	Event	Speed (knots)	Date_Time (LST/LDT)	Event	Speed (knots)
3/26/2019 1:40	ebb	-2.36	3/27/2019 2:40	ebb	-1.62	3/28/2019 0:52	slack	-	3/29/2019 2:16	slack	-
3/26/2019 4:47	slack	-	3/27/2019 5:41	slack	-	3/28/2019 3:52	ebb	-1.08	3/29/2019 5:10	ebb	-0.86
3/26/2019 6:48	flood	2.91	3/27/2019 7:36	flood	2.42	3/28/2019 6:35	slack	-	3/29/2019 7:41	slack	-
3/26/2019 9:16	slack	-	3/27/2019 10:04	slack	-	3/28/2019 8:30	flood	1.99	3/29/2019 9:30	flood	1.68
3/26/2019 12:58	ebb	-3.63	3/27/2019 13:46	ebb	-3.13	3/28/2019 11:04	slack	-	3/29/2019 12:10	slack	-
3/26/2019 17:29	slack	-	3/27/2019 18:23	slack	-	3/28/2019 14:40	ebb	-2.66	3/29/2019 15:46	ebb	-2.33
3/26/2019 19:48	flood	3.2	3/27/2019 20:54	flood	2.86	3/28/2019 19:23	slack	-	3/29/2019 20:23	slack	-
3/26/2019 23:28	slack	-				3/28/2019 22:18	flood	2.67	3/29/2019 23:42	flood	2.68

Table 4 – Tide Data for Adak and Atka, with Tide & Current Status for Time of Gear Deployment

Adak Tide Predictions				Atka Tide Predictions				Atka Tide Stage at Time of Sets		
Date	Time (LST/LDT)	High/Low	Feet	Date	Time (LST/LDT)	High/Low	Feet	Haul Number	Deploy Date Time	Atka Tide Stage & feet
				3/26/2019	0:42	H	2.82	MM 47 - EFP1	3/26/2019 2:10:00 AM	2.78 Ebbing
3/26/2019	4:21	2.64	L	3/26/2019	4:54	L	2.12	MM 48 - EFP2	3/26/2019 11:00:00 PM	2.19 Flooding
3/26/2019	9:23	3.45	H	3/26/2019	9:48	H	2.87	MM 49 - EFP3	3/27/2019 3:50:00 AM	2.68 Ebbing
3/26/2019	17:28	-0.42	L	3/26/2019	17:48	L	-0.77	MM 50 - EFP4	3/28/2019 6:25:00 PM	-0.48 Low Slack
3/27/2019	1:35	3.17	H	3/27/2019	1:42	H	2.62	MM 51 - EFP5	3/29/2019 1:05:00 AM	2.24 Flooding
3/27/2019	5:19	2.84	L	3/27/2019	5:36	L	2.14			
3/27/2019	10:00	3.44	H	3/27/2019	10:18	H	2.72			
3/27/2019	18:19	-0.47	L	3/27/2019	18:30	L	-0.94			
3/28/2019	2:41	3.2	H	3/28/2019	2:42	H	2.56			
3/28/2019	6:14	2.94	L	3/28/2019	6:30	L	2.23			
3/28/2019	10:38	3.39	H	3/28/2019	11:00	H	2.81			
3/28/2019	19:09	-0.41	L	3/28/2019	19:24	L	-0.63			
3/29/2019	3:42	3.16	H	3/29/2019	3:18	H	2.49			
3/29/2019	7:03	2.97	L	3/29/2019	7:24	L	2.1			
3/29/2019	11:16	3.31	H	3/29/2019	11:42	H	2.54			
3/29/2019	19:57	-0.25	L	3/29/2019	20:06	L	-0.72			

Fennimore Rock Current at Time of Sets		
Haul Number	Deploy Date Time	Current
MM 47 - EFP1	3/26/2019 2:10:00 AM	Ebb 2.46 kt
MM 48 - EFP2	3/26/2019 11:00:00 PM	Slack to ebb
MM 49 - EFP3	3/27/2019 3:50:00 AM	Ebb 1.62 kn
MM 50 - EFP4	3/28/2019 6:25:00 PM	Slack to flood
MM 51 - EFP5	3/29/2019 1:05:00 AM	Slack to ebb

Figure 5- Atka Tide Graph 3/26-3/29

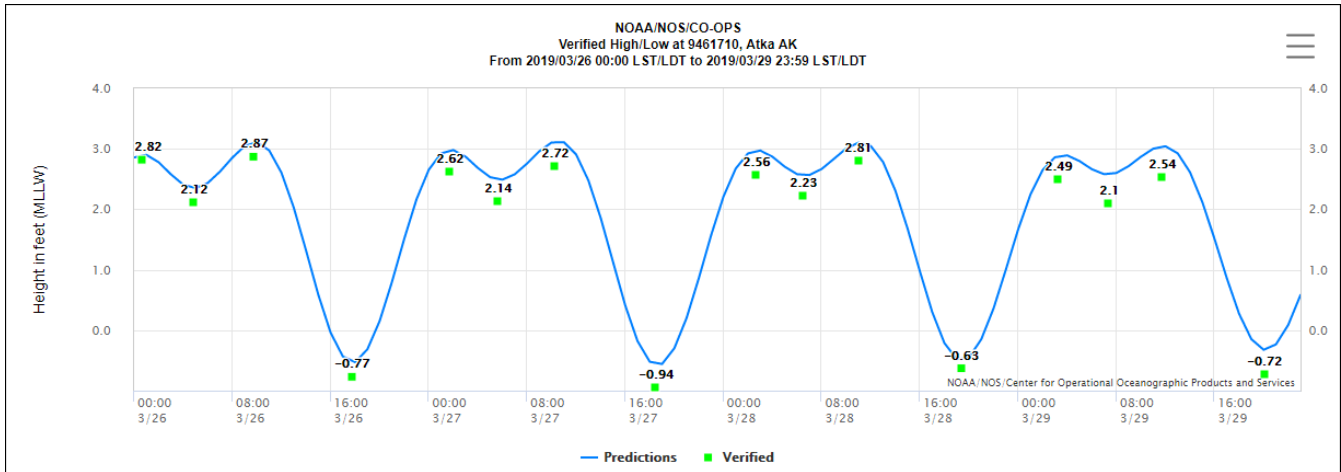


Figure 6 - Fennimore Current Graph 3/26-3/27

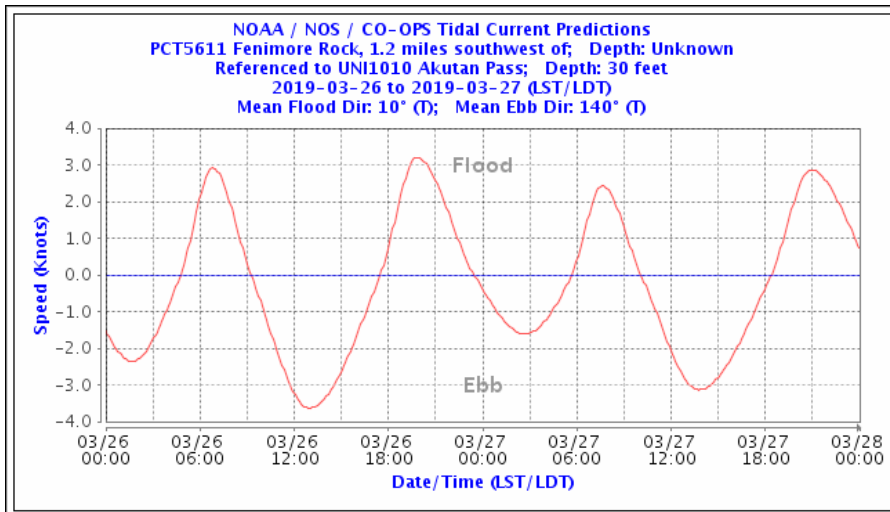
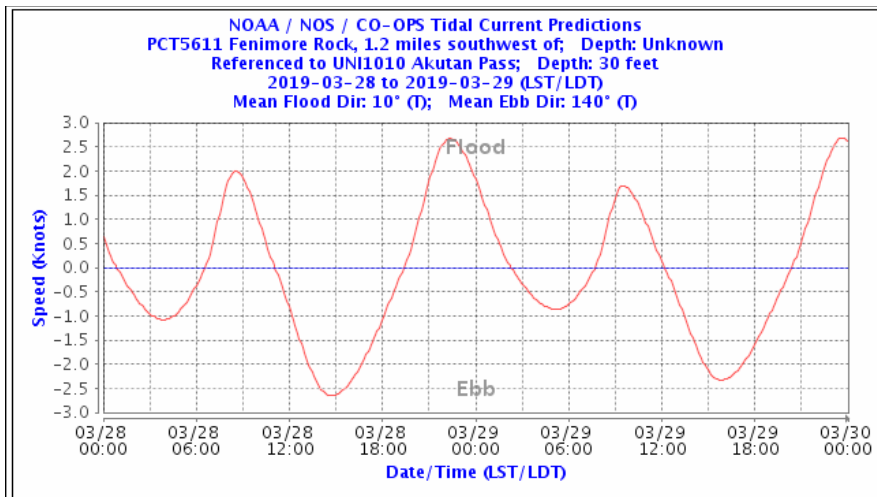

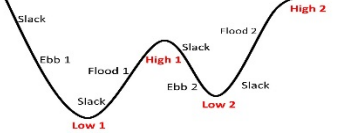
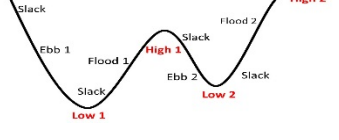

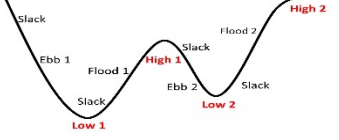
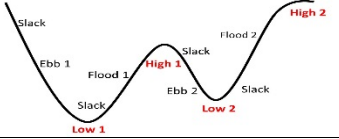


Figure 7- Fennimore Current Graph 3/28-3/29



Vessel Muir Milach Captain David Willmore Observer Cruise Number 23369Delivery Date 3-27&30-19

Haul #	Set L/L Date/Time	Bottom Depth	Haul L/L Date/Time	Weather Code	Estimated Current speed and direction	Sea State Code	Tidal State (Indicate period when fished)	%POP		
		Fishing Depth						Before Set	Haul- back	On Deck
MM48 EFP1	52 26.1 / 173 50.3 3/26/2019 02:10 hr,	170 fm bottom 145 fm net	52 26.0 / 173 53.3 3/26/2019 03:00 hr	2	0.6knots	5		10%	50%	100%
MM49 EFP 2	52 15.6 / 174 51 3/26/2019 23:00 hr	190 fm bottom 165 fm net	52 18.9 / 174 46.4 3/27/2019 0:40 hr	1	0.7 knots	4		10%	15%	100%
MM50 EFP 3	52 13.6 / 175 05 3/27/2019 03:50 hr	195 fm bottom 165 fm net	52 17.7 / 175 04.9 3/27/2019 07:00 hr	1	0.5 knots	4		15%	15%	>10%
MM51 EFP 4	52 14.3 / 175 08.5 3/28/2019 18:25 hr	185 fm bottom 160 fm net	52 15.1 / 175 06.8 3/28/2019 19:55 hr	2	1.0 knots	4		10%	30%	30%
MM52 EFP 5	52 14.9 / 175 07.5 3/29/2019 1:05 hr	175 fm bottom 150 fm net	52 11.0 / 175 03.4 3/29/2019 3:50 hr	3	0.8 knots	5		10%	10%	10%
										

Vessel Muir Milach Captain David Willmore Observer Cruise Number 23369

Delivery Date 3-27&30-19

Haul Number	Additional Notes
MM48 EFP 1	Short test tow – 4,000 lbs straight POP, no pollock.
MM49 EFP 2	Normally a good pollock spot. POP were concentrated on the bank
MM50 EFP3	Much better, estimate 90% pollock
MM51 EFP4	Sign was too close to the bottom – hauled back
MM52 EFP5	Current and wind were too strong, aborted tow

Sea State Code	Wave Height	Characteristics	Weather Code	Cloud Cover
0	0 meters (0 ft)	Calm (glassy)	0	No Clouds/Fog
1	0 to 0.1 meters (0.00 to 0.33 ft)	Calm (rippled)	1	<50% Clouds
2	0.1 to 0.5 meters (3.9 in to 1 ft 7.7 in)	Smooth (wavelets)	2	>50% Clouds
3	0.5 to 1.25 meters (1 ft 8 in to 4 ft 1 in)	Slight	3	100% Clouds/Fog
4	1.25 to 2.5 meters (4 ft 1 in to 8 ft 2 in)	Moderate	Note: Please ensure that this form, your logbook, and the observer haul numbers match..	
5	2.5 to 4 meters (8 ft 2 in to 13 ft 1 in)	Rough		
6	4 to 6 meters (13 to 20 ft)	Very rough		
7	6 to 9 metres (20 to 30 ft)	High		
8	9 to 14 metres (30 to 46 ft)	Very high		
9	Over 14 metres (46 ft)	Phenomenal		