

**Annual Report for Fisheries and Ecosystem Research Activities  
Conducted by Alaska Fisheries Science Center  
January 1 – December 31, 2023**

On October 7<sup>th</sup>, 2019, the Alaska Fisheries Science Center (AFSC) received a Letter of Authorization (LOA) under section 101(a)(5)(A) of the Marine Mammal Protection Act (MMPA; 16 U.S.C 1371(a)(5)) to take marine mammals incidental to fishery and ecosystem research activities in Alaska. Take of marine mammals incidental to AFSC fishery and ecosystem research activities is subject to the provisions of the MMPA and the regulations governing this take as described in 50 CFR Part 219, Subpart F (Regulations). The LOA is valid through October 7, 2024.

Additionally, on March 29, 2018, the AFSC received a Biological Opinion and Incidental Take Statement [50 CFR §402.14] from the U.S. Fish and Wildlife Service (USFWS) under Section 7(b)(4) of the Endangered Species Act. In the Biological Opinion, USFWS considered the effects to short-tailed albatross within federal waters of Alaska, resulting from the proposed fishery and ecosystem research activities (including research by the International Pacific Halibut Commission (IPHC) working in partnership with AFSC). Prior to the 2019 Biological Opinion, in 2017 USFWS issued a Letter of Concurrence (LOC) to AFSC for research activities not likely to adversely affect sea otters, polar bears, spectacled eiders and Steller’s eiders. This BiOp was revised in 2022. ESA Section 7 consultation was informally re-initiated in fall 2022 due to separate interactions with a sperm whale and humpback whale.

On April 5, 2019, AFSC received a programmatic Biological Opinion and Incidental Take Statement from the National Marine Fisheries Service (NMFS) evaluating the potential effects of AFSC and IPHC fishery and ecosystem research on ESA-listed cetaceans, pinnipeds, sea turtles and fish species within the action area.

In accordance with the MMPA and ESA, the AFSC is required to provide annual reports. This annual report covers the period from January 1 – December 31, 2023.

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In each section, a summary for each research area is described in relation to the reporting period. A summary of calendar year 2023 AFSC fishery research surveys can be found in Table 1.

Table 1. Summary of FY 2023 AFSC fishery research surveys

Survey name	Region	Start date	End date
Winter Acoustic-Trawl	Shumagin/ Shelikof/Chirikof/Sanak	2/10/2023	2/22/2023
Winter Acoustic Trawl	Shelikof	3/2/2023	3/18/2023
Bering Sea Moorings and Zooplankton Survey Spring	Eastern Bering Sea	4/21/2023	5/7/2023
EcoFOCI GOA Ichthyoplankton Spring	Gulf of Alaska	5/14/2023	5/25/2023
MESA Alaska Longline Survey	Gulf of Alaska, Bering Sea, Aleutian Islands	5/29/2023	8/28/2023
IPHC Setline Survey	Gulf of Alaska, Bering Sea, Aleutian Islands	5/28/2023	9/15/2023
GAP SAP EBS Bottom Trawl Survey	Eastern Bering Sea	5/17/2023	7/29/2023
GOA Bottom Trawl Survey	Gulf of Alaska	5/18/2023	8/6/2023
Gulf of Alaska Biennial Walleye Pollock Acoustic Trawl Summer	Gulf of Alaska	6/10/2023	8/22/2023
AI Coral Camera Drop Study	Aleutian Islands	7/1/2023	7/15/2023
GOA Coral Settlement Plate Recovery	Gulf of Alaska	8/5/2023	8/13/2023
GAP SAP NBS Bottom Trawl Survey	Northern Bering Sea	7/29/2023	8/24/2023
EMA NBS Surface Trawl Survey (BASIS)	Northern Bering Sea	8/27/2023	9/20/2023
EMA SE Alaska Coastal Monitoring Summer	Southeast Alaska	6/18/2023	7/31/2023
EBS EMA-FOCI Juvenile Fish Survey Fall	Gulf of Alaska	8/27/2023	9/12/2023
EBS/GOA EcoFOCI Mooring Fall	EBS/GOA	8/15/2023	9/08/2023
Gulf of Alaska Juvenile Sablefish Tagging	Gulf of Alaska	8/15/2023	8/20/2023

## **1. Overview of AFSC's mitigation measures**

AFSC has developed and implemented a set of prescribed mitigation measures on all surveys in order to minimize the likelihood or severity of incidental gear interactions with marine mammals and other protected species. These measures vary slightly depending on the gear type and survey but are mainly comprised of dedicated marine mammal / protected species monitoring, move-on rule if protected species are seen during monitoring, and standard operating procedures by gear type. Below are gear specific descriptions of these conservation measures.

### Trawl

#### 15 minute pre-station monitoring

Most research vessels engaged in trawling will have their station in view for 15 minutes or 2 nm prior to reaching the station, depending upon the sea state and weather. For these surveys the tow path is inspected before deploying the trawl gear, adding another 15 minutes of observation time and gear preparation prior to deployment. If marine mammals are observed at or near the station, the Chief Scientist and the vessel operator will determine the best strategy to avoid potential takes based on the species encountered, their numbers and behavior, their position and vector relative to the vessel, and other factors.

#### Move-on rule

If a marine mammal or other protected species is at risk from a research activity before setting gear or when occupying the site, then the research activity will stop until the animal moves away and is no longer at risk. If the animal does not move from the research site, then the research activity will be moved to an alternate location or canceled so there is no longer a risk to the animal or other protected species. If a protected species is encountered during a research activity during gear deployment, then the vessel maintains course, slows down, or takes other actions to avoid direct contact of the animal with the vessel or gear.

#### Active gear monitoring

Active gear monitoring during research activities, gear deployment, fishing, and retrieval, is conducted by a dedicated observer. If a marine mammal is seen during research activities, the most appropriate action to avoid an interaction will be determined using professional judgment and recorded. Professional judgment is only used in circumstances when the gear is already deployed - that is, if a marine mammal is seen during the pre-set watch, the move-on rule must be implemented, but if it is seen when the net is fishing, then professional judgment is used to determine the best course of action to avoid an interaction.

### Longline

#### 15 minute pre-station monitoring and Move-on rule

The AFSC Longline Survey uses bottom longline gear with two 8 kilometer (km) long sets per day. The IPHC survey uses shorter longlines up to 3 nm (6.1 km) and usually deploys three longlines per day. Longline gear is set at predetermined stations if no listed species are present, and the gear is allowed to soak for a minimum of three hours for the AFSC survey and for a minimum of five hours for the IPHC survey before haul-back begins.

#### Gear Deployment and Haul-back

Some species of whales (including sperm whales) have learned the sounds associated with longline operations and sometimes appear as the gear is being retrieved, two primary strategies are used to minimize exposure time of the gear to whale depredation. If whales are present at haul-back, the AFSC sablefish survey vessel retrieves the gear as quickly as possible in order to minimize interactions. Due to the length of the mainline and numbers of hooks involved, it takes up to three to eight hours to complete

the haul-back. If whales are present during IPHC haul-back, the gear is dropped or left and another line retrieved to give the chance for the whales to leave the area near the first line. For both surveys, if whales follow the vessels between survey stations, the survey pattern may be altered to increase the distance between stations as a means to dissuade the animals from depredation and to avoid continued interactions.

### Chumming

AFSC and IPHC longline protocols specifically prohibit chumming (i.e., releasing additional bait to attract target species to the gear) before or during the longline setting operations. However, longline surveys are conducted on contracted commercial fishing catcher/processor vessels and fish are processed as the longline is retrieved. On the AFSC survey vessel, catch is processed aboard the vessel, and offal is macerated and discharged off the side opposite of gear retrieval. This minimizes the attraction to marine mammals and keeps seabirds away from the gear being retrieved. On IPHC survey vessels, bait and undesirable fish are immediately returned to the sea. Due to the small vessels and amount of catch, it is impossible to retain the catch and discard it at another time.

### Gillnet

If no marine mammals are present, the gear is set and monitored continuously during the soak. If a marine mammal is sighted during the soak and appears to be at risk of interaction with the gear, then the gear is pulled immediately in order to minimize the time the net is in the water and exposed to nearby marine mammals. Acoustic pingers may be used to reduce the chance of encounters. Small mesh gillnets are used in AFSC surveys, which may further reduce interactions with marine mammals.

### Biological Oceanography

The AFSC deploys a wide variety of gear to sample the marine environment during all of their research cruises, including but not limited to plankton nets, oceanographic sampling devices, video cameras, high-frequency active acoustics, AUVs, ROVs, and a variety of less commonly used small nets. It is not anticipated that these types of gear or equipment would interact with protected species, or are used rarely, and are therefore not subject to specific mitigation measures. However, vessel operator and Chief Scientist and designated crew monitor for any unusual circumstances that may arise at a sampling site and use their professional judgment and discretion to avoid any potential risks to protected species during deployment of all research equipment.

### Specific Mitigation Measures for Seabirds

The AFSC Longline Survey uses bottom longline gear with two 8 kilometer (km) long sets per day. The IPHC survey uses shorter longlines up to 3 nm (6.1 km) and usually deploys three longlines per day. Tori lines must be used to avoid interactions with the endangered short-tailed albatross and other seabirds. All vessels in or near Spectacled or Steller's Eider critical habitat must avoid disturbing their feeding habitat. At night all vessels must keep all lights of all colors to a minimum and direct any necessary lights inboard and downward to the extent possible. Cover all portholes. All vessels must be vigilant for flotillas of birds, if seen, slow down and give wide berth to avoid spooking birds.

**2. Line-kilometers surveyed during which the EK60/EK80, ES60, ME70, and SX90 were predominant during the reporting period and pro-rated estimates of actual take (Table 2).**

Table 2. Total line-kilometers (kms) surveyed during the reporting period, 2023, for which the EK60/EK80, ES60, ME70, or SX90 echosounder was the predominant acoustic source in Alaska compared to the totals estimated in the AFSC’s MMPA LOA application (Table 69 of AFSC Research BiOp, ECO AKRO-2017-00028).

Survey/Project	Acoustic System	Platform	Dominant Operating Frequency (others concurrent sources in parentheses)	Total Distance (km) over 5 years*	Annual or Survey Permit Distance (km)	Actual Distance (km)
<b>GOA</b>				<b>5 years</b>		<b>2023</b>
Pollock Summer Acoustic Trawl Survey - Gulf of Alaska (Biennial)	EK60/ME70	NOAA Ship Oscar Dyson	18 kHz (38, 70, 120, 200 kHz/70 kHz)	17558	5833	4335
Pollock Winter Acoustic Trawl Survey - Shelikof Strait	EK60/ME70	NOAA Ship Oscar Dyson	18 kHz (38, 70, 120, 200 kHz/70 kHz)	9540	1908	2300
Pollock Winter Acoustic Trawl Survey – Shumagin/Sanak Islands	EK60/ME70	NOAA Ship Oscar Dyson	18 kHz (38, 70, 120, 200 kHz/70 kHz)	4520	904	523
Gulf of Alaska Shelf and Slope Bottom Trawl Groundfish Survey (Biennial)	ES60	Charter Vessel (3)	38 kHz (120 kHz)	9189	3063	1180
<b>BSAI</b>						
Bering Sea Shelf Bottom Trawl Survey	ES60	Charter Vessel (2)	38 kHz (120 kHz)	11200	2240	2182.5
NBS Surface Trawl Survey (BASIS)	ES60	Charter Vessel	38 kHz (120 kHz)	12288	2458	138
Northern Bering Sea Bottom Trawl Survey	ES60	Charter Vessel	38 kHz (120 kHz)	1440	480	201
*Estimated Annual Active Lineal Distance (km) - This considers ONLY effective line effort of active acoustic operations directed at mobile survey efforts (not active transmission during transit or other non-directed times) for each research area.						
NOAA vessel Oscar Dyson deploys the SIMRAD EK60 at 18-, 38-, 70-, 120-, and 200-kHz and the ME 70 multi-beam operating at 70 kHz. In recent years, and foreseeable future operations, the ME 70 will only be run ad hoc, with no real plans, as there was significant cross-talk issues that emerged with concurrent operation with EK60.						
NOTE: All charter vessels used for fishery acoustics include the requirement for a SIMRAD ES60 (or its successor) echo sounder system with either a 38-kHz single or split beam transducer (preferred). All units are calibrated to manufacturer specifications. Arctic EIS survey is sporadic and funding dependent, that is why annual is NA.						

Table 3.

AFSC's annual Level B harassment by acoustic sources for each marine mammal species in Alaska. For each species and predominant source, the cross-sectional area for the relevant depth strata (Table 1) and the volumetric density (shown here, source Table 71 -73 of AFSC Research BiOp. ECO AKRO-2017-00028) to assess Level B harassment for the reporting period.

Common name	Volume tric Density (#/km <sup>3</sup> )	Typical vertical habitat		Reporting Period Total Acoustic Takes	EA Estimated Annual Takes
		0-200 m	>200 m	EK60/EK80	
<b>GOA</b>					
Beluga whale –CI DPS	1	X		<b>0.31</b>	1
Blue whale – Eastern north pacific	0.0005	X		<b>0.04</b>	1
Fin whale – Northeast Pacific	0.1	X		<b>8.6</b>	9
Humpback whale – Central North Pacific Stock	0.05	X		<b>3.8</b>	4
Humpback whale – Western North Pacific Stock	0.0035	X		<b>0.26</b>	1
North Pacific right whale – Eastern North Pacific	0.0265	X		<b>0.02</b>	1
Sei whale – Eastern North Pacific	0.00003	X		<b>0.002</b>	1
Sperm whale – North Pacific	0.002		X	<b>0.49</b>	1
Steller sea lion – Western DPS GOA wide	0.1755	X		<b>24.05</b>	25
Steller sea lion – Western DPS E 144	0.0145	X		<b>1.98</b>	2
Steller sea lion – Western DPS W 144	0.2390	X		<b>32.75</b>	33

<b>BSAI</b>					
Bearded seal – Beringia DPS	1.9675	X		<b>55.55</b>	56
Ringed seal – Arctic Subspecies/Alaska	1.7460	X		<b>49.30</b>	50
Bowhead whale – Western Arctic	0.0850	X		<b>0</b>	0
Fin whale – Northeast Pacific	0.0070	X		<b>0</b>	0
Humpback whale – Central North Pacific Stock	0.0920	X		<b>0</b>	0
Humpback whale – Western North Pacific Stock	0.0080	X		<b>0</b>	0
North Pacific right whale – Eastern North Pacific	0.0015	X		<b>0</b>	0
Sei whale – Eastern North Pacific	0.0009	X		<b>0</b>	0
Sperm whale – North Pacific	0.0160		X	<b>0.46</b>	1
Steller sea lion – Western DPS	0.0595	X		<b>1.68</b>	2
Chukchi/Beaufort Seas					
Bearded seal – Beringia DPS	0.8750	X		<b>0</b>	0
Ringed seal – Arctic Subspecies/Alaska	8.8250	X		<b>0</b>	0

### 3. Summary of AFSC and IPHC gear used during all Fisheries and Ecosystem Research

Table 4. AFSC trawl survey metadata for the reporting period by trawl net and research area.

Research Area	Trawl Net	Total # tows	Fishing Depth Range (m)	Average Tow Duration of active fishing (minutes)
<i>Eastern Bering Sea Shelf</i>	Bottom Trawl	347	20-200 m	15-20
	Plankton Net	0	0-200 m	10-30
	Surface Trawl	0	0-25 m	30
	Midwater	0	50-300 m	variable
<i>Northern Bering Sea</i>	Surface Trawl	46	0-25 m	30
	Bottom Trawl	67	15-80 m	15-20
	Plankton Net	0	0-200 m	10-30
<i>Aleutian Islands</i>	Bottom Trawl	0	20-500 m	15-20
<i>Gulf of Alaska</i>	Mid-water	83	50-300 m	variable
	Bottom Trawl w/ auxiliary underbag net	555	20-700 m	15-20
<i>Bogoslof Island</i>	Mid-water	0	50-300 m	variable
<i>Southeast Alaska Inshore Waters</i>	Surface trawl	0	0-25 m	20
	Seine	0	Nearshore	N/A

Table 5. ASFC and IPHC reporting period longline and hook & line metadata.

Gear Type	Survey	Total # sets	# Hooks	Fishing depth range (m)
<i>Longline</i>	Alaska Sablefish	156	619,650	100-1000
<i>Hook &amp; Line</i>	IPHC	603	435,434	30-119

#### 4. Protected Species Encounters

Table 6. AFSC entries into protected species interaction database

Survey	Date	Protected species	Number killed	Notes
GOA/EBS/AI Longline Stock Assessment Survey	5/30/2023	Laysan Albatross	1	The AFSC longline survey caught a Laysan albatross on May 30 in the Bering Sea. The bird was caught while gear was deployed and subsequently drowned. The bird fell off the hook before hitting the roller and was therefore not retained. While setting the longline gear, the vessel and scientific crew determined the bird deterrent tori lines were functioning properly and were adjusted (pulled in tighter to the gear) to compensate for waves, wind, and current to discourage bird interactions. 15-25 knot winds and 6-9' seas were present during setting. The vessel and science crew have inspected the seabird mitigation tori lines to verify their configuration is appropriate. Heightened vigilance and extra caution will be used during subsequent setting operations to try to avoid the aggressive seabirds.
GOA/EBS/AI Longline Stock Assessment Survey	6/7/2023	Killer Whale	1	The AFSC longline survey found a dead killer whale with its tail wrapped in the groundline during retrieval at approximately 11:25 AM today (June 7, 2023). The event took place in the Bering Sea (56.4616, -171.5883). The animal was apparently depredating on the groundline and became entangled. An approximate time stamp of entanglement is available from a temperature depth recorder (TDR) that was attached to the gear about 25 meters from the entanglement location. This data shows that the TDR reached the bottom (440 m) at 7:37 AM, was motionless until 7:53, at which point it the TDR rose to a depth of 153 m at 8:00 AM before returning to a motionless state at the bottom (432 m). This suggests that the whale became entangled and subsequently drowned while the gear was on the bottom and well before the gear was hauled back, as haul back was initiated at 9:30 AM. The groundline was cut as the crew could not safely unwrap the dead whale, and the remainder of fishing gear was hauled from the opposite end. The whale was no longer attached to the groundline when the vessel finished hauling from the other end, but a portion of the end of this line was collected for a possible tissue sample and genetic identification. The length of the killer whale was estimated at 20-25 feet. The survey coordinator in Juneau was contacted and immediately reported the incident to the NMFS 24-hr Alaska Marine Mammal Stranding Network Hotline and to AKRO OPR Staff (Sadie



				Wright). As advised by AKRO staff, some photos were taken (will attach when available), but no biological samples were collected due to the whale having detached from the line and sinking. Katy Echave, Chief Scientist, acting as the Protected Species Observer, and Dean Paine, captain of the F/V Alaskan Leader, were on watch for marine mammals while setting gear. There were no whales present. While steaming back to the start of the gear to initiate hauling, the captain noted killer whales beginning to follow the vessel. While hauling gear, approximately 25 orcas (appears to be two pods) were observed surrounding the vessel, and depredation was evident. The survey has been experiencing heavy depredation at previous stations by what appears to be two pods of killer whales following the vessel. The weather was relatively calm with 2-3 ft seas, and winds of 10-15 knots.
GOA/EBS/AI Longline Stock Assessment Survey	7/5/2023	Black-footed Albatross	1	The AFSC longline survey caught a black-footed albatross on July 5 in the Eastern Gulf of Alaska. The bird was caught while gear was deployed and subsequently drowned. The bird fell off the hook before hitting the roller and was therefore not retained. The vessel and scientific crew determined the bird deterrent tori lines were functioning properly to discourage bird interactions, but 20-25 knot winds and 8-10' seas were present during setting. The vessel and science crew have inspected the seabird mitigation tori lines to verify their configuration is appropriate. Heightened vigilance and extra caution will be used during subsequent setting operations to try to avoid the aggressive seabirds. Relevant information for the black footed albatross: 1) 1 black footed albatross caught on AFSC longline survey 2) 1 dead 3) July 5 2023 at ~10:24am 4) 54 27.78N 133 55.40W (coordinates at start of haul) 5) Bird deterrents (tori lines) were in place and observed fully operational by chief scientist during setting operations 6) Bird drowned after being hooked during setting operations; observed on hook during gear retrieval 7) Specimen fell off the hook and was therefore not retrieved 8) Tori lines were inspected after the recovery and deemed fully functional
GOA/EBS/AI Longline Stock Assessment Survey	7/24/2023	Black-footed Albatross	1	The AFSC longline survey caught a black-footed albatross on July 24 in the Eastern Gulf of Alaska. The bird was caught while gear was deployed and subsequently drowned. The bird was still on the hook when the gear was hauled, and we took photos and retained the carcass. The bird deterrent tori lines were deployed properly at the beginning of the set

				and were deployed throughout the set. The weather and sea state were relatively calm and not believed to be a factor in this bird interaction. The vessel and science crew have inspected the seabird mitigation tori lines to verify their configuration is appropriate. Heightened vigilance and extra caution will be used during subsequent setting operations to try to avoid the aggressive seabirds.
GOA/EBS/AI Longline Stock Assessment Survey	7/25/2023	Black-footed Albatross	2	The AFSC longline survey caught two black-footed albatross on July 25 in the Eastern Gulf of Alaska. The birds were caught while gear was deployed and subsequently drowned. Both of the birds fell off the hook before they were able to be retrieved at the rail. The bird deterrent tori lines were deployed properly at the beginning of the set and were deployed throughout the set. The weather and sea state were relatively calm and not believed to be a factor in this bird interaction. Gear was deployed at normal speed, and there were no snarls in the gear near the affected skates that may have floated the gear at the surface for more time than normal. It was observed in the morning that there were a lot of black-footed albatross near the vessel but nothing anomalous. The vessel and science crew have again inspected the seabird mitigation tori lines to verify their configuration is appropriate. Heightened vigilance and extra caution will be used during subsequent setting operations to try to avoid the aggressive seabirds.
GOA/EBS/AI Longline Stock Assessment Survey	7/27/2023	Black-footed Albatross	1	The AFSC longline survey caught one black-footed albatross on July 27 in the Eastern Gulf of Alaska. The bird was caught while gear was deployed and subsequently drowned. The bird was retrieved at the rail, photographed, and frozen. The bird deterrent tori lines were deployed properly at the beginning of the set and were deployed throughout the set. The weather and sea state were calm and not believed to be a factor in this bird interaction. Gear was deployed at normal speed, and there were no snarls in the gear near the affected skates that may have floated the gear at the surface for more time than normal. It was observed in the morning that there were a lot of black-footed albatross near the vessel. This is the fourth black-footed albatross take in the last week. It has been hypothesized that because many vessels have switched to pot gear, there may be less food available, making the birds more aggressive. The vessel and science crew have again inspected the seabird mitigation tori lines to verify their configuration is appropriate. Heightened

				vigilance and extra caution will continue to be used during subsequent setting operations to try to avoid the aggressive seabirds.
GOA/EBS/AI Longline Stock Assessment Survey	7/28/2023	Black-footed Albatross	1	<p>The AFSC longline survey caught one black-footed albatross on July 28 in the Eastern Gulf of Alaska. The bird was caught while gear was deployed and subsequently drowned. The bird was retrieved at the rail, photographed, and frozen. This is the fifth black-footed albatross take in the last week.</p> <p>Although the existing bird deterrent tori lines were configured correctly and in good shape, we replaced the bird deterrent lines this morning in an effort to mitigate bird interactions. Prior to deployment, the new tori lines were inspected and deemed to be configured correctly. The tori lines were deployed properly at the beginning of the set and were deployed throughout the set. The weather and sea state were calm and not believed to be a factor in this bird interaction. Gear was deployed at normal speed, and there were no snarls in the gear near the affected skates that may have floated the gear at the surface for more time than normal. It was observed in the morning that there were a lot of black-footed albatross near the vessel, and they were diving on the gear despite the tori lines. Photographs were taken this morning during setting. It has been hypothesized that because many vessels have switched to pot gear, there may be less food available, making the birds more aggressive. Heightened vigilance and extra caution will continue to be used during subsequent setting operations to try to avoid the aggressive seabirds.</p>
GOA/EBS/AI Longline Stock Assessment Survey	7/29/2023	Black-footed Albatross	1	<p>The AFSC longline survey caught one black-footed albatross on July 29 in the Eastern Gulf of Alaska. The bird was caught while gear was deployed and subsequently drowned. The bird fell off the hook before it was able to be retrieved at the rail. The bird deterrent tori lines were deployed properly at the beginning of the set and were deployed throughout the set. The weather and sea state were calm and not believed to be a factor in this bird interaction. Gear was deployed at normal speed, and there were no snarls in the gear near the affected skates that may have floated the gear at the surface for more time than normal. There have been a lot of black-footed albatross near the vessel in the morning and throughout the day, and they appear hungry and more aggressive than normal. The vessel and science crew have again inspected the seabird mitigation tori lines to verify their configuration is</p>

				appropriate. Heightened vigilance and extra caution will be used during subsequent setting operations to try to avoid the aggressive seabirds.
GOA/EBS/AI Longline Stock Assessment Survey	8/4/2023	Steller Sea Lion - Eastern	1	The AFSC longline survey found a dead pinniped, likely a female Steller sea lion, attached to a hook during retrieval at approximately 12:15 PM today (August 4, 2023). The event took place in the Gulf of Alaska (56.14, -146.57) at a depth of approximately 500 m. The animal was apparently hooked on the gear during deployment and subsequently drowned. The animal came off the hook as the groundline cleared the water during retrieval. The animal appeared lifeless and quickly sank from view. The incident was observed by a contract biologist at the rail, who tentatively identified the animal as a female Steller sea lion based on its light-colored fur, robust body, and distinctive snout. The deck boss and rollerman confirmed the contract biologist's description of the animal. The contract biologist was unable to take photos of the animal. The incident was not observed by the chief scientists or any other members of the crew. The longline gear was not damaged by the animal, nor was it fouled and the remainder of the set was pulled without incident. Weather throughout the day was overcast, with good visibility and calm winds (
GOA/EBS/AI Longline Stock Assessment Survey	8/6/2023	Black-footed Albatross	1	8/6/2023 station 88, haul 119 This is an official protected species incidental take (PSIT) notification. The AFSC longline survey caught a black-footed albatross on August 6, 2023 in the Central Gulf of Alaska. The bird was caught while gear was deployed and subsequently drowned. The bird fell off the line after breaking the surface of the water and recovery was not possible. The tori lines were inspected and deemed to be configured correctly. The tori lines were deployed properly at the beginning of the set and were deployed throughout the set. The weather and sea state were calm and not believed to be a factor in this bird interaction. Gear was deployed at normal speed, and there were no snarls in the gear near the affected skates that may have floated the gear at the surface for more time than normal. It was observed in the morning that there were a lot of black-footed albatross near the vessel, and they were diving on the gear despite the tori lines.Q13:Q14
GOA/EBS/AI Longline Stock	8/10/2023	Black-footed Albatross	4	See above

Assessment Survey				
GOA/EBS/AI Longline Stock Assessment Survey	8/13/2023	Black-footed Albatross	1	8/13/2023 ? station 84, haul 132 This is an official protected species incidental take (PSIT) notification. The AFSC longline survey caught one black-footed albatross on August 13, 2023 in the Central Gulf of Alaska. The bird was caught while gear was deployed and subsequently drowned. The bird fell off the line after breaking the surface of the water and recovery was not possible. The tori lines were inspected and deemed to be configured correctly. The tori lines were deployed properly at the beginning of the set and were deployed throughout the set. There were approximately 10-12? swells during gear set, which may have been a factor in this bird interaction. Gear was deployed at normal speed, and there were no snarls in the gear near the affected skates that may have floated the gear at the surface for more time than normal. It was observed in the morning that there were a lot of black-footed albatross near the vessel, and they were diving on the gear despite the tori lines.
GOA/EBS/AI Longline Stock Assessment Survey	8/14/2023	Black-footed Albatross	1	8/14/2023 ? station 129, haul 134 This is an official protected species incidental take (PSIT) notification. The AFSC longline survey caught one black-footed albatross on August 14, 2023 in the Central Gulf of Alaska. The bird was caught while gear was deployed and subsequently drowned. The bird fell off the line after breaking the surface of the water and recovery was not possible. The tori lines were inspected and deemed to be configured correctly. The tori lines were deployed properly at the beginning of the set and were deployed throughout the set. There were approximately 6-8? swells during gear set, which may have been a factor in this bird interaction. Gear was deployed at normal speed, and there were no snarls in the gear near the affected skates that may have floated the gear at the surface for more time than normal. It was observed in the morning that there were a lot of black-footed albatross near the vessel, and they were diving on the gear despite the tori lines.
GOA/EBS/AI Longline Stock Assessment Survey	8/15//2023	Black-footed Albatross	2	8/15/2023 ? station 83, haul 135 This is an official protected species incidental take (PSIT) notification. The AFSC longline survey caught two black-footed albatross on August 15, 2023 in the Central Gulf of Alaska. The birds were caught while gear was deployed and subsequently drowned. The birds fell off the line after breaking the surface of the water and recovery was not possible. The tori lines were

				<p>inspected and deemed to be configured correctly. The tori lines were deployed properly at the beginning of the set and were deployed throughout the set. There were approximately 6-8? swells during gear set, which may have been a factor in this bird interaction. Gear was deployed at normal speed, and there were no snarls in the gear near the affected skates that may have floated the gear at the surface for more time than normal. It was observed in the morning that there were a lot of black-footed albatross near the vessel, and they were diving on the gear despite the tori lines.</p>
GOA/EBS/AI Longline Stock Assessment Survey	8/18/2023	Black-footed Albatross	2	<p>This is an official protected species incidental take (PSIT) notification. The AFSC longline survey caught two black-footed albatross on August 18, 2023 in the Central Gulf of Alaska. The birds were caught while gear was deployed and subsequently drowned. The birds were retained and will be transferred to the Fisheries Monitoring and Analysis Division. The tori lines were inspected and deemed to be configured correctly. The tori lines were deployed properly at the beginning of the set and were deployed throughout the set. The weather and sea state were relatively calm and not believed to be a factor in these bird interactions. Gear was deployed at normal speed, and there were no snarls in the gear near the affected skates that may have floated the gear at the surface for more time than normal. It was observed in the morning that there were many black-footed albatross near the vessel and they were diving on the gear despite the tori lines. haul 140, station 535, Bird 1--skate 129, depth ~556m, approximately 14:30pm Bird 2--skate 178, depth ~755m, approximately 16:15pm 4) Bird 1--57 14.00N 150 40.329W Bird 2--57 12.38N 150 40.00W</p>
GOA/EBS/AI Longline Stock Assessment Survey	8/19/2023	Black-footed Albatross	3	<p>8/19/2023 station 523, haul 142 This is an official protected species incidental take (PSIT) notification. The AFSC longline survey caught three black-footed albatross on August 19, 2023 in the Central Gulf of Alaska. The birds were caught while gear was deployed and subsequently drowned. The birds were discarded at sea. The tori lines were inspected and deemed to be configured correctly. The tori lines were deployed properly at the beginning of the set and were deployed throughout the set. The weather and sea state were relatively calm and not believed to be a factor in these bird interactions. Gear was deployed at normal speed, and there were no snarls in the gear near the affected skates that</p>

				<p>may have floated the gear at the surface for more time than normal. The number of black-footed albatross observed near the survey vessel this year has been particularly high. While making the set, there were many black-footed albatross near the vessel and they were diving on the gear despite the tori lines. Vessel and science crew are being conscientious with bird deterrents during setting operations but the birds have been extremely aggressive. Bird 1--skate 121, depth ~590m, approximately 15:15pm Bird 2--skate 152, depth ~606m, approximately 16:11pm Bird 3--skate 153, depth ~606m, approximately 16:13pm Bird 1?57.10N, -151.06W Bird 2?57.09N, -151.05W Bird 3?57.08N, -151.05W</p>
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a. Protected Species Summary for 2023 AFSC Longline Survey

The operations of the 2023 AFSC Longline Survey were completed in a manner that adhered to the guidelines set forth for avoiding and mitigating interactions with protected species. Throughout the survey, the vessel’s captain made daily log entries when protected species were observed and discussed the observations and/or any mitigation measures with the Chief Scientist. The Chief Scientist also made daily notes about protected species observations following the Alaska Fisheries Science Center’s protected species reporting protocols. Below is a summary of two direct interactions with protected species for the entirety of the AFSC longline survey which sampled the eastern Aleutian Islands and the Gulf of Alaska.

**Orca whale entanglement on AFSC longline survey  
June 7, 2023**

- 1) One orca whale entanglement on the AFSC longline survey. The animal was wrapped by the tail and deceased. All of the gear was recovered and accounted for.
- 2) The orca whale was deceased.
- 3) June 7, 2023 at 11:25
- 4) Location: N 56 27.7, W 171 35.3
- 5) Weather when setting and hauling: seas <2 ft and winds 5 - 10 kt.
- 6) Photographs and video were taken during the encounter by biologist Jessica Miller and chief engineer Jonathon Bittner.

Setting: On June 7, 2023 beginning at 06:30, the F/V Alaskan Leader deployed two 9-km hook-and-line survey sets (90 skates each, with each skate consisting of forty-five 13/0 circle hooks spaced 2 m apart on 100 m of groundline). Throughout both set deployments, Chief Scientist, Katy Echave, was on the bridge serving as the Protected Species Monitor (PSM). Captain Dean Paine operated the vessel. No protected species were observed while setting the gear.

Transit and Haulback: While transiting back to where the gear was first deployed and during haul back of both sets, Mr. Dean served as PSM on the bridge. While transiting, multiple orca whales were spotted within 2 nm of the vessel, following behind as it steamed back to begin hauling at approximately 9:30. During haulback, Ms. Miller reported the first evidence of

depredation (hooks with the bitten remains of fish) on skate #4. The number of orcas within sight of the vessel steadily increased during haulback and at one point approximately 25 orcas (appeared to be two pods) were in the vicinity of the vessel and actively diving on the gear. On multiple occasions, whales were within 10 ft of the vessel's hauling station and the groundline coming over the rail. As described in the AFSC protected species mitigation manual, the vessel's crew retrieved the groundline as quickly as possible to minimize the exposure of the gear to whale depredation and whale interactions.

Encounter: On skate 59 of the first set, the line tightened and hauling slowed, such as when fishing on a sticky bottom or in a strong current. On skate 60, an orca whale surfaced at the hauling station with its tail wrapped 2 – 3 times in the ground line. Hauling was immediately halted and the whale remained attached to the groundline on the side of the vessel. There was no movement by the whale. While the whale was attached to the line at the hauling station, Andrew Dimond, NOAA affiliate with Saltwater Inc., immediately informed Ms. Echave, who then contacted a longline survey coordinator, Kevin Siwicke, in Juneau. Mr. Siwicke informed his AFSC superiors about the situation and contacted the NMFS 24-hr Alaska Marine Mammal Stranding Network Hotline and AKRO Office of Protected Resources staff (Sadie Wright). Since there was no movement by the whale, it was determined by all parties that it was deceased. The whale exceeded the weight limit of the vessel's crane and therefore could not be lifted onto the vessel and towing it to port was unrealistic given the distance to the nearest port (60 nm to St. Paul). Collecting tissue samples from the whale while in the water would not have been safe given the distance to the whale below the hauling station. Ms. Echave consulted with Mr. Paine, and both agreed that the best course of action would be to cut the line due to the deceased nature and difficulty of disentangling the whale from the line.

Once the line was cut, the whale, and the line wrapped around its tail, sunk out of site. The vessel immediately steamed to the opposite end of the groundline, which was attached to a surface line and buoy, and hauled the remainder of the gear in the opposite direction. All hooks and groundline were successfully retrieved (full census of hooks) in this manner and the whale was not seen again as it had apparently become disentangled from the gear. A small piece of groundline from where the line apparently was wrapped on the whale's tail was set aside as a potential tissue sample source. While retrieving from the opposite end of the set, signs of depredation continued and orca whales were observed.

It appears from data collected on a temperature depth recorder (TDR) attached to the groundline on an adjacent skate that the whale became entangled while the gear was on the seafloor, and subsequently drowned. An approximate time stamp of entanglement is available from the TDR that was attached to the gear about 25 meters from the entanglement location, suggesting that the whale encountered the line (at a depth of ~450 m) while it was on the bottom and before retrieval had begun. The whale likely died close to 8:00 AM, when the sensor appears to reach a depth of 150 m before returning to the bottom. The whale was not seen attached to the groundline until 11:25, when it brought to the surface during retrieval. The crew will keep an extra sharp lookout for marine mammals and will employ AFSC's mitigation measures as necessary.



## **Pinniped (Steller Sea Lion) Incidental Take Report 4 August, 2023**

On 4 August, 2023, the Alaska Fisheries Science Center's Longline Survey caught a pinniped (highly probable Steller sea lion). The incident occurred at Station 89 in the Central Gulf of Alaska at approximately 59.14 N, 146.57 W. Exact location was not recorded at time of sighting. Weather throughout the day was overcast, with good visibility and calm winds (<10 knots).

Prior to and during the gear deployment (6:15-8:45), Cindy Tribuzio and Kristen Omori (Chief Scientists with AFSC/ MESA) were on the bridge acting as Protected Species Observers, along with the vessel's captain (Dennis Black), all of who have been trained as Protected Species Observers. No protected species were observed prior nor during setting the gear. The skipper continued to keep a lookout for protected species from the bridge for the remainder of the day while the scientists were inside the vessel sampling fish. No marine mammals or protected species were observed at the surface during any other time of the retrieval of the gear except for this reported incident. Prior to the catch of the sea lion, there was no indication of marine mammal predation on the fish. The first retrieval of gear started at 9:55am.

The Steller sea lion came up on skate 72 (out of 90) on the first haul of the longline gear at around 12:15am around depth 500 m. The animal appeared to be caught on the hook of the gear and hauled roughly half out of the water before it fell off the hook when it hit the roller. The animal appeared lifeless and promptly sank. The incident was observed by contract biologist, Maria McNaughton, who was able to identify the animal as a female Steller sea lion based on its light-colored fur, robust body, and distinctive snout. The deck boss (Issac Luna) and rollerman (Jack Dalton) also confirm the contract biologist's description of the animal. The contract biologist was unable to take photos of the animal, nor was able to record exact latitude and longitude. The incident was not observed by the chief scientists or any other members of the crew, but was reported to the captain. The longline gear was not damaged by the sea lion and the remainder of the set was pulled without incident.

During the remainder of the set (ending at 2:00pm) and the second haul set (3:00 – 6:30pm) in the afternoon the captain kept a vigilant lookout for other marine mammals and protected species. No other marine mammals or protected species were spotted. There were only two hooks that demonstrated predation on the second set and there was no other indication that predation was occurring on the longline gear. This incident appears to be highly unusual and is presumably not likely to happen again. Further operations of the AFSC Longline Survey will continue to comply with the Protected Species protocols and will be completed under vigilant conditions to avoid such incidences.

Table 7. Protected Species Significant Observations during 2023 Winter Acoustic Trawl Surveys, 2023 Summer Acoustic Survey, 2023 EBS bottom trawl survey Spring and Fall Mooring surveys and Juvenile Fish Survey fall. No encounters were reported from other surveys.

Survey	Species	Number	Distance from Vessel (m)	Encounter
Winter Acoustic Trawl	Killer Whale	6	100	Spotted during transit, the pod rapidly moved to >500m off stern and continued their transit.
	Killer Whales	5	100	Transiting along port side of vessel.
Summer Acoustic Survey	Dall's Porpoise	12	5	Bow riding during pre-trawl watch, waited for animals to leave to set gear, but too late to conduct trawl. Aborted and went to next transect.
		6	25	Brief visit, left vicinity of vessel immediately.
	Fin Whale	1	100	Whale blow seen while setting gear, aborted and brought in net.
		3	100	Surfaced while gear was at depth, kept gear at depth as the ship passed the whale.
		30	50	Aborted effort to set gear.
		1	100	Blow seen as whale swam by starboard side of ship while on transect. No action taken.
	Gray Whale	30	50	Slowed and maneuvered to avoid whales.
	Humpback Whale	Few	100	Saw few whales during transect, ship went around them.
		1	100	Passed ship while on transect, no action taken.
		4	50	Seen while on transect, stayed the course at 7 knots as whales were not moving.
		20	100	Whales originally sighted 1-2 miles away, decided to fish on strong signal, but by the time ship was ready to set gear, whales surfaced near ship. Trawl aborted and ship slowed to 6-8 knots.
		2	45	Whales spotted when checking before setting gear, moved fishing locations away from whales.
		6	100	No action taken
		1	50	Saw blows, then whale surfaced near vessel, retrieved gear and moved away from animal.
		1	50	Whale appeared while setting net, then dove. Stopped setting net and hauled back.
	Sperm Whale	1	50	Whale in front of vessel, vessel moved off transect to avoid, whale dove out of sight.
	Whale unidentified	1	50	Whale moved quickly passed ship, no action taken.
		1	100	Swam near vessel, no action taken.
	Pinniped Unid.	1	20	Sea lion swam around CTD cable, then left. No action taken.
EBS Bottom Trawl Survey	Short-tailed Albatross	1	20	Gear in water when juvenile STA was observed. No action. Photos taken
Fall Mooring	Short-tailed Albatross	1	<10	No action taken.
	Fin whale	1	<20	Surfaced near ship. No action taken.

	Killer whale	Few	100	Seen when setting CTD, no action taken, whales left area.
Spring Mooring	Short-tailed Albatross	1	Flying	Juvenile seen flying past vessel.
		1	Flying	Juvenile seen flying past vessel.
		1	Flying	Adult seen flying past vessel at 500m.
		2		Juvenile seen near vessel, no interaction.
		1		Juvenile seen while transiting.
EMA-FOCI Juvenile Fish Survey Fall	Fin whale	3	400	Whales observed during gear retrieval, ship's course changed to avoid interaction.
	Humpback whale	6	600	Whales observed as getting ready to set gear. Whales were not moving so moved-on to next station.
	Whale unid.	4	800	Whales observed as net readying to be deployed, moved station 2nm to avoid interaction.
		5	400	Whales near station location, not moving so moved-on to next station.

a. International Pacific Halibut Commission – Setline Survey

Table 8. Protected Species Observations during 2023 IPHC Survey

Species	Number	Distance from Vessel (m)	Encounter
Northern Fur Seal	1	20	One fur seal approached vessel during haul, spyhopping and swimming as close as 20m from hauling station. It stayed clear of the line. No sign of predation from pinniped or other marine mammals.
Harbor Seal	1	10	One curious harbor seal spotted approaching vessel as flag came aboard and anchor line came up.
Pacific White-sided Dolphin	30	50	Large pod passed by boat. Not in danger of interaction with gear.
Dalls Porpoise	2	30	Two Dall's porpoises sighted during haulback of skate 3. They appeared quickly and then vanished, heading away from the vessel's starboard bow.
	5	5	Dalls porpoises observed in transit while hauling.
Sperm whale	3	75	Sperm whale seen starting on skate 5, no evidence of feeding on halibut in minimal catch but sablefish with evidence of depredation. We don't think that it affected the catch of halibut at this station.
	1	75	One sperm whale sighted approaching vessel within 100m when hauling in anchor line at end of haul. No obvious signs of predation on halibut or bycatch, no significant drop in catch or bent hooks.
	1	30	Sperm whale close to vessel. Did not come near hauling station. No evidence of depredation on halibut or bycatch.
	1	30	Seen at the start of skate 7 at the back of the boat. When the whale dove there was a flurry of BBMS when we watched him do a tail dive. We postponed hauling to limit any further chance of the whale interacting with the gear. Seemed to be resting at the surface of the water for a while. We commenced fishing after we thought the whale had left the area. Came back around skate 6 start and went back down half-way through. We did not specifically witness this whale feeding on discards or halibut nor note a specific drop in catch (though it should be noted catch levels were generally low throughout the entirety of haul).
Humpback Whale	4	300	Seen briefly in the distance. Identified from blow.
	1	300	Observed one small humpback breaching and fluking 300-500m from vessel starboard as anchor line was being hauled at beginning of haulback. Did not proceed with hauling until whale left the area.
Killer Whale	2	300	One Killer Whale transitted area in the distance.
Sei Whale	1	100	Observed briefly in the distance.
Short-tailed Albatross	1	5	Observed following the vessel during skate 1. Specimen was a juvenile, characterized by dark plumage and bubblegum pink beak. No interaction with vessel.
	1	100	Seen while hauling and buoy line.
	1	50	Observed following boat throughout the haul.

	1	45	Juvenile individual seen. Same as previous sighting, large, dark with bright pink big bill.
	1	20	Saw tagging band, but too far away to read.
	2	10	Observed following boat throughout the haul.
	3	30	Three short-tailed albatross sighted. 2 juvenile, 1 adult. No tags or bands visible.
	3	2	Short tail albatross seen starting at seacat deployment and retrieval. A few juvenile, one adult, and one sub adult.
	1	20	There was a juvenile short tailed albatross toward the beginning of the haul. It was gone by the end of skate 1.
	1	10	Juvenile STAL seen throughout set. It came pretty close, but didn't feed on dscards or offal.
	1	10	STAL showed up for both hauls. Not in danger of interacting with gear.

## 5. Seabird Incidental Takes During AFSC and IPHC Research

### Albatross during AFSC longline and IPHC setline surveys

- 1) Multiple sightings – see tables 6 and 8, for more info.
- 2) Short-tailed albatross were observed but did not directly interact with gear and were unharmed.
- 3) Three black-footed and 1 Laysan albatross were taken dead on AFSC longline survey.
- 4) Location: multiple – see table 6.0 for more information.
- 5) Conditions: Direct interactions were typically when wind and sea state were high.
- 6) No pictures

Short-tailed albatross were observed at many stations but there were no direct interactions with those birds. Three black-footed albatross were taken on the gear. Two were taken in the western GOA and 1 in the central GOA. Additionally, a single Laysan albatross was taken in the western GOA. The takes occurred during gear deployment, often when wind and sea state were high, allowing the baited hooks to be present in surface waters for a period longer than usual. On each day before gear deployment, the Chief Scientist verified that bird deterrent (tori) lines were in place. After all albatross takes occurred, tori lines were inspected to ensure they provided the required deterrence and repairs were performed if necessary. The albatross takes were recorded in the PSIT database and reported to AFSC leadership and the Protected Species Coordinator.

## 6. Historical Artifacts

No artifacts were collected in 2023.

## 7. Evaluation of AFSC Mitigation Strategies

To evaluate the effectiveness of the AFSC mitigation measures a post-survey debrief google form survey was sent to all Chief Scientists at the end of survey season in October 2023. We received responses from all of our surveys and used them as discussion topics at a debrief discussion in January 2023.

In 2023, a customer satisfaction survey was sent out to training participants. The feedback was to create a refresher training in addition to the full training. For FY24 a shorter refresher training was developed. The full training will have marine mammal ID and seabird ID. Other suggestions were to create a one-pager for mitigation measures. This is much more difficult request and the compliance coordinator is working

with scientists to determine a solution. Many said there are too many mitigation measures to keep up with and that they are complicated. In partial response to this, the compliance coordinator included scenarios into the FY24 training to better explain the professional judgment part of the mitigation measures. Many scientists wish we could have step-by-step instructions for every possible scenario that may involved research activities and an encounter with a protected species. The addition of scenarios, so far, has led to a better understanding of how to execute the mitigation measures and how to ensure compliance with federal conservation laws. In FY24, it is also being emphasized that all surveys should be including the mitigation measures into their standard operating procedures.

## **8. Protected Species Training for AFSC Staff**

The AFSC is required to conduct annual training for all chief scientists and other personnel who may be responsible for implementing mitigation measures, data collection, and reporting requirements. Mitigation trainings have occurred since 2017 prior to final authorizations, using available information on best practices. Since 2018, a portion of the training was dedicated to discussion on the use of best professional judgment to avoid marine mammal interactions to gain an understanding of successful versus unsuccessful decisions.

The training was developed and conducted by the AFSC compliance coordinator, AFSC seabird specialist, and AFSC marine mammal identification training was done by staff from the AFSC Fishery Monitoring and Analysis division. Trainings in 2023 were conducted virtually via Google Meet and in-person, in what is called a hybrid meeting. The virtual and hybrid trainings included three presenters and successfully delivered the required content regarding mitigation, monitoring and reporting under the MMPA and ESA. The Google platform was easy to use and promoted discussion either via the chatbox or using voice and video after each presentation. In-person attendance was low in the hybrid meetings, so the trainings for FY24 will be fully virtual.

The training was designed to introduce seagoing staff who had not played a major role in acquiring environmental compliance and incidental take authorizations (EC/ ITA) to the process and new regulatory requirements that would have to be implemented on their surveys.

Throughout the training two-way communication was promoted between staff and presenters to ensure an understanding on all new requirements. First, an overview and background were provided to give a general understanding of statutory requirements, AFSC's incidental take history, and development of the Center's mitigation measures. After that, the main objective of the training was to introduce 1) the scope (research areas, gear types, authorized take species, etc.) of what the Center's authorizations would cover, and 2) the implementation of the authorization conditions (mitigation measures, reporting requirements, data collection, etc.). The next portion of the training was focused on the circumstances in which professional judgment decisions can be used (detailed below) and what decisions are frequently made when dealing with specific gear types and interactions / avoidance practices with protected species. Training for taking biological samples was not done.

The training also consists of marine mammal identification, handling, and biological sampling instruction, as well as seabird identification and handling instructions.

These pre-field season training sessions and the post-season forums to discuss how everything went seem to be a good complement and approach to disseminating and collecting information from seagoing fisheries and ecosystem research staff. AFSC expects that this investment in communication with its staff will ensure AFSC research meets its requirements and also yield important data and observations that will inform development of future mitigation strategies.