

Attachment C

Summary of Sampling Methods Used by Observer Programs

| Program | Coverage, sample size, or precision target | Mandatory | Sampling Frame | Vessel Selection Method |
|---|--|-----------|---|---|
| <p>Alaska Fisheries Science Center, North Pacific Groundfish Observer Program (NPGOP). Catch and bycatch in all North Pacific Groundfish fisheries is monitored inseason to support quota management, but the fleet is divided into four sectors by vessel size and processing mode (Catcher Processors (CPs) or Catcher Vessels (CVs) delivering to processing plants), each with different requirements for observer coverage. Changes in strategies for deployment of observers cannot be accomplished without changes in statutory authority to support collection of fees from industry.</p> | | | | |
| <p><u>NPGOP, 0%..</u> Catcher Vessels <60 ft</p> | <p>0%</p> | <p>N</p> | <p>None Vessels < 60 ft not included in sampling frame for logistical reasons</p> | <p>No vessel selection No list of vessels or permits but information about landings from tickets</p> |
| <p><u>NPGOP, 30% Sector</u> Fleet: Catcher Vessels and C/P Vessels, LOA 60-124 ft: 46 bottom trawl vessels 58 pelagic trawl vessels 32 longline Vessels, LOA 70-176 ft: 75 pot vessels Vessels < 60 ft: No record</p> | <p>30% per quarter</p> | <p>Y</p> | <p>NPGOP vessels listed in the sector</p> | <p>Ad-hoc; fleet is responsible for obtaining observer coverage.</p> |
| <p><u>NPGOP, 100% Sector</u> Fleet: Vessels LOA ≥ 125 ft; 79 bottom trawl catcher vessels; 55 longline vessels; variable trip length</p> | <p>100% 1 observer per trip</p> | <p>Y</p> | <p>NPGOP vessels in the sector listed</p> | <p>Census</p> |

Alaska Fisheries Science Center, North Pacific Groundfish Observer Program (NPGOP), continued.

| Program | Coverage, sample size, or precision target | Mandatory | Sampling Frame | Vessel Selection Method |
|--|--|-----------|------------------------------------|-------------------------|
| <u>NPGOP, 200% Sector</u> Fleet: Vessels LOA \geq 125 ft; 26-32 C/P bottom trawl and longline vessels; ~12 C/P vessels in the Atka mackerel fishery; 2 week + trip length | 100%, 2 observers per trip | Y | NPGOP vessels in the sector listed | Census |
| Alaska Regional Office, Alaska Marine Mammal Observer Program (AMMOP) | | | | |
| <u>AMMOP</u> | 5% | Y | Permit holders by stratified area | Randomly generated list |

| Program | Coverage, sample size, or precision target | Mandatory | Sampling Frame | Vessel Selection method |
|--|--|-----------|---|---|
| Northwest Fisheries Science Center (NWFSC) | | | | |
| <u>Shore-based Hake</u> Fleet: 28 active vessels; mid-water trawl; EFP | 100% , Electronic monitoring, 0% observer coverage | Y | Experimental fishing permit list | Census |
| <u>At-Sea Hake Observer Program</u> , 200% Sector limited-entry non-endorsed fleet | 100%, 2 observers per trip | Y | All active catcher-processors and motherships | Census Fleet is responsible for obtaining coverage |
| <u>Oregon Near-shore Rockfish</u> Fleet: 125 permits; 87 deemed active; Longline, pots, hook & line, pole | All vessels sampled once per year. This fishery occurs throughout the year with no defined seasons. For each year, a list of permits is generated, the permits are assigned to port groups, and then selected for coverage. The cycles occur back-to-back, so observing is an ongoing process. | Y | 87 active state permits of 125 state permits issued | Stratified random sampling without replacement; Port-groups form strata State permit list |
| <u>Limited-Entry Sablefish-Endorsed Fixed-Gear</u> ¹ Fleet: 164 active permits; vessels can have > 1 permit; longline and fish pots | All vessels sampled once per cycle (currently 3 year cycle) The selection cycle is defined by the amount of time it will take to observe the entire fleet, currently 3 fishing seasons. For each cycle, a list of permits is generated, the permits are assigned to port groups, and then selected for coverage. The cycles occur back-to-back, so observing is an ongoing process. | Y | 164 active federal permits, vessels can have more than one permit | Stratified random sampling without replacement; Port-groups form strata Federal permit list |

¹ For the limited-entry fixed gear fishery, permits are either endorsed for sablefish or not. Thus an endorsed vessel cannot be a subset of the non-endorsed vessels. Both endorsed and non-endorsed vessel are distinct subsets of the limited-entry fixed-gear fishery (John Carlson, personal communication)

| Program | Coverage, sample size, or precision target | Mandatory | Sampling Frame | Vessel Selection method |
|--|--|-----------|--|---|
| Northwest Fisheries Science Center (NWFSC), continued | | | | |
| <u>Limited-Entry Non-Sablefish-Endorsed Fixed-Gear</u> ¹ Fleet: 62 permits; 50 deemed active; multiple fixed gears | All vessels sampled once per year. This fishery occurs throughout the year with no defined seasons. For each year, a list of permits is generated, the permits are assigned to port groups, and then selected for coverage. The cycles occur back-to-back, so observing is an ongoing process. | Y | 50 active federal permits of 62 issued. | Stratified random sampling without replacement; Port-groups form strata Federal permit list |
| <u>California Nearshore Rockfish</u> Fleet: 319 permits (fishermen); 101 deemed active; daytrips; multiple fixed gears | All vessels sampled once per year. This fishery occurs throughout the year with no defined seasons. For each year, a list of permits is generated, the permits are assigned to port groups, and then selected for coverage. The cycles occur back-to-back, so observing is an ongoing process. | Y | 101 active permits of 319 permits issued. | Stratified random sampling without replacement; Port-groups form strata State permit list |
| <u>Limited-Entry Trawl</u> Fleet: 178 permits; 116 deemed active; Groundfish trawls; flatfish net | All vessels sampled once per cycle (currently 8-month cycles) This fishery occurs throughout the year with no defined seasons, so WCGOP has defined 'cycles' a sampling event that has a distinct beginning and end in lieu of a fishing season or year. Currently, the length of the selection cycles have been defined by the amount of time it will take to observe the entire fleet, typically 4-6 2-month periods. For each cycle, a list of permits is generated, the permits are assigned to port groups, and then selected for coverage. The cycles occur back-to-back, so observing is an ongoing process. | Y | 116 vessels with active federal permits of 178 issued. | Stratified random sampling without replacement; Port-groups form strata Federal permit list |

| Program | Coverage, sample size, or precision target | Mandatory | Sampling Frame | Vessel Selection method |
|---|--|-----------|---|--------------------------------|
| NOAA Pacific Islands Regional Office | | | | |
| <u>American Samoa Longline</u> | 7-10% (tuna) | Y | Fleet listed; Based on federal permits | Systematic, Random start |
| <u>Hawaii Longline</u> Fleet: 123 tuna, 32 sword; 28 tuna and swordfish; pelagic line; 15-25 day trips (tuna); 25-35 day trips (swordfish) | 100% (swordfish) | Y | Fleet listed; based on federal permits | Census |
| | ~20% (tuna) | Y | Fleet listed; based on federal permits | Systematic, Random start |
| Southwest Regional Office (SWRO) | | | | |
| <u>California/Oregon Drift Gillnet Fishery</u> Fleet: 40 active vessels; 7-10 day trips; | ~20% of sets | Y | Fleet listed; based on federal permits | Ad-hoc; ~ 20% trips per vessel |
| <u>California Pelagic Longline Fishery</u> Fleet: 1 active vessel | 100% of trips | Y | One active vessel | Census |

| Program | Coverage, sample size, or precision target | Mandatory | Sampling Frame | Vessel Selection method |
|--|---|-----------|--|---|
| Northeast Fisheries Science Center (NEFSC) | | | | |
| <u>Northeast Multispecies Groundfish</u> Fleet: >1589 vessels; multiple gears: gillnets (anchored, drift, float, sink), trawl (mid-water, bottom, purse seine), longline; 1-7 day trips typically; Federal and state permits | Target 30% CV for bycatch estimates of protected species; 5% A-Days 20% B-Day Programs, Special Access Areas SBRM Omnibus Amendment allocation | Y | Fleet lists determined by Vessel Trip Reports from the previous year and opportunistic selection | Quarterly stratified random sample; SBRM fleet sectors form strata |
| <u>Mid Atlantic Fisheries</u> Fleet: >2450 vessels; multiple gears: gillnets (anchored, drift, float, sink), trawl (mid-water, bottom, purse seine); 1-4 day trips typically; Federal and state permits | Coverage typically < 5% SBRM Omnibus Amendment allocation | Y | Fleet lists determined by Vessel Trip Reports from the previous year and opportunistic selection | Quarterly stratified random sample for a portion of the fleet; SBRM fleet sectors form strata |
| <u>Atlantic Sea Scallop Dredge Fishery</u> Fleet: >1433 vessels with GC and LA permits; multiple gears: primarily scallop dredge, some trawl; 1-12 day trips typically; VMS requirement; Federal permit | Target 10 % of trips Industry Funded Program | Y | Pre-trip notification required and opportunistic selection | Stratified random sample |

| Program | Coverage, sample size, or precision target | Mandatory | Sampling Frame | Vessel Selection method |
|---|---|-----------|--|---|
| Southeast Fisheries Science Center (SEFSC) | | | | |
| <u>Shrimp Trawl</u> Fleet: ~2,700 federally permitted vessels; LOA ~ 75 ft; ~ 18 day trips GOM target 80% of total sea days; year-around; ~3 day trips on the east coast target 20% of total sea days. | <1% coverage, Target sample of 1,500 sea-days variable depending on funding; | Y | Federally-Permitted Vessels | Stratified random sample by effort, area, season, depth strata |
| <u>Reef Fish</u> Fleet: ~877 federally permitted vessels; gear types include bottom longline, electric reel (bandit) and handlines | ~1% coverage, sea days variable depending on funding | Y | Federally-Permitted Vessels | Stratified random sample by region gear, and season based on previous year's effort from logbooks |
| <u>Southeast Shark Gillnet</u> Fleet:6-30 vessels; multiple gill net types | 100% coverage (Nov 15 - Apr 1) for drift and strike boats; Otherwise target of 30% RSE for turtle or mammal interaction estimates | Y | Fleet | Census; stratified random sample |
| <u>Atlantic and Gulf of Mexico Shark Bottom Longline Fishery</u> Fleet:250 vessels, approximately 100 active; LOA < 50 ft; 500-1,500 hooks per line; | 100 % of all sandbar shark directed sets 4-6% for non-sandbar shark directed sets | Y | Fleet listed as determined by federal permits from the previous year | Stratified random sample by area and season based on previous years activity |
| <u>Pelagic Longline</u> Fleet: 80-100 active vessel w/ swordfish, tuna, and shark permits; 3-14 day trips 150-200 mi off-shore typical; some 20-40 day trips 200-1000 mi from port | 8% of sets target, ~6% mean actual coverage | Y | Fleet listed as determined by federal permits from the previous year | Stratified random sample by statistical area and quarter based on previous years activity |