Observer Coverage Plan: Sampling Plan and Logistics for West Coast Groundfish Observer Program

July 2006

Introduction

The main goal of the West Coast Groundfish Observer Program (WCGOP) is to collect bycatch and discard information from west coast commercial fisheries that interact with groundfish species. The data collected is incorporated with multiple data sources and is used to assess total fishing mortality and to aid in the management of groundfish species. This sampling plan outlines current methodologies used to achieve program goals. This plan is intended to be a living document, so as program goals evolve and change, it will be reexamined and updated.

Overview of West Coast Groundfish Fishery

The West Coast groundfish fishery is very diverse in gear type used, target species, and vessel size. Gear types including trawl and a variety of hook and line gear (longline, pots, stick/pipe/cable gear, troll, and rod and reel) are used to target deep water (>50 fathoms) and nearshore (0-50 fathoms) groundfish species. Some of the commonly targeted species include Dover sole, shortspine and longspine thornyheads, sablefish, Pacific hake, rockfish species, and other flatfish species. The vessels range in size from less than 18 feet to over 90 feet in length.

Unlike many directed fisheries, the trawl fleet usually targets a mix of species and catches are very heterogeneous. For example, trawlers will target a deep complex that consists of Dover sole, thornyheads, and sablefish. The catch will include these species along with a number of other bycatch species including other flatfish species, rockfish, skates, and a mix of other fish. Hook and line vessels primarily target sablefish, thornyheads, and nearshore species including cabezon, greenling, china rockfish, quillback rockfish, blue rockfish, and black rockfish,. Bycatch in the hook and line fishery consists of other rockfish species, skates, spiny dogfish shark, Pacific halibut, and grenadier.

The range of vessel sizes results in differing fishing strategies. Trawlers often fish for three to five days per trip and fish in a variety of depths, from nearshore to deep water. Trawlers catch between 1000lbs and 10,000lbs on a single haul, and average six hauls per trip. In comparison, the smaller hook and line vessels take single day trips on fair weather days only and fish primarily nearshore. These small hook and line vessels generally land less than 300lbs per day trip.

Overview of Management of West Coast Groundfish Fishery

The Pacific Fisheries Management Council (PFMC) is responsible for managing the commercial fisheries off the West Coast of the United States. There are 82 groundfish species in the fisheries management plan, of which, seven are currently designated as overfished.

The groundfish fleet is divided into a number of sectors, including limited entry, open access, recreational, and tribal. The WCGOP is currently providing observer coverage in the limited

entry and open access sectors of the fishery. The limited entry fleet is federally permitted, with the number of available permits capped. Recently, state agencies have instituted permitting requirements for the nearshore fleets, which operate in state waters, 0 to 3 miles from shore. California and Oregon have also passed legislation the gives the WCGOP authority to place observers on vessels operating within state waters.

The PFMC uses regulatory landing limits to slow the pace of the fishery in order to maintain year round fishing, processing, and marketing opportunities. Initially, in the early 1980's, these limits restricted the amount of widow rockfish that could be landed on each trip. By the late 1980s, these limits had evolved into a complex set of regulations which designated landing limits and the frequency of trips for several species. By the mid 1990s, these limits had further evolved into cumulative monthly landing limits on a variety of groundfish species. Today, most cumulative landing limit periods, or trip limits, extend to two months. Landed catch has been monitored for decades by a system of state landing receipts (fish tickets), which provide a complete accounting of all landed catch.

While fish tickets have provided management with information on landed catch for decades, until recently little information has been available on discards. Discarded catch occurs due to market and regulatory limits on the types, sizes, and amounts of fish that can be retained and sold. For west coast groundfish, market limits affect the desirable species and sizes of fish, and regulatory limits affect the amount and kind of fish that can be landed. The best way to accurately determine the amount of discarded catch is through at-sea observervations of fishing operations. A voluntary observer program, conducted primarily off Oregon on groundfish trawl vessels in 1985-1987, estimated a total discard rate of 16-20% of the total catch for each of several species subject to catch limits. During the 1990s, fishery managers assumed that the discard rates were constant and applied the rates to more species. However, the actual level of discard may have changed during the early 1990s. Factors that may have affected discard rates include more restrictive trip limits and the introduction of cumulative limits, which were subsequently reduced and then applied to more sectors of the fleet. Oregon Department of Fish and Wildlife conducted a second voluntary observer program, the Enhanced Data Collection Program (EDCP), during 1996-1998, resulting in updated discard rates for the Dover sole, thornyheads, and sablefish fishery.

Up to date discard information is needed because the discard rate of a target species is likely to change as regulations change. With several species now under severe restrictions to achieve rebuilding, discard must continue to be monitored to provide current estimates that reflect fishing and management strategies for different species, as opposed to fixed discard rates for all species. In addition, an approach is needed that will allow adjustment of estimated discard as regulations change.

Observer Program Overview

In 2001, the National Marine Fisheries Service (NMFS) received an appropriation to initiate the mandatory groundfish observer program authorized by Amendment 13 to the Pacific Coast Groundfish Fishery Management Plan (Groundfish FMP). The first observers were placed aboard vessels in August 2001. The program samples a random selection of the groundfish fleet, using the data to estimate discard rates for the various sectors of the groundfish fishery.

West Coast Groundfish Observer Program Goals

a. Provide estimates of bycatch and discard rates from observed fisheries.
b. Collect biological information from the groundfish fishery
c. Provide an efficient and accurate system for collection, storage, analysis, and communication of information
d. Provide information to Pacific Fisheries Management Council to improve management of groundfish species.

NMFS, Pacific States Marine Fisheries Commission (PSMFC), and the states of Oregon, Washington, and California are cooperating participants in the observer program. The WCGOP staff includes a team leader, database manager, analyst, program coordinator, program assistant, two field coordinators, a lead debriefer, and four debriefers. The core staff is in Seattle, with debriefers and coordinators in California and Oregon. NMFS is responsible for observer training and debriefing; designating which vessels are to carry observers; determining observer assignments; data entry; and database development and maintenance. PSMFC uses federal funds to hire, equip (including sampling, rain, safety, and computer equipment), insure, and transport approximately 40 experienced observers. Each state provides a half-time liason who assists with observer deployment by providing current information on vessel activities.

The WCGOP has observers working along the entire west coast, from Bellingham, Washington to San Diego, California throughout the year. The number of observers operating along the coast varies throughout the year, due to the increase of vessel activity between March and October. The increase in fishing activity is primarily due to three factors, the Dungeness crab season, the limited entry sablefish endorsed season, and improved weather conditions. Many west coast limited entry trawlers participate in the Dungeness crab fishery, which runs from approximately November through March. The limited entry sablefish endorsed season runs from April through October; therefore there is no activity by this fleet in the winter months. As many of the vessels operating off the West Coast are small, weather conditions play a large role in vessel activity. This is especially true for the nearshore and other open access fleets. Currently, the WCGOP has 23 observers working year round and approximately 20 additional observers from March through October.

Observer Selection and Support

Employment

The company chosen to provide observers was selected from among contractors that have supplied observer services in support of federal or other fisheries. In 2001, the PSMFC, in consultation with NMFS, evaluated potential contractors based on their past performance as service providers including: demonstrated ability to retain observers, benefit packages provided to observers, ability to quickly supply qualified, experienced observers, ability to obtain the necessary insurance coverage, and cost. PSMFC selected Alaskan Observers Inc. (AOI) to provide observers. Observers are required to have a Bachelors degree in biological science, and have undergone and passed a full physical examination within the 12 months before hiring.

Training

New observers attend a two-and-a-half week training course to prepare them for working in this fishery observer program. The course includes training in safety, species identification, data collection methods, conflict resolution, and other matters relevant to their jobs. The training session for new observers occurs once per year. In order to become a WCGOP observer, trainees must complete homework assignments, participate actively in safety training, and pass a species identification and final test. In addition, there is an annual briefing for year-round observers during which they participate in refresher safety training, are updated with any new sampling procedures, and take a species identification test that they must pass to remain with the program.

Insurance

PSMFC requires the observer contractor to provide insurance adequate to cover injury, liability, and accidental death for observers. The contractor provides insurance during the entire period an observer is employed, including training or briefing, travel to and from port, standby time in port, at sea deployment, and debriefing. The insurance includes workers compensation and employer's liability; maritime employer's liability adequate to cover observer, vessel owner and contractor; commercial general liability; cure, maintenance, wages, and transportation; Longshore and Harbor Workers' Compensation Act; and automobile liability.

Observer Duty Stations

In order to provide uniform coverage of fishing activities along the coast, observer effort and placement must coincide with fishing activity. To simplify the logistics, observers are assigned to a port group for the length of their contract. Port groups are an aggregation of several ports in the same geographic area. Ports were aggregated into port groups in 2001 and have since been modified with increased knowledge of vessel activity and with an increase in the geographic area covered by the WCGOP. Currently, there are 12 port groups. See Appendix A for more information. The number of observers placed in each port group is based on the level of fishing activity.

The port group assignments are permanent to enable observers to best familiarize themselves with the fleet, vessel schedules, and port biologists. For example, an observer based in Astoria, Oregon primarily covers vessels operating from Astoria and Tillamook, but may travel south to Newport, Oregon to cover a vessel. The goal for the placement of observers in port groups is to ensure observers can travel from their primary residence to all vessels within their port group within the 24-hour notification period. The WCGOP will continue to adjust duty stations as needed.

Communication and Outreach

The observer program maintains a toll free phone number and an email address to facilitate communications with fishers and other interested parties. Updates on the observer program are posted on the NWFSC web site (http://www.nwfsc.noaa.gov/research/divisions/fram/observer/index.cfm). At the inception of the program and in the fall of 2004, public informational meetings were held at 10 ports. Field

coordinators and observers regularly visit the docks to maintain open communication with the fleet(s).

Vessel Selection
The WCGOP uses a stratified random vessel selection process. All fisheries observed by the WCGOP follow the same five-step selection process.

Vessel Selection Process:

1. A list of permits/licenses is obtained for each fishery. Permit lists are obtained from either the NOAA Fisheries Northwest Regional Office or one of the state fish and wildlife agencies.
2. Permits are assigned to a port group. The locations of all landings the previous year are determined for each vessel and then each vessel is placed in the port group where the majority (by weight) of fish were landed.
3. Random numbers are generated for each permit or vessel. This is done by a Microsoft Excel random number generation operation.
4. Permits are ranked according to random number within each port group. The random number of each permit is ranked from highest random number to lowest random number.
5. Permits are selected for observer coverage, according to rank within port group. The number of permits selected for a coverage period varies between fishery and time period.

By using this stratified random approach to vessel selection, the WCGOP is able to get representative coverage throughout the large geographic range of the fisheries. The number of fisheries observed varies by year due to priorities and funding. In 2006, eight distinct fisheries are observed. These include:

a. Limited Entry Trawl
b. Limited Entry Fixed Gear - Sablefish Endorsed
c. Limited Entry Fixed Gear - Non-Sablefish Endorsed (0 Tier)
d. California Nearshore
e. Open Access - California halibut
f. Open Access – California Sablefish Fixed Gear
g. Oregon Nearshore
h. Oregon Rockfish

In previous years, the WCGOP has also observed shrimp and prawn fisheries in Oregon and California.

The length of time it takes to select and cover all permits in a fishery is called the selection cycle length. The WCGOP evaluates management needs yearly and if necessary, changes the selection cycle length to coincide with management needs. Table 1 shows the selection cycle history of the WCGOP.

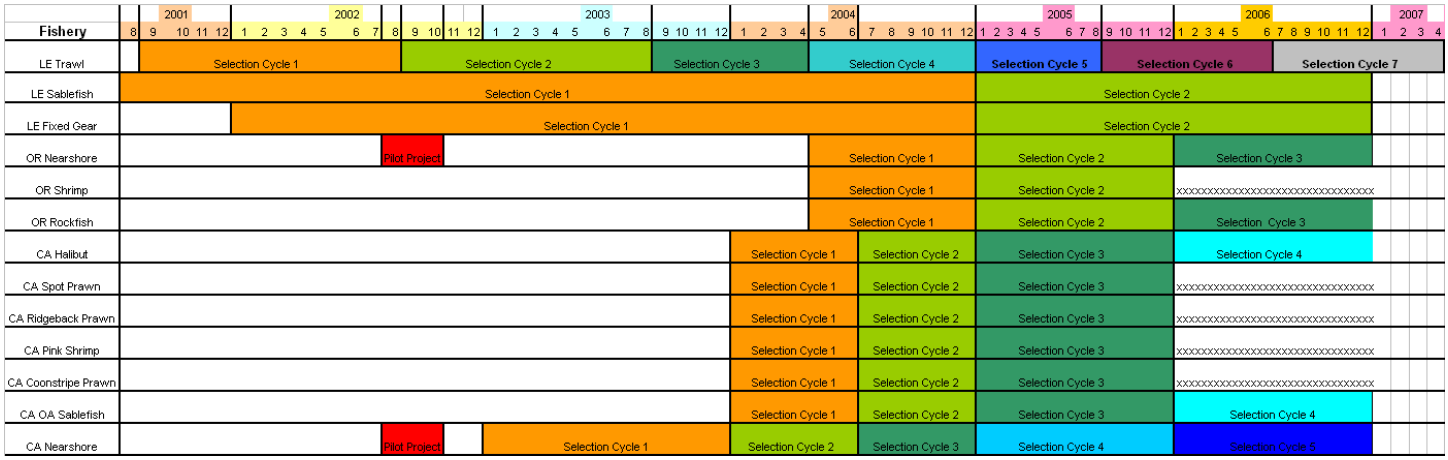

Table 1: WCGOP Vessel Selection Cycle History

Due to different management regimes, there are two types of coverage periods employed. A coverage period is the length of time a vessel is expected to carry an observer. For all fisheries besides LE Fixed Gear – Sablefish endorsed, vessels are required to carry an observer on all trips during a two-month period. The two-month periods coincide with fisheries management regulations, which generally constrict landing limits in two-month time periods, called trip limits. See Table 2 for selection period designations. The basic premise behind this coverage is that discard rates change as vessels near their trip limit quotas (Helser, 2002). It's important to note that trip limits do not prohibit the catching of species, only how much of a species or species complex can be retained and landed. Therefore, when a vessel reaches their quota for a given species, all subsequent catch of that species is discarded at-sea. The goal of the WCGOP sampling plan is to show how discard rates change over the trip limit period on a vessel or trip specific basis.

Start Date of Trip Limit Period	End Date of Trip Limit Period
January 1st	February 28/29th
March 1st	April 30th
May 1st	June 30th
July 1st	August 31st
September 1st	October 31st
November 1st	December 31st

Table 2: Coverage Periods (Trip Limit Periods)

The LE Fixed Gear – Sablefish endorsed fishery coverage period is based upon the sablefish season. The same rationale used above applies to the selection of the sablefish endorsed fleet but vessels are observed for all trips during the seven month season where a vessel is landing against a sablefish tiered permit.

Fisheries Specific Information

Limited Entry Trawl

The permit list for this fishery is received from the NOAA Fisheries Northwest Regional Office prior to the start of a new selection cycle. Selection cycle length has varied greatly between 2001 and 2006 due to an increased knowledge of vessel activity by the program, a decrease in the number of vessels participating in the fishery due to a buyback in 2003, and to an increase in coverage in other sectors of the fishery. Vessels are selected for all trips during the two-month cumulative trip limit period.

Limited Entry Fixed Gear

The permit list for this fishery is also received from the NOAA Fisheries Northwest Regional Office prior to the start of a new selection cycle. The permit list for limited entry fixed gear is split into two mutually exclusive selection lists, one that includes all permits with a sablefish endorsement and one for those permits that are non-sablefish endorsed. The two fisheries have very different fishing strategies, management, and quotas.

- Limited Entry Fixed Gear – Sablefish Endorsed Permits with a sablefish endorsement are allocated a large quota of sablefish, separate from normal cumulative trip limit quotas. There are three tiers of endorsements, tier one given the most quota, tier three the least. The assignment to sablefish tiered endorsement began in 2001 and is based on historical catch of sablefish. Permit stacking complicates selection for this fishery. Each vessel that participates in this fishery is allowed to fish up to three permits during the sablefish season. Permits can be moved from one vessel to another once per year and transfers of permits can occur any time throughout the year, including after some of the sablefish quota has been fished. Tracking the location of each permit throughout the selection cycle can be difficult. Each vessel that has at least one permit selected for observer coverage is required to carry the observer for all trips during the sablefish season until the entire quota of sablefish on the vessel is reached. For example, if a vessel has three permits stacked on it and one of those permits is selected for observer coverage, the vessel is required to carry the observer until the quota for all three permits is reached.

- Limited Entry Fixed Gear – Non-sablefish endorsed – This fishery is also a cumulative trip limit fishery, with quotas based on daily, weekly, monthly, and bi-monthly limits. Vessels with a non-sablefish endorsed fixed gear permit are observed on all trips taken during a two month trip limit period.

Open Access

Permit lists of the open access fisheries are received from the appropriate state agency, either California Department of Fish and Game or Oregon Department of Fish and Wildlife. (Currently, the WCGOP does not observe open access fisheries in Washington.) For all open access fisheries, the permits are selected for a two-month trip limit period. As open access fisheries are a lower WCGOP priority than limited entry, typically not every trip a vessel takes during a two-month coverage period is observed. The exception is the nearshore fisheries in Oregon and California which increased in priority in 2006.

Observer Coverage

All permits that are selected for coverage by the WCGOP do not necessarily get observed during their initial selection period. Some of the reasons why a permit may not be covered during the initial selection period include:

- Vessel does not plan to fish groundfish in the selected period.
- Observer availability
- Safety issues that can not be addressed in a relatively timely manner
- Vessel plans to fish in a different groundfish fishery during the selected period

Permits that are not covered during their initial selection period are placed in a holding category and are required to carry an observer during the following selection period or when they next fish groundfish.

Data Collection

WCGOP observers collect a variety of information for use by fisheries managers and by stock assessment scientists. The data collected can be grouped in five data types.

1. Fishing Effort Information is the basic information collected for each tow/set/haul. This information includes:
   - Begin and end date/time and location of tow/set
   - Gear type and performance
   - Estimated total catch weight (including tows for which there is 100% discard due to unmarketable species).

2. Catch Information is the macro view of what the vessel has caught and includes:
   - Estimated weight of retained by single or multiple species groupings, called catch categories
   - Estimate weight of discard by catch category

3. Species Composition Information is the species specific information and includes:
   - Species specific weight and numbers by catch category
   - Reason for discard

4. Biological Information is information on a single individual and includes:
   - Length, sex, weight
   - Dissections such as otoliths, scales, and snouts

5. Other Information collected by WCGOP observers includes data on:
   - Marine mammals
   - Seabirds
   - Sea turtles
   - Invertebrates, in particular coral species

Observers follow sampling protocols specified during training and documented in the West Coast Groundfish Observer Training Manual- 2006.

(http://www.nwfsc.noaa.gov/research/divisions/fram/observer/observermanual/observermanual.cfm).

Observers record raw data on paper forms and then enter their data into a web-based data entry program. The data entry program constricts data entry to the proper format and also includes an error check program that runs a series of queries against collected data to look for inconsistencies. To ensure a high level of data quality, observers go through a debriefing process every two to four months. The debriefing process includes sampling protocol checks, calculation checks, data form checks, an interview, an observer evaluation and a comparison between the paper forms and the data entry.

References:

Helser, T., Methot, R. & Hastie, J. 2002. *A Statistical Model of Discarding in the US West Coast Groundfish Fishery*. ICES CM 2002:V05. ICES Annual Science Conference. Copenhagen, 1-5 October 2002.

Appendix A: WCGOP Port Groups