

Observer Basics

CHAPTER 3

Observer Basics

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I. Introduction

Information on general data collection and data recording is presented in this chapter. This information applies to data collection/recording on all vessels and gear types observed by the WCGOP Non Catch Shares. For more general observer life information see Chapter 10, Non Catch Shares Observer Life.

II. General Data Collection

This section details the building blocks of sampling for the WCGOP Non Catch Shares.

Data Types

Fisheries managers and scientists ask observer programs to collect an assortment of data, as they are often the only independent participants in a fishery. There are five data types observers provide to managers and scientists:

1. **Fishing Effort Information:** This data is used by managers to understand where people fish, types of gear used, and target species.
2. **Catch Information:** This information includes how much was caught, what species made up the catch, and the percentage of each species retained and discarded.
3. **Species Composition:** Species composition data is used to estimate relative abundance of each species in a haul. It includes the species specific weights and counts.
 - Species composition information includes reason for discard. Fisheries scientists are interested in the fundamental reason discarding occurs.
4. **Biological Data:** Biological data is used by stock assessors to gauge the age composition of the population, the length to age ratio, the potential spawning population, and the male to female ratio. It includes sex, lengths, weights, and otoliths for individual fish.
5. **Other:** This includes data not necessarily used by fisheries managers but important to ecosystem management. This data type includes information about protected resources, such as marine mammals, sea turtles, seabirds and other ESA-listed species.

Given direction by managers and scientists, the WCGOP sets priorities and designs protocols for data collection.

Duties and Priorities for Non Catch Share Observers

Use this list as a reminder of data to be collected and to prioritize when all duties cannot be accomplished. Observer duties, in order of priority, are:

1. Record incidental takes and collect appropriate biological information from protected species: marine mammals, sea turtles, seabirds, green sturgeon, and salmon.
2. Record interactions of marine mammals, sea turtles, and seabirds with fishing gear.
3. Record fishing effort information, including location, time, date, and depth for all hauls/sets.
4. Estimate total catch weight, even for tows with 100% discard.
5. Estimate weight of retained and discarded catch categories.
6. Sample catch categories to determine species composition. (Discarded catch categories only on trawl vessels; retained and discarded catch categories on fixed gear vessels.)
7. Document reasons for discard for each species and/or catch category.
8. Record weight, length, sex, and take necessary dissections from tagged fish.
9. Maintain observer logbook.
10. Take biological samples, including length, sex, otoliths, tissue, etc. from discarded individuals.
11. Record length and viability of Pacific halibut.
12. Sample retained catch categories to determine species composition (Trawl only, see #6)
13. Document sightings of ESA listed species.
14. Document sightings of non-ESA listed marine mammals and seabirds.

The duties listed above are those typically performed while at-sea. However, the WCGOP may instruct observers to collect additional data.

Catch Sampling

The WCGOP samples catch in two very different ways, total catch sampling and discard sampling. The method used is totally dependent on gear type. WCGOP observers are deployed in both net (trawl) fisheries and fixed-gear (hook and line



or pot) fisheries. The gear types differ substantially in how the fish are brought on board the vessel, which is the driving force in the different sampling strategies.

- **Net (trawl) vessels:** Trawlers bring all of their catch on-board at the same time. The catch is dumped on the deck and the quantity of fish on deck can range from 100's of pounds to 1000's of pounds. In order to reduce the amount of fish an observer needs to sample, only discard is sampled by observer's on trawlers. Retained catch is primarily estimated by the skipper of the vessel.
- **Fixed Gear vessels:** Hook and line vessels bring their catch aboard one fish at a time. Pot vessels bring their catch aboard one pot at a time. This results in only 10's to a 100 or 200 pounds of fish coming aboard at one time. As this is a reasonable quantity of fish to sample, observers estimate total catch (retained and discarded) on fixed gear vessels.

Due to the sampling strategies of the WCGOP, documentation of catch is unique and can be confusing to new observers. In order to allow this different strategies, a level of grouping (above the species level in most cases) is required. The WCGOP calls these higher levels of groupings catch categories.

Catch Categories

Catch categories are species groupings that are based on either marketing categories or naturally occurring associative species complexes. A catch category may be confined to a single species or may include several species.

Catch (market) categories are a unit of categorization used on the west coast. Catch categories are used by processors to aggregate species based on color and/or cohabitation. The result is landings which are documented by catch category, not necessarily species. The WCGOP also uses catch categories when sampling. (See Figure 3-1) There are two reasons why catch categories are used:

1. **Matching observer data to landings:** Since retained catch is recorded by catch category, the most efficient method of matching observer collected data to landings is by using catch categories.
2. **Better estimates of rare species:** The WCGOP sampling protocol allows for more precise sampling of species of high concern. Observers can focus their effort on overfished species and/or prohibited species to get the best estimates possible while using less precise methods for other species.

To determine whether species should be placed within the same catch category, use the following rules:



1. Retained and Discarded catch are always in separate catch categories.
2. Individuals are grouped in the same catch category when they are sampled together. All individuals in the grouping must have the same weight method and sample method. (Weight and Sample methods explained below)

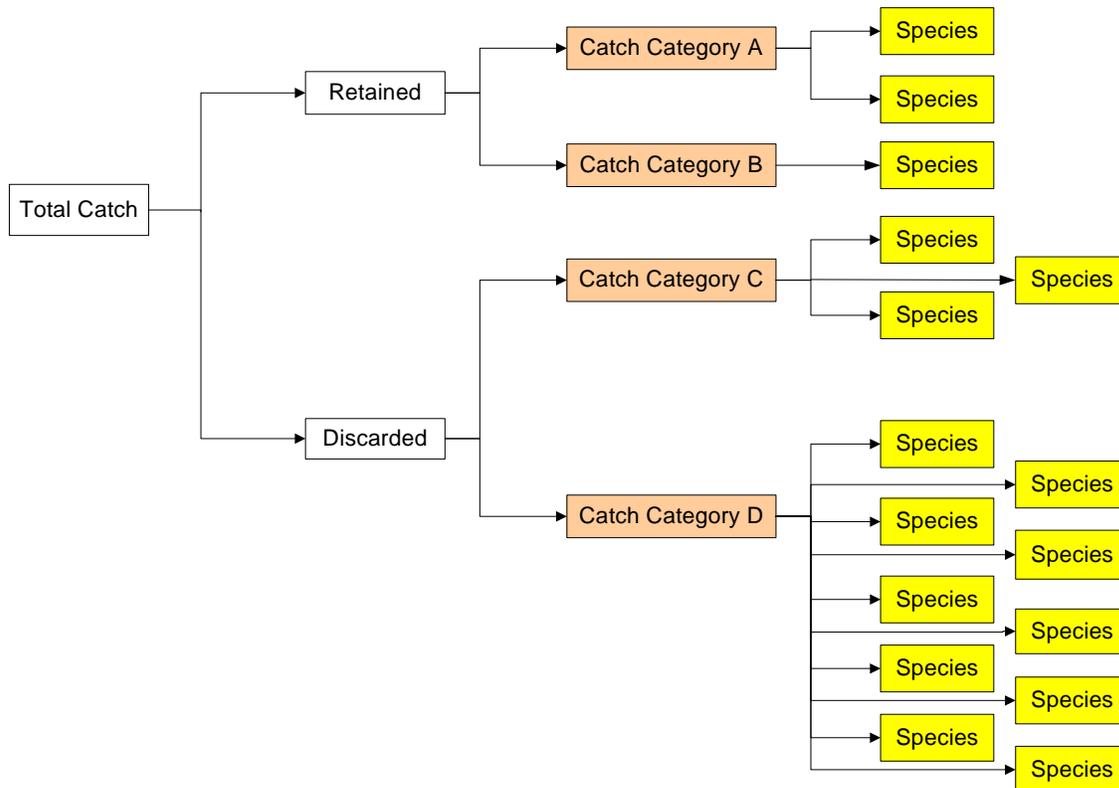


Figure 3-1: Flow of WCGOP Sampling

There are slight differences between gear types in defining catch categories.

Chapters 4, 5, and 6 discuss defining catch categories on specific gear types.

Naming Catch Categories

A list of catch categories and the corresponding three or four letter PacFin codes can be found in Appendix Catch Categories List.

There are two rules when naming catch categories:

1. If the catch category is sampled, the name of the catch category is irrelevant. Sampled catch categories are usually named ZMIS.

2. If the catch category is not sampled, the most descriptive name from the list in the Appendix Catch Categories List. The following codes should be used when a catch category is not species composition sampled AND a more descriptive catch category code is not available:
 - **FISH:** Single fish species that is discarded that is not species composition sampled AND does not have a more descriptive catch category code. This code should be used for a single fish species discard only.
 - **INVT:** Invertebrate discard that is not species composition sampled.
 - **MBOT:** Miscellaneous bottom items, including rocks, mud, logs, bones, garbage, and miscellaneous invertebrates are discarded and not species composition sampled.
 - **ZMIS:** Mixed catch discard that is not species composition sampled. Bottom items, like rocks, logs, etc. can be included in ZMIS with discarded fish and invertebrate species.

Weight Methods

Weight methods are used to explain how the weight of the total catch was determined and how the weight of a catch category was determined. Because the WCGOP covers a very diverse fleet, 12 weight methods have been developed to obtain total catch and/or catch category weights.

1 - Actual Weight: When everything within a catch category or a haul is weighed, it is an actual weight. This method can be used for total catch and catch category weights.

2 - Bin/Trawl Alley Volume: If a catch category is placed within a measurable unit, then a volume and density can be used to calculate the total weight. This method can be used for catch category weights.

3 - Basket Weight Determination: All of the individuals within a catch category or haul are placed in observer baskets. Some, but not all, of the baskets are actually weighed (5 baskets out of 10 baskets, for example). An average weight of an observer basket is applied to the total number of baskets filled. This method can be used for catch category weights.

5 - OTC – Retained: Subtracting retained estimates from observer total catch weight (OTC) gives the total discard weight. This method is used when a haul is not sampled due to injury or illness on net vessels. This method can be used for discarded catch category weight only.

6 - Other: When the method used to determine the catch category or total catch weight can not be accurately described with one of the other weight methods, this weight method is used. This method is commonly documented when two weight methods are used in combination (example: bin volume and actual weight). The most important thing when using weight method - OTHER is to thoroughly



document how sampling was done. This method can be used for total catch and catch category weights.

7 - Vessel Estimate: The vessel estimates how much is caught by catch category. This method can be used for total catch and retained catch categories.

8 - Extrapolation: The total number of individuals of a species is multiplied by an average weight to estimate the catch category weight. In situations where weighing all individuals of a species is impossible but it is possible to count them, this method can be used. A variation of this method can also be used to estimate total catch on fixed gear vessels.

9 - Length/Weight Conversion: The lengths of individual Pacific halibut are visually estimated or actually measured. A length-to-weight conversion table is then used to arrive at a weight. This method can be used for Pacific halibut catch categories only.

11 - Retained + Discarded: If all of the catch is sampled on a hook or pot vessel, the sum of the catch categories is used for total catch weight. This method can be used for total catch only.

13 - Tally Sample: When a total count of each species/species grouping and an actual or average species weight is determined, this weight method is used. This method can be used for catch categories on hook or pot vessels only.

14 - Visual - Experience: Weight of the catch category is estimated by sight only. This method is used in instances where an individual is too large to weigh, when fish are discarded without being brought on board, and other similar circumstances. This method should always be used for total catch weight on net vessels. It can also be used for catch category weight.

15 - Visual Spatial: Weight of the catch category is estimated based upon a spatial known. This method is used extensively for catch category weight on net vessels.

Sample Methods

Sample methods are used to explain how a species composition sample was collected from a catch category.

1 - Whole Haul: When all individuals within a catch category are weighed and counted.

2 - Single Basket: When a single basket subsample is taken to determine the species composition of a catch category.

3 - Multiple Basket: When more than a one basket subsample is taken to determine the species composition of a catch category.



Sample Methods are also used on Length Frequency and Biological Specimen Forms, see Chapter 7, Biological Sampling for more information.

4 - Fixed Gear Sample: When all individuals within a catch category are counted and an independent actual or extrapolated weight is obtained.

5 - Fixed Gear - Fish Ticket Verified: When all individuals in a catch category are counted but not independently weighed. Instead, the fish ticket weight is verified and used.

6 - Fixed Gear - Fish Ticket Unverified: When all individuals in a catch category are counted but not independently weighed. Instead, the fish ticket weight is NOT verified and used regardless.

The weight methods and sample methods used to sample a haul/set depend on the gear type of the vessel, how much is being caught, and vessel layout. Later chapters deal specifically with using weight and sample methods by gear type. However, understanding the use of catch categories and remembering the two rules in defining catch categories is essential to WCGOP sampling protocol on all vessels.

Reason for Discard

Fishers discard for a variety of reasons and this information is important to managers. Observers document the **crew's reason** for discarding, even if the crew is mistaken regarding a regulation or the marketability of the species in question.

The procedure for determining the reason for discard is to ask the captain or crew why they are not retaining each species or item. If the reason is obvious, such as for starfish or garbage, it is not necessary to ask the crew. However, if there is more than one possible reason for discard, interview the vessel crew to determine why the catch is not being retained. Avoid making assumptions. There are seven reason for discard codes to choose from:



- 11 - Incidental/Accidental
- 12 - Drop-Off
- 13 - Market
- 14 - Other
- 15 - Predation
- 16 - Regulation
- 17 - Safety
- 18 - Market (Dockside only)

11 - Incidental/Accidental: Crew or observer inadvertently discards fish that should have been retained.

Examples:

- Fish missed during the sort.
- Mistakes: Crew/observer didn't know captain wanted to retain the fish.
- Quantity: The fish hold or tanks are full so the remainder of catch is discarded (no apparent **high-grading**, there is simply no more room for catch).
- Crew effort: Fish missed during sort.

12 - Drop-Off: This reason is used for **hook and line gear only**. Drop-offs are fish that **would have been retained** had they not fallen off the gear.

13 - Market: Discarding that is driven by consumer demand and vessel/processor profitability. This includes high-grading. This is the most common reason for discard.

Examples:

- Too small: Market pays less for fish under a certain size (a.k.a. High-grading).
- Too big: Market pays less for fish over a certain size (a.k.a. High-grading).
- Fisher doesn't want to fill quota with one species because another species is worth more money. (e.g. discarding gopher rockfish so remaining quota can be used to catch grass rockfish, or other more valuable species, a.k.a. High-grading).
- Price: Fisher doesn't want to use ice or space in hold for fish that have less value than other target species (e.g. arrowtooth discarded that could be kept and sold) (a.k.a. High-grading).
- Fisher wants to keep plant/market happy; wants to deliver best quality to customer to maintain good reputation – market will buy it, but prefers other species/sizes.
- Damaged Fish: Squashed, maimed or damaged (fish carcass torn up by other events not by predation).
- Quantity/Amount: Market won't buy species in such a small quantity (although species may be retained later if a lot is caught).
- Fish left over from previous haul (on the deck or in the net).
- Time and effort to prepare the species for market too great (examples: skate wings, dressed sharks).
- Partially sorted catch discarded because it's value is not worth the effort or time to keep sorting.
- Market will not buy species if under or over a certain size (this might include weigh-backs).
- Condition: Market won't buy fish of a certain condition (e.g. deep Dover, diseased or mutant fish).

High-grading:
Discarding of marketable fish to maximize profit.



- Freshness/time spent on ice: Species won't be retained until near the end of the trip because quality quickly deteriorates.
- Market will only buy a certain amount of fish at a time; (e.g. plant says a vessel can bring in 8000 lbs of dover, vessel fishes and catches 20000 lbs of dover in one tow, which is within their trip limit quota, but the plant says they only want 8000 lbs).
- Market does not buy that species.
- Market is not buying that species at this time.
- Species has no market value when caught with a particular gear type or in that fishery (e.g. smashed urchins).
- Invertebrates with no known marketability.
- Miscellaneous objects/garbage/trash.
- Mud/Kelp/Wood/Rocks.
- Fisher dumped **unsorted** catch, either directly from codend or from deck because it is undesirable (i.e. catch is full of undesired species such as spiny dog sharks, ratfish, hake, small fish, or some mix of undesired species).

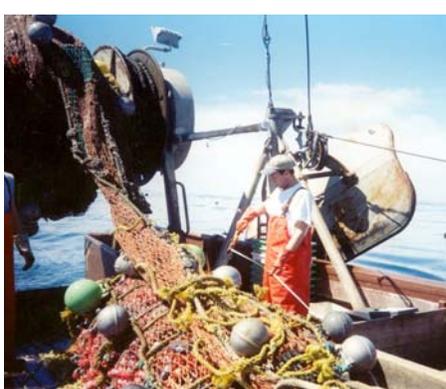
14 – Other: Used for discard reasons which do not fit into any of the other categories. **Document the reason for discard thoroughly on the paper forms and in the database.**

15 – Predation: Fish that **would have been retained** if not damaged by predation. This includes predation by marine mammals, destruction by hagfish, sand fleas, and other invasive organisms, and any other animals.

16 – Regulation: Discarding due to quotas, limits, and other restrictions mandated by state and/or federal agencies. This includes perceived quotas, limits, and other restrictions by the captain and crew.

Examples:

- Prohibited Species (P. halibut, salmon, or dungeness crab {regionally}).
- Species other than P. halibut, salmon or dungeness crab, which are not allowed for retention, such as state prohibited species (example: giant {black} sea bass).
- Fishing is not presently open for that species.
- Fish cannot be retained or targeted by a particular gear type.
- Fisher lacks the necessary permit for retention of that species.
- Vessel/fisher has met quota for that species.
- Size Regulation – Fish cannot be retained if under or over a certain size.
- Marine Mammal, seabird, or sea turtle.
- ESA-listed species (green sturgeon).



- Fisher anticipates going over quota (i.e. it is known that the vessel is approaching the quota limit, and to avoid going over quota and risk penalty, the entire catch is discarded).
- Fisher is unsure of regulations – it is not known if vessel is able to retain a species or not, so they discard it to play it safe.
- Uncertainty regarding species identification - fish is discarded because the species cannot be determined and or agreed upon by the fisher (e.g. fish caught could be blackgill, darkblotched or cowcod, and fisher is uncertain of correct species identification, so all are discarded).
- Dumped unsorted catch, entire or partial bag of fish, or unsorted catch on deck because catch contains large amount of a species they are not allowed to keep (i.e. contains prohibited species or a species they have reached their quota on).

17 – Safety: Discarding due to a concern about vessel and/or crew safety.

Examples:

- Weather
- Vessel mechanical problems.
- Crew fatigue.
- Size of the catch or the catch composition makes it dangerous to bring catch on board or to complete sorting.

NOTE: Always record the **primary reason for discard**.

Example: If a longline vessel is not retaining dogfish sharks for market reasons and a dogfish shark drops off the line, it would not be recorded with reason for discard as drop-off. The primary reason for discard is still market.

NOTE: If an **entire bag is dumped**, the primary reason for discard might be market, safety or regulation.

18 –Market (Dockside only): Previously retained fish discarded at the dock or on the way in from a trip due to market reasons.

Examples:

- This occurs primarily in the live fish nearshore fisheries. Previously landed fish kept live in holding tanks sometimes die before they are sold at the dock. These fish are sometimes discarded at the dock or while steaming in because the buyer/market only wants live fish. This is a market driven reason for discard, but a separation between those fish discarded during fishing periods and those fish discarded at the dock or on the way in, is needed by managers.

A **Subsample** is a portion of a population. It can be used to make inferences about the population as a whole if collected in a random fashion.

Introduction to Random Sampling Theory

Random sampling is used by observers to ensure unbiased data collection.

Observers take **subsamples** from a population when it is not possible to count, weigh and/or measure every individual within the population. When random sampling is used to subsample, **every member of the population has an equal probability of occurring in the sample**. If every member of the population is equally likely to occur in the sample and sampling is repeated over time, then the collection of samples can be used to draw conclusions about the population.

Advantages of Random Sampling

The use of random sampling eliminates subjectivity and ensures managers, fishers, and other end users that observer data are not biased for or against the fleet.

When random sampling methods are used to collect data, the NOAA Fisheries is justified in using statistical methods for estimating population parameters based upon that data.

Steps in Taking a Random Sample:

1. **Define the population.** The population is the total set of items that we wish to draw inferences about. Populations observers take samples from include:
 - All the individuals in a haul.
 - All the individuals in a Catch Category.
2. **Define a sampling frame.** A sampling frame is a conceptual framework, which divides the population into independent, countable sampling units. Example: **Spatial** – Based on a unit of space or a unit of gear. Examples are:
 - **Space:** Bin, Trawl Alley, or Baskets.
 - **Gear:** Skate, Tub, Pole, Stick, or Pot.
3. **Define your sample units.** It must be possible to collect *all* individuals within a single unit. Be sure not to use sample units that are so large it may be impossible to collect all individuals. Example:
 - **Spatial:** A trawl alley is divided into six sections. Each of the six sections is a sample unit.
 - **Baskets:** A total of 20 baskets of discarded fish in a haul. Each basket is a sampling unit.



4. **Number all of the sample units in your sampling frame.** If your units are sections of deck or individual baskets, assign a number to each. Gear segments on fixed gear vessels can also be numbered consecutively.
5. **Pick random numbers to choose which units to sample.** Generate random numbers between 1 and your maximum sample unit number (inclusive) to determine which sample unit(s) to select. You will be given a random number table during training, there is one in the WCGOP Field Manual, and another can be found in the Appendix Random Number Table. Dice, the second hand of a watch, and numbered pieces of paper are other options for generating random numbers.
6. **Select the sample units corresponding to the random numbers.** This is your sample.
 - **Spatial:** Collect all of the individuals from each randomly selected deck section or gear unit.
 - **Baskets:** Collect all randomly selected baskets of discard for your sample.

Random Systematic Sampling

Another way to take a random sample is to set up a random systematic frame. Random systematic sampling can only be used when you know, or have a reasonable estimate of, the **total** number of sample units. Systematic sampling involves taking a sample during every “nth” defined sample unit. For a random systematic frame, randomize the selection of your first sample unit and then take every “nth” unit thereafter. The steps for taking a random systematic sample are:

1. Define the population.
2. Define a sampling frame.
3. Define the sample units and determine the total number of sample units.
4. Number all of the sample units in the sampling frame.
5. Determine how many of the sample units you want in your sample.
6. Divide the total number of sample units by the number of units you want in your sample. This gives you your value for “n”.
7. Randomly select a number between 1 and n. This will be the first sample unit in your sample.
8. Sample every nth unit thereafter.

Example:

There are 100 baskets of fish that need to be sampled.

1. Define population: 100 baskets of fish.
2. Define sampling frame: Spatial Systematic, using baskets.
3. Define sample units: Individual baskets of fish.
4. Number all sample units: Baskets numbered as 1 – 100.
5. Determine how many sample units to sample: Decide to sample 20 baskets.
6. Calculate value of “n”: $100/20 = 5$.
7. Randomly select a number between 1 and “n” – Use random number table to select 2.
8. Sample baskets **2**, **7**(2+5), **12**(7+5), **17**(12+5)..... **97**(92+5).

NOTE: If you are sampling **more than** half of the sample units, calculate n based on the number of sample units that will **not** be sampled. Randomly select a number between 1 and n and that will be the first sample unit you skip. Skip every nth unit thereafter.

Later chapters include in depth discussions on applying random sampling protocols.

III. Documentation and Recording

Consistent data documentation is imperative to ensuring data quality. This section introduces the data forms and logbook used by observers and gives guidelines for proper data documentation.

Data Forms

Ten forms are used to record data. Each form functions to collect specific information in a standardized way.

1. **Trip Form:** This form is used to record fishing effort information. This includes latitude, longitude, depth, date, time, fish ticket numbers, landing date, target species and gear used. Observers also record total catch estimates, hook counts (when needed), and gear performance. A trip form is completed for every fishing trip observed.



2. **Catch Form:** Catch category information is recorded on one of two versions of the Catch Form:
 - **Trawl/Prawn Catch Form** is used on vessels using trawl or other net gear. It records the **total weight** of each catch category in the haul.
 - **Fixed Gear Catch Form** is used when sampling on vessels using hook or pot gear. It records the **observer sample weight** of each catch category in the haul.
3. **Species Composition Form:** This form is used to record species compositions of catch categories and the reason each species is discarded.
4. **Length Frequency Form:** This form is used to record sexed and unsexed lengths of fish when no other biological data is collected.
5. **Biospecimen Form:** This form is used when biological information, in addition to sex and length, is collected from an individual and any time a dissection is taken.
6. **Trip Discard Form:** This form is used to document any discarded fish that cannot be attributed to a specific haul. For example, a vessel may decide to discard fish that have already been put into the hold. These fish can only be attributed to the trip as a whole, not to a specific haul.
7. **Species Identification Forms:** *Observers are required to fill out a Species Identification form for every species encountered.* There are four different Species Identification Forms:
 - Rockfish Species Identification Form.
 - Flatfish Species Identification Form.
 - Skate Species Identification Form.
 - Miscellaneous Species Identification Form.

Observers' data quality hinges on the ability of the observers to correctly identify fish to species. Observers are trained in species identification during the initial training. They are also required to take yearly fish identification tests and complete Species Identification Forms for every new species encountered. These procedures provide the WCGOP evidence of each observer's fish identification competency

TIP: When filling out species ID forms, it is imperative that observers are still holding the fish. Do not fill out the forms using only the fish books after the fish has been discarded. Be concise and document as much information as possible. It is very important to include distinguishing characteristics, especially for species that are similar

If a species caught is not listed in the species code list in the manual or in the database, contact the database manager (see the Appendix for Contact Phone Numbers) and it will be added to the species list in the database.

*** UNIDENTIFIED FISH ***

If there is an individual fish or crab that cannot be identified, fill out a Species Identification Form with as much information as possible. A more identifiable specimen of the same species may come up later, so organize the unidentified fish descriptions with names such as “unidentified black rockfish #1,” or “mystery fish #5” as appropriate. Use these same names on the Species Composition Deck Form, so that the data can be changed if the fish is identified later. Always take photographs of the specimen for ID purposes and bring the specimen back to NOAA Fisheries.

REMEMBER: Never guess on the identification of a species.

1. **Marine Mammal, Seabird, and Sea Turtle Interaction and Sighting Form** – This form is used to document sightings of marine mammals, seabirds, and sea turtles as well as interactions that occur between these species and fishing operations.
2. **Sea Turtle Life History Form** - This form is used to document specific characteristics of Sea Turtles that have interacted with fishing operations.
3. **Sablefish Tagged Fish Form** – This form is used to record specific information from tagged fish.

Completing and Organizing Forms

During an average day on a vessel, observers will fill out at least three different forms (usually several of each!). **All data forms should be completed in pencil.** Only Observer Logbooks should be completed in ink

TIP: Always have the manual near when filling out paperwork. Review the form instructions prior to completing forms and refer to the examples often. This will save time by ensuring the forms are filled out correctly and completely the first time

Legibility

Observers must record their data in an organized and legible fashion. This decreases the number of calculation, transcription, and data entry errors. If a debriefer cannot interpret some piece of data, the observer is required to thoroughly explain the data during the debriefing interview. This will greatly increase debriefing time. As it is often impossible to recall data that was collected two months prior, this may result in lost data. To ensure legibility:

- Write carefully in clear, dark writing.
- Record the data in an organized manner.
- Document formulas that are used and label all calculations with units.

Recording Time

When recording time, use the 24-hour clock (0000-2359) and Pacific Standard Time (PST). Note that no colons are used with the 24-hour clock and should not be recorded on any forms. **Always record time with four numerals**

TIP: Some digital watches can be set to a 24-hour clock, which can make tracking and recording time easier.

Page Numbering

It is important to use a standardized method of page numbering for the data forms for each trip. All observers must use the same page numbering method for their data forms. This allows debriefers to easily and quickly review data and aids data editors in detecting missing information.

Trip Form: Haul Locations/ Hauls: These forms are numbered sequentially within a trip.

Trip Discard Form: These forms are numbered sequentially within a trip.

Catch Form, Species Composition Form, Length Frequency Form, and Biospecimen Form: These forms are numbered sequentially within a haul.

Marine Mammal/Seabird/Sea Turtle Sighting and Interaction Form and Tagged Fish Forms: These forms are not numbered.

Example: The observed fishing trip lasts one day, and there are two hauls that were sampled. On the way to the processor, the vessel discarded some fish from the hold. The page numbering would be:

Trip Form	1 of 1	
Trip Discard Form	1 of 1	
	<u>Haul 1</u>	Haul 2
Catch Form-	1 of 5	1 of 3
Species Composition Form-	2&3 of 5	2 of 3
Length Frequency Form-	4 of 5	none
Biospecimen Form-	5 of 5	3 of 3

Data Rounding Rules

When performing a calculation, carry the numbers out full field until the final product is determined. Full field is all the numbers on the calculator. Rounding within a calculation reduces its precision. Do not round any numbers within a calculation!

To round the final product:

- Look only at the first digit to the right of the number being rounded.
 - If $X \geq 5$ round up.
 - If $X < 5$ round down.

Example:

1. Observer counts 49 fish but can only weigh 12 fish.
2. The weight of 12 fish = 54.63 lbs.

3. The calculated average weight = $54.63/12 = 4.5525$ lbs.
 - **Incorrect:** Weight of 49 fish if average weight is rounded to 2 decimal places: 49 fish * 4.55 lbs. = 222.95 lbs.
 - **Correct:** Weight of 49 fish if average weight is kept full field: 49 fish * 4.5525 lbs. = 223.0725 lbs. This value would be rounded to 223.07 lbs.
 - If average weight were rounded, an incorrect value would be recorded on the data form for the weight of the 49 fish.

Observer Logbooks

The Observer Logbook is the field biology notebook used by observers while at-sea. It is used to document sampling methodology, events that affect data collection, and any interference and/or inappropriate behavior. Be professional in logbook documentation. Do not use it as a personal journal by venting frustrations or making derogatory remarks. Observer logbooks are turned into their debriefer at the end of every two month trip limit period, or when requested by the debriefer.

Observer Logbook Entries

The Logbook is probably the single most important piece of data observers return with because it contains detailed and supportive information about all other data. Have the Logbook present when completing paperwork so notes regarding data collection and compliance issues can be documented.

Tip: Many observers make notes on their deck forms in order to jog their memory of particular events that happened while they were out on deck. Set aside time each day to write in the Daily Notes section. Remember that events that seem ordinary on this vessel may be unusual to the fleet or fishery, so don't hesitate to write down any information that affects sampling or day-to-day life aboard a vessel.

The Logbook must be kept private while on the vessel, but it is a public document and is turned over to NOAA Fisheries during debriefing. The contents of the Logbook and the observers' name may be released if a Freedom of Information Act (FOIA) request is approved.

The Logbook as Evidence

Logbooks are archived and used as a reference to give more information about the data. They may also be used as evidence if regulatory infractions were noted. If corrections need to be made, draw a single line through the incorrect words) and continue with the correct wording.

Do not black out anything, use correction fluid, or tear out pages or parts of pages! Always use INK!

If any part of an original entry is completely obscured, it leaves the reader wondering what was originally documented. This may affect the validity of the Logbook and data.

Logbook Sections Overview

Logbooks are mailed along with completed data at the end of each two month period. The Observer Logbook is made up of twelve sections, each of which should be completed before mailing. Below is a brief description of each section. More information about logbooks can be found in

Title Page: The observers' name and the date range (MM/DD/YY) for which the Logbook was used should be clearly indicated here.

List of Vessels: This section is used to list each vessel embarked on and the trip dates associated with the vessel. It is very likely that more than one vessel will be observed during each period. List the vessel names and USCG registration number or the state registration number, as applicable. Write the first and last name of the captain that ran the vessel. If there was more than one skipper during a trip limit period, indicate this and include all names. In the "Inclusive Dates" lines, list the dates on which the vessel embarked as well as the dates the vessel returned to port. It is only necessary to list each vessel once.

Calendar: A calendar is provided for observer use.

Vessel Safety: Prior to boarding a vessel for the first time, observers are required to check the vessel for safety equipment required by U. S. Coast Guard regulations. The "Vessel Safety" section lists items that should be inspected before leaving on the first trip on the vessel. The "Vessel Safety Checklist" pages should be used to

document that each item was checked, to make comments on each item, and to document the appropriate dates associated with some items.

A copy of the Vessel Safety Checklists must be sent to the WCGOP coordinator prior to leaving on the first trip aboard a vessel. Logbook pages should never be torn out, rather photocopies should be made. For more information regarding vessel safety check list see Chapter 9, “Health and Safety Information”.

Tip: It may prove useful to carry pre-addressed, stamped envelopes with you.

Observer Safety Survey: Complete a Safety Survey for each vessel observed during a trip limit period. This survey provides important safety information for the WCGOP coordinators to track any issues or problems associated with a vessel. For more information regarding vessel safety check list in Chapter 9, “Health and Safety Information”.

Equipment Test Checklist: Observers are issued safety equipment by the WCGOP. All equipment must be maintained and inspected on a regular basis to ensure that it is in proper working condition. The “Observer Safety Equipment Checklist” must be completed once a month. Document the actual date of the gear inspection and go through the list with the equipment at hand. It is important to notify the WCGOP Gear Technician any of the items do not pass inspection. For more information regarding vessel safety check list **see Chapter 9, “Health and Safety Information: and Chapter 11, “Gear”.**

Scale Test Record: A variety of scales are used in the WCGOP, and these scales must be tested, regularly for accuracy. Platform and hand scales should be tested **every 5th observed day.** Scale test results are documented in this section.

If the scale reads + or - 5% from what it should read, contact a WCGOP Gear Technician or debriefer immediately!

Calibration of motion compensated scales are done prior to each haul, but are documented on the Catch form. For detailed instructions on how to perform scale tests, see **Chapter 11, “Gear”.**

Vessel Diagrams and Trawl Net Identification Key: Vessel diagrams should be completed for each vessel observed. These diagrams detail the layout of the vessel and help debriefers better understand the observer's sampling conditions while on-board. It is especially important to thoroughly document any vessels and gear types that are not typically observed. Diagrams should be large, detailed, well labeled, and include measurements of the deck, trawl alley, and bins. All calculations and formulas used should be documented in the "Vessel Diagram Calculations and Net Key" pages.

There is a trawl net identification key on the bottom of each "Vessel Diagram Calculation and Net Key" page. For all trawl vessels, use this dichotomous key to verify the net type used on the vessel. It is also very important to pay attention to what net a vessel is fishing if they carry more than one. Never assume you know what type of net is being fished. Verify each net used. Also record the skipper's estimate of the maximum capacity (in pounds) of the codend.

Description of Observer Total Catch Sampling (OTC): This section is used to indicate which weight methods were employed to estimate OTC and to detail how each method was applied. Documentation must include:

- Detailed description of methods employed.
- All random sampling systems employed.
- When and why method was chosen.

This section is used to describe a general sampling frame and any deviations from this frame must be documented in the "Daily Notes" section. Each method will likely be used more than once and on more than one vessel. There are spaces provided to list each vessel on which a particular method was employed. For more information on this Logbook section refer to the Logbook "Description of Observer Total Catch Sampling".

Description of Catch Category, Species Composition and Biological Sampling: This section is similar to the previous one, however it is used to describe weight methods used to estimate catch category weight. Documentation must include:

- Detailed description of methods employed.
- All random sampling employed (*methods and tools*).

- When and why method was chosen.

Again, these descriptions will describe a general sampling frame and any deviations from this frame must be documented in the “Daily Notes” section.

For each weight method, describe how species composition and biological sampling was accomplished. This must also include random sampling documentation. For more information on this Logbook section refer to the Logbook “Description of Catch Category and Species Composition Sampling and Biological Sampling” page.

Communication Log: The “Communication Log” can be used to aid in tracking communications with vessels, coordinators, other observers, providers, and any other program related staff. This log is not mandatory but may be helpful for reference. **It is important to note that all communications with vessels MUST be entered into the database system.** Vessel communications may be listed here as well, but it is not required. Communications listed here may include:

- Calls to WCGOP staff regarding sampling problems.
- Calls to other observers regarding data or vessel coverage.
- Calls to NMFS enforcement.
- Calls to the Coast Guard.
- Calls to port biologists and port samplers.
- Calls to harbor masters.
- Calls to PSMFC state liaisons.

Photo Log: The Photo Log is used to document photographs taken by observers with the disposable camera issued by WCGOP. Observers are issued disposable cameras to take photos of marine mammals and work-related activities (portrait of selected vessel or vessel deck, sampling station, unidentified fish, unusual sampling events etc.). Observer should document each photo taken in the Photo Log soon after the photo is taken. The disposable cameras issued to observers are WCGOP property and will have a barcode label which should be documented in the Photo Log (disposable cameras are not for personal use). All cameras should be returned to the Seattle field office for developing and copies of photos can be

issued upon request. Replacement cameras can be requested from the Seattle field office at any time.

Daily Notes Section: The Daily Notes section documents day-to-day events while an observer is at-sea. The following information must be documented in the daily notes:

- Specific notes on problems that occur while aboard vessels.
- Illnesses or injuries suffered.
- Circumstances surrounding any violation witnessed.
- Problems or challenges encountered while sampling including times in which the observer was unable to sample.

Make an entry for each day, describing the day's events, even if it was considered an "ordinary day." The more self-explanatory the trips are, the better. Logbooks may be referred to months, or even years, after the trips are completed.