

# NOAA Technical Memorandum NMFS



SEPTEMBER 2013

## DOCUMENTATION OF A RELATIONAL DATABASE FOR THE OREGON SPORT GROUND FISH ONBOARD SAMPLING PROGRAM

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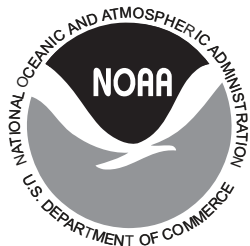
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## **Abstract**

This paper describes the relational database created for the Oregon Department of Fish and Wildlife (ODFW) Sport Groundfish Onboard Sampling Program. The program surveys the charter boat fleet targeting groundfish from seven of Oregon's major ports. The program began as a pilot study in 2001 and became a permanent sampling program in 2003. Through 2012, observers have collected spatially-explicit catch and discard records for 12,377 fishing locations during 997 observed trips. Lengths of discarded fish caught by observed anglers are also recorded to monitor discards. Presented herein is a brief description of the sampling program, an overview of the fully relational database, and quality control methods applied to data through 2012. Data from the new database are governed by confidentiality requirements and are available via permission from ODFW.



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# 1 Onboard Observer Sampling Program

The Oregon Department of Fish and Wildlife (ODFW) Sport Groundfish Onboard Sampling Program (Observer Program) observes the activity of the charter boat, or Commercial Passenger Fishing Vessel (CPFV), fleet. The goals of the sampling program are to collect fine-scale information about recreational fish species, estimate average weight of discarded fish, and obtain length distributions for species with closed fisheries. Data collected include charter boat fishing locations, catch and discard of observed fish by species, and lengths of discarded fish. In addition to monitoring discards, the data generated can be used to inform stock assessments, providing spatially- and temporally-explicit information on catch and effort by drift, catch rates, discard rates, and size compositions.

The Observer Program began as a pilot study in 2001 and was instituted as a permanent program in 2003. Through 2012, a total of 997 trips have been observed. While the sampling program targets groundfish trips, 18 Pacific halibut trips were observed from 2003-2005. Little groundfish bycatch was observed in the Pacific halibut-targeted trips and observation of halibut trips was discontinued.

The major ports with charter boat trips targeting groundfish (from north to south: Garibaldi, Depoe Bay, Newport, Charleston, Bandon, Gold Beach, and Brookings) are sampled from March through October (Figure 1). Oregon's other ports (such as Astoria, Pacific City, and Port Orford) are not sampled due to either proportionally low charter boat groundfish trips or sampling logistics. The majority of the charter boat sector effort is concentrated on the central Oregon coast and as a result, 74% of all observed trips originate out of Garibaldi, Depoe Bay and Newport (Figure 2; Tables 1-2). Only two trips were ever sampled from Port Orford, both in 2007.

The total (coast-wide) yearly trip sampling goal is set based on observer workload/availability. At any given time, the program employs three observers, whose trips are divided among the ports. In 2001 and 2003, coast-wide goals were not formally apportioned by port or month (Tables 3-4). In 2001, each of the three observers was asked to observe three to five trips each week. One observer worked exclusively out of Garibaldi, the second observer covered both Depoe Bay and Newport, and the third observer covered the south (Charleston to Brookings). In 2003, one observer was asked to work one trip per week in both Garibaldi and Depoe Bay. The second observer was asked to work one trip in both Depoe Bay and Newport one week and then two trips in Newport during alternate weeks. On the south coast, the observer was asked to work four trips in both Charleston and Brookings over the course of five weeks plus two trips in Bandon during the same five weeks.

From 2004-2012, the coast-wide goal was apportioned to each port/month stratum in proportion to the number of charter boat angler trips targeting groundfish in a stratum (Tables 5 - 13). The apportionment of sampling effort to port/month is updated yearly based on three-year averages of groundfish charter angler trips by port and by month. Any changes made to the apportionment of trips from the standard method are noted in that year's respective table. Pacific halibut trips in 2003 were observed opportunistically; in 2004 and 2005, halibut trip goals were apportioned using the same method as that used for groundfish goals (Tables 14 - 16).

As of 2004, one observer samples trips departing from Garibaldi and a portion of trips originating in Depoe Bay. A second observer samples the remainder of trips from Depoe Bay and all Newport trips. The third observer samples trips from Charleston to Brookings. From 2003-2012, there has been a low turnover rate of observers, with only five different individuals employed by the program.

During a trip, the observer records fishing location-specific information. Groundfish are typically targeted by locating schools of fish or habitat using a depth sounder. The captain then stops the boat over or near the targeted habitat, anglers deploy their gear, and the boat is allowed to drift with the wind and currents until it has moved beyond the targeted area or school. Anglers then retrieve their gear and the process restarts. The period of time when anglers have their gear in the water constitutes a fishing location, or drift.

At the start of each drift, the observer randomly selects a subset of the boat's eligible anglers to observe. All fish encountered by the observed anglers are recorded to the species level and recorded as either kept or discarded. For details on the protocol for measuring fish on a per species basis see section 2.1.4 (Lengths Table). The observer also records the starting and ending times of each drift, the bottom depth, and, if the captain allows, the starting and ending drift coordinates.

This document contains a description of the relational database, the data and metadata through 2012. Additional data will be added to the active database as they becomes available. The quality control of the 2001-2012 data is an evolving process and changes will likely have been made to the database after the publication date.

## 2 Relational Database

The Observer Program generates a large amount of data for each sampled trip. We describe the data available from the sampling program as well as the relational database created to store and maintain the data. At present, the Observer Program data are available to authorized users via the Recreational Fisheries Information Network (RecFIN) website in a flat (text) file format. The flat files requires considerable effort to process before the data can be organized and prepared for analysis. We transferred the data to a fully relational SQL database. The advantages of storing data in relational databases are many, including the ease of data retrieval, fine-scale control over data access, the ability to summarize information quickly and to query information across tables. Microsoft SQL Server and SQL Server Management Studio were selected as the database server and management platform because of the flexibility and reliability they offer. The data can be retrieved or queried from the database server and imported into any number of data processing programs for full analyses.

Database metadata are available in Appendix A were compiled using SqlSpec [1]. The metadata provide general information for each table contained in the database (Table A.1). SQL provides the flexibility of assigning a datatype to each column, and columns were assigned a datatype most appropriate for the information being stored, i.e., all date and time data are stored as either datetime or smalldatetime formats (Table A.1). The metadata also indicate if a column contains *NULL* values, is a primary key, or has a foreign key relationship.

Descriptions of these properties are below.

The database is organized into a set of four main tables that are related through a set of defined relationships (Figure 3). The four main tables contain the trip-level information (Boat Table), drift-level information (Location Table), observed catch (Catch Table), and lengths of discarded fish (Lengths Table). The database also contains ancillary look-up tables, which contain information related to the main tables, such as scientific and common names of fish, and fishing regulations by date. Each of the main tables is assigned an identifier column (or set of columns), which is known as the primary key. The primary key must be unique for each row in a table. Foreign keys create the relational aspect of the database and allow cross-referencing of data among tables. A foreign key creates a parent/child relationship between tables by identifying columns from one table that also appear in a second table. A table may have multiple foreign keys, and a hierarchy of tables can also be created. For instance, the Boat Table is a parent of the Location Table. The Boat Table contains broader information of the trip, and the Location Table has multiple entries for each location fished on a trip. The Catch Table is a child of both the Boat Table and the Location Table, as it contains multiple entries of catch for each location on a trip.

Fifteen trips from 2001 contain missing records that have not yet been verified due to missing original datasheets. Data for these trips currently prevent the creation of primary and foreign keys and are stored in tables external to the main database. The metadata and tables presented in the following sections do not include data from these 15 trips, leaving 982 trips with complete data.

In addition to the Observer Program, ODFW also conducts the Oregon Recreational Boat Survey (ORBS), a dockside sampling program. From 2001-2012, 438 charter boat trips were sampled by both the Observer and ORBS Programs (Table 17). The ORBS database contains records of the number of retained and discarded fish encountered by all anglers on a trip. The retained catch is observed by the sampler and the discarded catch is reported by the captain or crew. The ORBS samplers also collect biological information (length and weight) for a sub-sample of the retained catch from selected sampled boats. On charter vessels, for commonly caught species, samplers randomly select baskets of fish to sample completely, and for rarely caught species, any available sample is taken. This biological information is collected until the sampler's weekly sampling goals are met, which vary by species. The ORBS data for these 438 trips are included in this relational database. A brief description of the ORBS tables and available data can be found in Table 18. For more information regarding the ORBS sampling program see the ORBS sampler manual [4].

The table descriptions below contain details for the majority of columns found in the database. Brief descriptions of all tables and columns can be found in Table 18. As a note, columns of database tables in the following text are referenced in capital letters bracketed by parentheses to aid a reader's ability to quickly reference data. In addition, blank copies of onboard observer forms used over the program's history can be found in Appendix B.

## 2.1 Table Descriptions

### 2.1.1 Boat Table

The Boat Table contains trip-level information, including data pertaining to the vessel, landing port, trip type, and number of eligible anglers. Each trip is assigned a unique trip identification number (ASSN). The ASSN is a concatenation of the observer's trip number for that date (first versus second trip of the day), observer identification code, and the date. The ASSN number is also the primary key for the Boat Table and is the column that links the Boat Table to other tables in the database.

Each observer is assigned a unique identification number (INTVUER), which is retired when the observer leaves the Observer Program. Retired observer codes are never re-assigned in the Observer Program.

Every participating vessel is assigned a unique 1-3 digit identification number (BOAT-NUM). As of 2004, the boat identification numbers are unique and permanent, and a total of 61 boats have participated in the Observer Program. All but one vessel observed during Pacific halibut-targeted trips were also observed fishing groundfish-targeted trips. A handful of vessels fish out of multiple ports, and some have changed passenger capacity certification during the course of the Observer Program.

The number of "eligible" anglers (ANGLERS) recorded for the trip are any passengers, captain or crew members who fished. A passenger who intended to fish, but was too sick to fish, is counted as an eligible angler for a trip. Persons not counted as eligible anglers include passengers who have no intention of fishing and captain or crew members who did not fish during the trip.

The landing port (INTSITE) and county (CNTY) codes are provided for each trip, where county codes are equivalent to the U.S. Federal Information Processing Standard (FIPS) county codes. The names of ports and counties are available in the Port Look-up Table (luPORT Table). There are two separate site codes for Newport (44 and 50), but Newport is treated as a single port for all sampling purposes. The number of drifts (NUMLOCS) by trip and number of observed species caught on a trip (NUMSP) are also available in the Boat Table to provide users with summary statistics.

A field was added to the database (not found in the RecFIN tables) to differentiate between Pacific halibut and groundfish-targeted trips (ODFW\_TRPTYP; H = Pacific halibut trip; B = bottomfish (groundfish) trip).

### 2.1.2 Location Table

The Location Table contains 12,169 location-specific records of individual drifts. Each trip is identified by the trip identification number (ASSN) and each drift on a trip is assigned a sequential number (LOCNUM). The Location Table has a compound (multi-column) primary key consisting of the trip identification number and the drift number (ASSN; LOCNUM) and is linked to the Boat Table and Catch Table. For each fishing location, recorded information includes the number of observed anglers, bottom depth, starting and ending coordinates, and starting and ending times.

The fishing boat action (FTYPE) at each fishing location was recorded starting in 2004. The fishing action describes the manner of fishing and can be one of the following: free drift, stationed (with use of the engine to maintain position), anchored, or trolling. The manner of fishing is specific to the target species. For the observed groundfish trips, and all but one trip has fishing actions recorded as free drifts. Therefore, a single fishing location during a groundfish trip is referred to as a drift.

Specifically, a drift is defined as a stop during the trip when the anglers have their lines in the water, recorded when a captain announces, "Lines down!" A captain may engage the engine to re-position the boat during a free drift. However, a new drift is only recorded if the anglers remove their gear from the water in order to move to a new location (or back to the previous starting location).

At the start of each drift, the observer randomly selects a set of eligible anglers (Boat Table; ANGLERS) to observe for the entire drift (OBSANG). The number of observed anglers may or may not include the same individuals as other drifts during the trip. Observers have been able to record catch for 100% of eligible anglers when there are 17 or fewer anglers onboard (Figure 4). As the number of eligible anglers increases, the percent of observed anglers decreases. The number of observed anglers is missing for only one trip in the database, and for one drift in the database, the number of observed anglers exceeds the number of eligible anglers. In this case it is possible that a crew member fished and was observed during this drift but not counted as an eligible angler.

Drift coordinates are available in both the original data format and in decimal degrees. The conversion to decimal degrees is based on the recorded units of geographic coordinates (GFORMAT). As of 2003, the original coordinates were either recorded as DDMMM, DDMMSS, or DDDDD, where D is degrees, M is minutes, and S is seconds. In 2001, coordinates were recorded as DDMMMM, and an additional GFORMAT value of five was added to the database to identify these trips. Eighty-seven percent of all drifts have complete starting and ending coordinates.

The drift times can be found in the original and the SQL smalldatetime formats. The original time format is HHMM, which has been converted to a date format of YYYY-MM-DD HH:MM:SS. Across all ports, drift times are typically less than 20 or 30 minutes, rarely 45-60 minutes (Figure 5). A small number of drifts from Bandon and Gold Beach were longer than an hour, but the majority of drifts are still less than 15 minutes. Only 21 drifts are missing time data, which means estimates of observed catch per unit effort can be computed for 99% of all drifts.

The starting bottom depth in feet is recorded at each drift location. The original RecFIN data format had two depth columns, MAXDEPTH and MINDEPTH. Observers record only one bottom depth during a drift, which was duplicated in the maximum and minimum depth columns. Therefore, the database now only contains one depth column (DEPTH). Where coordinates were available, drift starting and ending bottom depths were inferred using bathymetry from the U.S. Coastal Relief Model [2] and added to the database (SGIS-DEPTH, EGISDEPTH). For nearshore drifts the GIS-inferred depths should be interpreted with caution (Figure 6). The observer-recorded depths in less than 100 feet are both greater

and less than the GIS inferred depths. In observer-recorded depths of greater than 100 feet, the GIS depths are more often greater than the observer-recorded depths. If the starting location is not recorded simultaneously with the starting depth, this could explain some of the depth difference in Figure 6, as could resolution of the bathymetry data. For example, a fishing location may start adjacent to a reef and drift over it. In this case, the observer-recorded depth may be on the deep end if the bottom depth is recorded before the vessel reaches the reef.

Starting in 2006, data on pinnipeds within 100 yards of a vessel were recorded (PINNIPED). Pinnipeds have only been reported for 50 drifts, and the boat moved away from the marine mammals in ten of those instances. None of the reported sightings resulted in a loss of bait, fish, gear or fishing time due to pinnipeds (PLBAIT, PLFISH, PLGEAR).

### 2.1.3 Catch Table

The Catch Table (named Catches Table in the database due to reserved words in SQL) contains records of all fish encountered by the observed anglers. The Catch Table has a compound primary key of trip identification number, drift number, and ODFW species code (ASSN, LOCNUM, ODFWSP). The Catch Table contains 18,238 encounter records, representing 50,114 fish (39,169 kept and 10,945 discarded).

Retained catch is recorded in the KEPT column. The discarded fish column (DISCD) is the only record of discarded fish prior to 2005. From 2005-2012, the discarded column is the sum of the discarded alive and discarded dead columns (DISCDDEAD + DISCDALIV). To date, 786 fish have been categorized as discarded dead and 7,091 as discarded alive.

Species codes in the Catch Table are all ODFW species codes (ODFWSP). These can be related to the common names, scientific names, RecFIN species codes and ALPHA5 species codes in the Species Look-up Table (luSPECIES).

Forty-seven species and two generalist categories (unidentified rockfish and sculpins) have been encountered in the Observer Program. Only one species, black rockfish (*Sebastes melanops*), was encountered in more than 50% of all drifts, while the majority of other species were encountered in less than 10% of all drifts (Table 19). Lingcod (*Ophiodon elongatus*), blue rockfish (*Sebastes mystinus*), and yellowtail rockfish (*Sebastes flavidus*) were the next three most abundant species. A summary of the number of fish kept, discarded and number of drifts encountered by county is also presented for all species in Table 20.

### 2.1.4 Lengths Table

The Lengths Table contains fork length measurements (mm) for discarded fish beginning in 2003 (FISHLENGTH). From 2003-2009 the observer measured as many discarded fish from the observed anglers as possible. As of 2010, the observer measures as many discarded fish from the observed anglers as possible, but no more than 10 of any one species per drift. Lengths are measured for all yelloweye rockfish (*Sebastes ruberrimus*) in all years and canary rockfish (*Sebastes pinniger*) from 2003-2009, whether or not the angler was one of the observed anglers. Recreational fisheries are currently closed for both the canary rockfish



and yelloweye rockfish. The Observer Program affords the only opportunity to obtain length distribution information for these species since they would not be encountered in the dockside ORBS Program.

The disposition of individual fish (discarded alive or dead) is recorded for each record in the Lengths Table. If possible, the sex of kelp greenling (*Hexagrammos decagrammus*) and lingcod is recorded. Fish weights are recorded in the database as calculated values and not directly measured. Fish weight,  $W$ , is calculated as a function of fork length,  $L$ , using the power equation  $W = aL^b$ , where parameters  $a$  and  $b$  can be found in the Species Look-up Table in columns A.FL and B.FL, respectively.

Only eight species have more than 50 recorded discard length measurements (Figure 7). Of these species, cabezon (*Scorpaenichthys marmoratus*), lingcod, kelp greenling, canary rockfish, and yelloweye rockfish have all been subject to minimum size limits or fishery closures since 2001. See the Regulations Look-up Table for more detailed information on these regulation changes. Black rockfish, blue rockfish, canary rockfish, and yellowtail rockfish all have more than 1200 discard measurements (Table 21).

The discard lengths can be compared to the retained catch lengths from the ORBS program. The ORBS data included in the database represent 438 trips sampled by both the ORBS and Observer Programs. The ORBS Program assigns samplers a given number of trips per week. The sampler's goal is to sub-sample the retained catch from a trip, with a goal of measuring 15 fish of a species per week. For black rockfish, blue rockfish, and lingcod the goal is to sample 15 fish per boat type per week.

Ten species had more than 50 measurement records from either the ORBS or Observer Programs. The number of fish by 2cm length bin illustrates the differing length distribution for the discarded versus retained catch (Table 22). The high proportions of discarded catch for canary rockfish, yelloweye rockfish, and lingcod are the result of fishing regulations. There are no size regulations for either black rockfish or blue rockfish, and the distributions indicate an angler preference for larger fish.

### 2.1.5 Gear Table

The Gear Table contains information on the fishing gear beginning in 2006. A description of the fishing gear used by the majority of anglers for the majority of the trip is recorded for the first drift. If a major gear change is made during the trip, a new description is recorded, including the drift number at which the change was made. Therefore, a new row in the Gear Table indicates when the gear was changed during a trip, and there is not a unique entry for each drift.

Information on the gear includes the reel type, lure, hooks, weights, and number of hooks per rod. Currently, the Gear Table is only linked to the Boat Table.

## 2.2 Ancillary (Look-up) Tables

The database contains four ancillary tables containing information related to specific columns. The look-up tables in the database are for port information (luPORT), fishing

regulations (luREGS), species information (luSPECIES), and error code definitions (luERRORS).

### 2.2.1 Port Look-up Table

The Port Look-up Table contains the different port codes and names used in the Observer Program and also the ORBS Program (Table 23). County numbers and names associated with each port are also in the table. The Port Look-up Table has a compound primary key of CNTY and INTSITE. The unique combination of county and site codes can be used to call the county and port names in a query.

### 2.2.2 Species Look-up Table

All species in the main database tables are assigned ODFW species codes (Table 24). The Species Look-up Table contains the common name, scientific name, ODFW species code, RecFIN species codes, as well as additional species-specific information (Table 18). The Species Look-up Table also contains a column to indicate if the species falls into a complex of species regulated as a group, e.g., nearshore rockfish (REGS\_Group). The primary key is the ODFWSP column in the Species Look-up Table. The Species Look-up Table is related by foreign key relationships to the Catches and the ORBS\_BIOLOGICAL Tables.

### 2.2.3 Regulations Look-up Table

ODFW fishing regulations change both between and within years. Regulations are also species specific, or apply to a group of species, i.e., nearshore rockfish. The Regulations Look-up Table allows users to track daily regulation changes and relate them to the catch data. The table contains information on all relevant groundfish regulations beginning on January 1, 2001, with one row entry for every calendar day. The table tracks whether a fishery is open or closed, and notes any depth regulations. The table also tracks bag limits and size limits for groundfish species for each calendar day. See Table 18 for a complete list of regulations included in the database. A summary of the depth restrictions by year can be found in Table 25. The Regulations Look-up Table can be linked to any other table in the database using the trip date (TRPDATE in the Boat Table or STIME/ETIME in the Location Table).

In 2005, ODFW implemented the Stonewall Bank Yelloweye Rockfish Conservation Area (Figure 1), in which groundfish-targeted fishing is prohibited. Fishing within this area for Pacific halibut or any species from the "Groundfish Group" (defined by the Oregon Sport Fishing Regulations) is forbidden as of this document's publication date.

### 2.2.4 Error Code Look-up Table

The Error Code Look-up Table contains all of the possible error codes used in the database. Error codes have the same meaning across columns and tables. The unique

error codes used and their descriptions can be found in Table 26. See the Quality Control section for more information regarding the error codes and data quality monitoring.

## 2.3 ORBS Tables

There are 438 trips that were sampled by both the Observer and the ORBS Programs from 2001-2012. The Observer and ORBS Programs are managed separately and there is no dockside communication between an observer from the Observer Program and a sampler from the ORBS Program.

The ORBS trips are linked to the observer database via the Observer Program ASSN numbers. The ASSN number is not part of the original ORBS database, but was added to allow a foreign key relationship between the Observer Boat Table and the ORBS Interview Table (Boat Table and ORBS\_BOAT Table). Trips between the two sampling programs were initially linked using the date of the trip and type of trip (groundfish versus tuna or Pacific halibut). Though not common, when more than one trip was found to be sampled in a day, the trip selected was verified by matching the species and records of the retained catch between the two programs. The approximate time of day the charter vessel returned from the Observer Program data was also compared to the ORBS interview time.

There are three ORBS Program tables included in the database; ORBS\_BOAT, ORBS\_ENCOUNTER, and ORBS\_BIOLOGICAL. The ORBS\_BOAT table contains trip-level information collected by the sampler when conducting interviews. The data in this table are similar to the data contained in the Observer Program Boat Table. The ORBS\_ENCOUNTER Table contains the catch information for each trip. The ORBS\_BIOLOGICAL Table contains the lengths of the sampled, retained catch. The ORBS\_BOAT Table has a primary key of ASSN and has foreign key relationships with the ORBS\_ENCOUNTER and ORBS\_BIOLOGICAL Tables. The compound primary key for the ORBS\_ENCOUNTER Table is the ASSN and ODFWSP columns. The compound primary key for the ORBS\_BIOLOGICAL Table contains the ASSN, SAMPLENUM, and ODFWSP columns. For a complete list of columns and their descriptions for the ORBS tables see Table 18.

## 2.4 Constraints

The primary key and foreign key relationships enforce constraints to prevent potential errors, e.g., incorrect port or species codes, from entering the database. The primary key is unique to each row in a table and new data cannot be entered that violate this rule. In the Boat Table the primary key is the trip identification number (ASSN). Compound primary keys are used for the Location, Catch, and Lengths Tables. The primary key for the Location Table is the trip identification number and the drift number (ASSN, LOCNUM). The primary key for the Catch Table is the trip identification number, the drift number, and the species code (ASSN, LOCNUM, ODFWSP). For the Lengths Table, more than one row can contain the same trip identification number, drift location, species, and length. Therefore, an additional identifier column was added to the Lengths Table. The primary key

for the Lengths Table includes the trip identification number, drift number, species code, and a unique record identifier (ASSN, LOCNUM, ODFWSP, RECORD\_NUM).

Constraints can also be added manually to the database and placed on a particular column within a table. If new data violate a constraint, the user will receive an error message. Two constraints have been added to the Observer database, one for species codes and one for port codes. A species code cannot be entered in the Catch Table if it does not match a species code in the Species Look-up Table. The second constraint is on the county and port codes (CNTY and INTSITE) in the Boat Table. A combination of county and port cannot be entered unless it is present in the Port Look-up Table.

### 3 Quality Control

Considerable efforts were made to identify errors that have entered the database either through transcription errors or sampler errors. The original unedited data (downloaded from RecFIN in August 2012) remain in the database as separate tables (xxxBoat\_Original, xxxLocation\_Original, xxxCatches\_Original, xxxLengths\_Original). Comparisons can be made between the original data and the edited tables (Boat, Location, Catch, and Lengths Tables).

Quality control checks are complete for the 2003-2012 data. All suspicious data in the main tables were checked against the original datasheets. The original 2001 datasheets cannot currently be located. However, some suspicious data from 2001 were edited if a correction was obvious or the authors could infer a reasonable value.

All of the changes made to the data have been explicitly tracked and documented in the newly relational database so that revised records can be compared to the original data. Justification for each change in the database is documented with an error code. For any column with edited data, an additional error code column was added to the database. For example, if an error was found in the County column (CNTY), the column CNTY\_Error was added to the database and contains the error code. Specific error codes have the same definition across tables and columns (Table 26). A description of error codes found in specific columns is available in the Error Code Look-up Table.

Erroneous data fell into three main categories. If the original datasheet contained a value different from that in the database, the error was corrected. If the original datasheets were either missing or contained a value that was unlikely to be correct and the authors could not identify a plausible correction, the value was replaced with a *NULL* value in the database. Lastly, if the original datasheet contained an unlikely value, but the authors could infer a reasonable estimate of the value, the inferred value was entered in the database. Inferred estimates were often based on information from surrounding drifts. Time and location data were inferred using the average elapsed time, distance, or speed of surrounding drifts. All drifts with a speed greater than two nautical miles per hour or a distance of greater than two nautical miles were checked against the original datasheets.

On the original datasheets, null or empty values are coded with dummy variables, e.g., 999, 998, 9998, and have all been replaced with *NULL* in the database. If an error was found in either the coordinate location or time columns, the correction was made to the columns

with the original format and the columns with converted formats, i.e., decimal degrees for coordinates and date format for time.

Fifteen of the groundfish trips from 2001 are not currently in the main database due to missing catch and location data, leaving 982 trips in the main database. There are also seven trips recorded in the RecFIN database that cannot be confirmed by ODFW. These trips have been removed from the current database and contain trips with ASSN values of: 1041320010610; 1041320010618; 2041320010722; 2041320010827; 2041320011010; 2041320020506; and 1045220010626.

Table 1: Number of observed trips by year and port, including trips targeting groundfish or Pacific halibut.

<b>Port</b>	<b>2001</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>Grand Total</b>
Garibaldi	33	20	17	18	14	15	14	7	8	7	11	164
Depoe Bay	12	10	18	27	30	32	29	23	25	20	32	258
Newport	26	25	20	28	32	34	35	25	31	23	34	313
Charleston	14	17	9	12	1	-	2	4	4	4	9	76
Bandon	12	1	3	2	9	13	11	3	2	2	3	61
Port Orford	-	-	-	-	-	2	-	-	-	-	-	2
Gold Beach	-	-	2	4	4	1	2	2	2	2	2	21
Brookings	8	18	11	10	9	9	10	7	6	5	9	102
<b>Grand Total</b>	<b>105</b>	<b>91</b>	<b>80</b>	<b>101</b>	<b>99</b>	<b>106</b>	<b>103</b>	<b>71</b>	<b>78</b>	<b>63</b>	<b>100</b>	<b>997</b>

Table 2: Number of observed drifts by year and port, including trips targeting groundfish or Pacific halibut.

<b>Port</b>	<b>2001</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>Grand Total</b>
Garibaldi	512	304	207	215	214	261	282	115	165	133	225	2633
Depoe Bay	133	104	224	278	304	377	326	279	287	245	361	2918
Newport	344	314	218	229	362	430	438	277	331	269	439	3651
Charleston	225	178	100	98	6	-	22	49	43	72	129	942
Bandon	153	25	26	8	84	156	122	59	20	24	14	691
Port Orford	-	-	-	-	-	24	-	-	-	-	-	24
Gold Beach	-	-	15	23	35	12	18	17	18	23	16	177
Brookings	84	232	153	129	95	136	141	98	104	66	117	1355
<b>Grand Total</b>	<b>1451</b>	<b>1157</b>	<b>943</b>	<b>980</b>	<b>1100</b>	<b>1396</b>	<b>1349</b>	<b>894</b>	<b>968</b>	<b>832</b>	<b>1301</b>	<b>12371</b>

Table 3: The number of observed groundfish trips (Actual) in 2001. Goals by port and month were not generated.

2001	Garibaldi	Depoe Bay	Newport	Charleston	Bandon	Gold Beach	Brookings	Totals
	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual
March	-	-	-	-	-	-	-	-
April	-	-	-	-	-	-	-	-
May	-	-	-	-	-	-	-	-
June	1	-	1	2	1	-	-	5
July	11	1	9	5	3	-	1	30
August	12	5	10	4	5	-	4	40
September	9	6	6	3	3	-	3	30
October	-	-	-	-	-	-	-	-
<b>Total</b>	<b>33</b>	<b>12</b>	<b>26</b>	<b>14</b>	<b>12</b>	<b>-</b>	<b>8</b>	<b>105</b>

Table 4: The number of observed groundfish trips (Actual) in 2003. Goals by port and month were not generated.

2003	Garibaldi	Depoe Bay	Newport	Charleston	Bandon	Gold Beach	Brookings	Totals
	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual
March	-	-	-	-	-	-	-	-
April	-	-	-	-	-	-	-	-
May	2	1	5	4	-	-	4	16
June	2	2	2	2	1	-	5	14
July	7	2	6	4	-	-	1	20
August	6	4	3	2	-	-	5	20
September	3	1	6	5	-	-	3	18
October	-	-	-	-	-	-	-	-
<b>Total</b>	<b>20</b>	<b>10</b>	<b>22</b>	<b>17</b>	<b>1</b>	<b>-</b>	<b>18</b>	<b>88</b>

Table 5: The number of groundfish trips intended to be observed (Goal) and the number of trips actually observed (Actual) in 2004.

2004	Garibaldi		Depoe Bay		Newport		Charleston		Bandon		Gold Beach		Brookings		Totals	
	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal
March	-	1	-	1	-	1	-	1	-	-	-	-	-	1	-	4
April	2	1	2	3	4	3	1	1	-	-	-	-	1	1	10	10
May	2	2	3	4	2	4	1	1	-	-	-	-	2	2	10	13
June	2	2	5	4	4	4	2	2	-	-	-	-	2	2	15	15
July	4	4	5	5	4	5	2	2	1	1	2	2	3	3	20	22
August	3	3	3	5	2	5	2	2	2	2	1	1	3	3	16	20
September	-	2	-	3	-	3	-	2	-	-	-	-	-	1	-	12
October	-	-	-	1	-	1	-	1	-	-	-	-	-	1	-	5
<b>Total</b>	<b>13</b>	<b>14</b>	<b>18</b>	<b>26</b>	<b>16</b>	<b>26</b>	<b>8</b>	<b>12</b>	<b>3</b>	<b>3</b>	<b>2</b>	<b>4</b>	<b>11</b>	<b>14</b>	<b>71</b>	<b>101</b>

Table 6: The number of groundfish trips intended to be observed (Goal) and the number of trips actually observed (Actual) in 2005.

2005	Garibaldi		Depoe Bay		Newport		Charleston		Bandon		Gold Beach		Brookings		Totals	
	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal
March	-	1	-	3	-	4	-	1	-	-	-	-	-	1	-	10
April	1	2	3	4	3	4	2	1	-	-	-	-	1	1	9	13
May	4	2	6	5	5	4	1	2	-	-	1	1	1	1	19	16
June	2	3	3	5	-	5	1	2	-	-	-	-	1	1	7	16
July	4	4	5	7	6	5	3	2	1	1	1	1	3	3	23	23
August	4	4	5	7	4	5	2	2	1	1	2	1	2	2	20	22
September	2	1	4	3	3	3	2	2	-	-	-	-	1	1	12	10
October	-	-	-	1	3	2	1	1	-	-	-	-	1	1	5	5
<b>Total</b>	<b>17</b>	<b>15</b>	<b>26</b>	<b>30</b>	<b>24</b>	<b>28</b>	<b>12</b>	<b>11</b>	<b>2</b>	<b>2</b>	<b>4</b>	<b>3</b>	<b>10</b>	<b>10</b>	<b>95</b>	<b>99</b>



Table 7: The number of groundfish trips intended to be observed (Goal) and the number of trips actually observed (Actual) in 2006.

2006	Garibaldi		Depoe Bay		Newport		Charleston		Bandon		Gold Beach		Brookings		Totals	
	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal
March	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
April	1	1	2	2	2	2	-	-	-	-	-	-	1	1	6	6
May	1	2	3	3	3	4	1	1	-	-	-	-	1	1	9	11
June	3	4	5	6	6	6	-	1	2	2	1	1	2	2	19	22
July	4	3	5	6	4	8	-	2	2	2	1	1	2	2	18	24
August	3	4	7	8	8	8	-	1	2	2	1	1	2	2	23	26
September	2	1	3	3	6	6	-	1	2	2	1	1	1	1	15	15
October	-	-	5	5	3	2	-	-	1	1	-	-	-	-	9	8
<b>Total</b>	<b>14</b>	<b>15</b>	<b>30</b>	<b>33</b>	<b>32</b>	<b>36</b>	<b>1</b>	<b>6</b>	<b>9</b>	<b>9</b>	<b>4</b>	<b>4</b>	<b>9</b>	<b>9</b>	<b>99</b>	<b>112</b>

Table 8: The number of groundfish trips intended to be observed (Goal) and the number of trips actually observed (Actual) in 2007.

2007	Garibaldi		Depoe Bay		Newport		Charleston		Bandon		Port Orford		Gold Beach		Brookings		Totals	
	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal
March	-	-	-	-	-	-	n/a	n/a	-	-	n/a	n/a	-	-	-	-	-	-
April	1	1	2	2	4	3	-	n/a	1	1	-	-	-	0	1	1	7	7
May	2	2	7	3	3	3	-	n/a	2	2	-	-	-	0	1	1	15	10
June	3	3	5	5	6	6	-	n/a	2	2	1	n/a	-	1	2	2	19	19
July	3	3	5	7	8	7	-	n/a	3	3	-	n/a	1	1	2	2	22	23
August	4	4	8	8	8	8	-	n/a	4	4	1	n/a	1	1	2	2	27	27
September	1	1	5	3	3	3	-	n/a	1	1	1	n/a	-	0	1	1	11	9
October	1	1	2	2	2	2	-	n/a	0	0	-	n/a	-	0	-	-	5	5
<b>Total</b>	<b>15</b>	<b>15</b>	<b>32</b>	<b>29</b>	<b>34</b>	<b>31</b>	<b>-</b>	<b>n/a</b>	<b>13</b>	<b>13</b>	<b>2</b>	<b>n/a</b>	<b>1</b>	<b>3</b>	<b>9</b>	<b>8</b>	<b>106</b>	<b>100</b>

Table 9: The number of groundfish trips intended to be observed (Goal) and the number of trips actually observed (Actual) in 2008.

	Garibaldi		Depoe Bay		Newport		Charleston		Bandon		Gold Beach		Brookings		Totals	
	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal
March	1	1	2	2	3	4	-	n/a	-	-	-	-	1	1	7	8
April	1	1	1	1	4	3	-	n/a	-	1	-	-	1	1	7	7
May	2	2	3	3	3	3	2	n/a	-	1	-	-	1	1	11	10
June	3	3	5	5	6	6	-	n/a	3	3	-	-	1	1	18	18
July	3	3	6	6	7	7	-	n/a	3	3	1	1	2	2	22	22
August	3	3	7	8	7	7	-	n/a	4	4	1	1	2	2	24	25
September	-	1	3	3	4	3	-	n/a	1	1	-	-	1	1	9	9
October	1	-	2	2	1	3	-	n/a	-	-	-	-	1	1	5	6
<b>Total</b>	<b>14</b>	<b>14</b>	<b>29</b>	<b>30</b>	<b>35</b>	<b>36</b>	<b>2</b>	<b>n/a</b>	<b>11</b>	<b>13</b>	<b>2</b>	<b>2</b>	<b>10</b>	<b>10</b>	<b>103</b>	<b>105</b>

Table 10: The number of groundfish trips intended to be observed (Goal) and the number of trips actually observed (Actual) in 2009.

	Garibaldi		Depoe Bay		Newport		Charleston		Bandon		Gold Beach		Brookings		Totals	
	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal
March	1	1	2	2	3	3	-	n/a	-	-	-	-	1	1	7	7
April	-	-	1	1	2	2	1	n/a	-	1	-	-	1	1	5	5
May	1	1	2	2	3	3	1	n/a	-	1	-	-	1	1	8	8
June	2	2	4	4	4	4	-	n/a	1	1	-	-	1	1	12	12
July	2	2	5	5	5	5	-	n/a	1	1	1	1	1	1	15	15
August	1	2	6	6	4	5	2	n/a	1	3	1	1	1	1	16	18
September	-	1	2	2	2	2	-	n/a	-	1	-	-	1	1	5	7
October	-	-	1	1	2	2	-	n/a	-	-	-	-	-	-	3	3
<b>Total</b>	<b>7</b>	<b>9</b>	<b>23</b>	<b>23</b>	<b>25</b>	<b>26</b>	<b>4</b>	<b>n/a</b>	<b>3</b>	<b>8</b>	<b>2</b>	<b>2</b>	<b>7</b>	<b>7</b>	<b>71</b>	<b>75</b>

Note: Gold Beach was not allotted any trips by the standard goal allocation, but data from that port were desired, so the goals in Bandon (July) and Brookings (August) were each reduced by one trip and the Gold Beach goal was increased as shown in the table.

Table 11: The number of groundfish trips intended to be observed (Goal) and the number of trips actually observed (Actual) in 2010.

2010	Garibaldi		Depoe Bay		Newport		Charleston		Bandon		Gold Beach		Brookings		Totals	
	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal
March	-	-	1	1	2	2	-	-	-	-	-	-	-	-	3	3
April	-	-	1	1	2	2	-	1	-	-	-	-	1	1	4	5
May	1	1	2	2	4	3	1	1	-	-	-	-	1	1	9	8
June	1	1	4	4	3	4	1	1	-	-	-	-	1	1	10	11
July	2	3	6	7	7	7	-	-	1	1	1	1	1	1	18	20
August	3	3	7	7	7	7	1	1	1	1	1	1	1	1	21	21
September	1	1	2	3	4	4	1	1	-	-	-	-	1	1	9	10
October	-	-	2	1	2	2	-	-	-	-	-	-	-	-	4	3
<b>Total</b>	<b>8</b>	<b>9</b>	<b>25</b>	<b>26</b>	<b>31</b>	<b>31</b>	<b>4</b>	<b>5</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>6</b>	<b>6</b>	<b>78</b>	<b>81</b>

Note: Gold Beach was not allotted any trips by the standard goal allocation, but data from that port were wanted, so the goals in Charleston (July) and Brookings (August) were each reduced by one trip and the Gold Beach goal was increased. In addition, the original coast-wide goal was 65 trips; 16 more trips were added to the central and north ports for July-October because there were no EFP trips to be observed; trips were not added to south ports (Charleston to Brookings) because of a new sampler there. Revised goals are shown in the table.

Table 12: The number of groundfish trips intended to be observed (Goal) and the number of trips actually observed (Actual) in 2011.

2011	Garibaldi		Depoe Bay		Newport		Charleston		Bandon		Gold Beach		Brookings		Totals	
	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal
March	-	-	-	1	1	2	-	-	-	-	-	-	-	-	1	3
April	-	-	2	1	3	2	-	1	-	-	-	-	1	1	6	5
May	1	1	2	2	2	2	1	1	-	-	-	-	1	1	7	7
June	2	2	3	3	4	4	1	1	-	-	-	-	1	1	11	11
July	2	2	5	5	5	5	-	-	1	1	1	1	1	1	15	15
August	1	2	5	5	4	4	1	1	1	1	1	1	-	-	13	14
September	1	1	2	2	3	3	1	1	-	-	-	-	1	1	8	8
October	-	-	1	1	1	1	-	-	-	-	-	-	-	-	2	2
<b>Total</b>	<b>7</b>	<b>8</b>	<b>20</b>	<b>20</b>	<b>23</b>	<b>23</b>	<b>4</b>	<b>5</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>5</b>	<b>5</b>	<b>63</b>	<b>65</b>

Note: Gold Beach was not allotted any trips by the standard goal allocation, but data from that port were wanted, so the goals in Charleston (July) and Brookings (August) were each reduced by one trip and the Gold Beach goal was increased as shown in the table.

Table 13: The number of groundfish trips intended to be observed (Goal) and the number of trips actually observed (Actual) in 2012.

2012	Garibaldi		Depoe Bay		Newport		Charleston		Bandon		Gold Beach		Brookings		Totals	
	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal
March	-	-	-	1	3	3	-	-	-	-	-	-	-	-	3	4
April	-	-	3	2	3	3	1	1	-	-	-	-	1	1	8	7
May	1	1	3	3	3	3	1	1	-	-	-	-	1	1	9	9
June	4	4	6	6	5	6	2	2	1	1	-	-	2	2	20	21
July	2	2	8	8	8	7	1	2	1	1	1	1	2	2	23	23
August	2	3	8	7	6	6	2	2	1	1	1	1	2	2	22	22
September	2	1	3	4	4	4	2	1	-	-	-	-	1	1	12	11
October	-	0	1	1	2	2	-	-	-	-	-	-	-	-	3	3
Total	<b>11</b>	<b>11</b>	<b>32</b>	<b>32</b>	<b>34</b>	<b>34</b>	<b>9</b>	<b>9</b>	<b>3</b>	<b>3</b>	<b>2</b>	<b>2</b>	<b>9</b>	<b>9</b>	<b>100</b>	<b>100</b>

Note: For Garibaldi, one trip was moved from June to July due to sampling logistics; revised goals are shown in the table.

Table 14: The number of Pacific halibut trips observed (Actual) in 2003. The number of intended trips was not established; observed rode halibut trips with the opportunity arose.

2003	Newport
	Actual
June	1
July	-
August	2
<b>Total</b>	<b>3</b>

Table 15: The number of Pacific halibut trips intended to be observed (Goal) and the number of trips actually observed (Actual) in 2004.

2004	Astoria		Garibaldi		Depoe Bay		Newport		Charleston		Totals	
	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal
May	-	1	2	2	-	2	2	4	1	-	5	9
June	-	-	1	-	-	-	1	1	-	-	2	1
July	-	-	-	1	-	-	1	2	-	-	1	3
August	-	-	1	1	-	-	-	1	-	-	1	2
September	-	-	-	-	-	-	-	1	-	-	0	1
<b>Total</b>	-	1	4	4	-	2	4	9	1	-	9	16

Table 16: The number of Pacific halibut trips intended to be observed (Goal) and the number of trips actually observed (Actual) in 2005.

2005	Astoria		Garibaldi		Depoe Bay		Newport		Charleston		Totals	
	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal
May	-	1	1	2	-	2	1	5	-	2	2	12
June	-	-	-	-	1	-	2	1	-	-	3	1
July	-	-	-	-	-	-	-	1	-	-	-	1
August	-	-	-	-	-	-	1	1	-	-	1	1
September	-	-	-	-	-	-	-	1	-	-	-	1
<b>Total</b>	-	1	1	2	1	2	4	9	-	2	6	16

Table 17: The number of ORBS trips that were also sampled by the Observer Program by year and county.

Port	2001	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
Garibaldi	9	10	5	5	6	4	12	5	1	3	7	67
Depoe Bay	7	1	10	11	15	8	16	5	9	9	14	105
Newport	14	7	11	14	20	19	20	12	12	8	19	156
Charleston	9	15	7	6	1	2	2	1	3	1	2	49
Bandon	5	0	2	1	5	5	5	2	1	1	1	28
Gold Beach	0	0	0	2	2	1	1	2	1	1	0	10
Brookings	3	5	3	4	1	1	0	0	0	2	4	23
<b>Total</b>	<b>47</b>	<b>38</b>	<b>38</b>	<b>43</b>	<b>50</b>	<b>40</b>	<b>56</b>	<b>27</b>	<b>27</b>	<b>25</b>	<b>47</b>	<b>438</b>

Table 18: Description of the tables and columns in the database.

Table Name	Column Name	Description
BOAT	ANGLERS	This table contains a record for each trip including the boat and landing port information
BOAT	AREA	Number of eligible anglers on the boat
BOAT	ASSN	Water area fished; 1 = Ocean <= 3 miles, 2 = Ocean >3 miles
BOAT	ASSN_Error	Trip Identification Number; Digit 1 = ASSNN, Digit 2 = Always 0, Digits 3-5: Sampler ID, Digits 6-9 = Year, Digits 10-11 = Month, Digits 12-13= Day
BOAT	ASSNN	Indicates if there is an error in the ASSN column
BOAT	BOATNUM	Observer trip number for the day; 1 = first trip of the day; 2 = second trip of the day
BOAT	BOATNUM_Error	ODFW assigned boat identification number
BOAT	CNTY	Indicates if there is an error in the BOATNUM column; See the luErrors Table for error code definitions
BOAT	CNTY_Error	County of landing (FIPS County Codes)
BOAT	INTSITE	Indicates if there is an error in the CNTY column; See the luErrors Table for error code definitions
BOAT	INTSITE_Error	MRFSS site code
BOAT	INTVUER	Indicates if there is an error in the INTSITE column; See the luErrors Table for error code definitions
BOAT	INTVUER_Error	Unique Interviewer Code
BOAT	LANDING	Indicates if there is an error in the INTVUER column; See the luErrors Table for error code definitions
BOAT	LANDING_Error	Landing site name/description
BOAT	NUMLOCS	Indicates if there is an error in the LANDING column; See the luErrors Table for error code definitions
BOAT	NUMLOCS_Error	The number of drifts or stops during the trip
BOAT	NUMSP	Indicates if there is an error in the NUMLOCS column; See the luErrors Table for error code definitions
BOAT	NUMSP_Error	Number of species encountered on a trip by observed anglers (The dockside ODFW interview may include additional species)
BOAT	ODFW_TRPTYP	Indicates if there is an error in the NUMSP column; See the luErrors Table for error code definitions
BOAT	PORT	Trip target species; B = bottomfish (groundfish), H=Pacific halibut (Note: Pacific halibut trips only observed from 2003-2005)
BOAT	PORT_Error	The port of landing for the trip
BOAT	ST	Indicates if there is an error in the PORT column; See the luErrors Table for error code definitions
BOAT	ST_Error	State; OR=41, CA=6
BOAT	TRPDATE	Indicates if there is an error in the ST column; See the luErrors Table for error code definitions
BOAT	TRPDATE_ORIG	Date of the trip
BOAT	TRPTYP	Trip date in the original format: YYYYMMDD
BOAT	WAVE	Trip type: 1=am1/2; 2=pm1/2; 3=mid1/2; 4=twilight ;5=3/4-1day; 6=overnight; 7=other
CATCHES	ASSN	Two month wave: 1=Jan-Feb; 2= March-April; 3=May-June; 4=July-August; 5=Sept-Oct; 6=Nov-Dec
CATCHES	ASSN_Error	This table contains information on the catch at each drift
CATCHES	CATCHES_Error	Trip Identification Number; Digit 1 = ASSNN, Digit 2 = Always 0, Digits 3-5: Sampler ID, Digits 6-9 = Year, Digits 10-11 = Month, Digits 12-13= Day
CATCHES	DISC	Indicates if there is an error in the ASSN column; See the luErrors Table for error code definitions
CATCHES	DISC_Error	Indicates if a missing row was added to the CATCHES table; See the luErrors Table for error code definitions
CATCHES	DISCDALIV	Number of fish discarded during a drift by the observed anglers
CATCHES	DISCDALIV_Error	Indicates if there is an error in the DISC column; See the luErrors Table for error code definitions
CATCHES	DISCDEAD	Number of fish discarded alive during a drift by the observed anglers
CATCHES	DISCDEAD_Error	Indicates if there is an error in the DISCDALIV column; See the luErrors Table for error code definitions
CATCHES	DISCDEAD_Error	Number of fish discarded dead during a drift by the observed anglers
CATCHES	DISCDEAD_Error	Indicates if there is an error in the DISCDEAD column; See the luErrors Table for error code definitions

Table 18: continued.

Table Name	Column Name	Description
CATCHES	KEPT	Number of fish kept during a drift by the observed anglers
CATCHES	KEPT_Error	Indicates if there is an error in the KEPT column; See the luErrors Table for error code definitions
CATCHES	LOCNUM	Drift/fishing location number within a trip
CATCHES	ODFWSP	ODFW assigned species code
CATCHES	ODFWSP_Error	Indicates an error in the ODFW_SPECIES column; See the luErrors Table for error code definitions
CATCHES	SPNUM	Species catch number, a value starting with 1 assigned to each species as its encountered on the trip
CATCHES	SPNUM_Error	Indicates if there is an error in the SPNUM column; See the luErrors Table for error code definitions
GEAR		This table contains information on the gear used each drift
GEAR	ASSN	Trip Identification Number; Digit 1 = ASSNN, Digit 2 = Always 0, Digits 6-9 = Year, Digits 10-11
GEAR	Assumption.DE	Description of assumptions made to fill in blank gear information columns (ex.Assume 2 hooks and jighead based on cocahoe + worm and other trips.)
GEAR	BAIT	Type of bait used: 0 = not used; 2 = chunk; 3 = half; 4 = whole
GEAR	BOAT	ODFW assigned Boat number
GEAR	COCAHOESCOLOR	Color or color combination of the cocahoese lures
GEAR	COMMENTA	Interviewer comment
GEAR	COMMENTB	Interviewer comment
GEAR	EDRIFT	The last drift the gear was used (correlates to LOCNUM in the LOCATION table)
GEAR	FLIESCOLOR	Color or color combination of the lure
GEAR	HOOK_SIZE_STYLE	Hook size and style, typical size for groundfish is 6/0 or 5/0
GEAR	INTVUER	Interviewer code
GEAR	MMDD	Month and Day formatted MMDD
GEAR	MULTIPLE.SETUPS	More than one gear was used simultaneously
GEAR	NCOCAHOES	Number of cocahoese per rod
GEAR	NFLIES	Number of shrimp flies per rod
GEAR	NHOOKS	Total number of hooks on the majority of rods including hooks on the weight. The maximum allowed by regulation is three hooks for groundfish. A double- or treble-point hook is counted as one.
GEAR	NSCAMPI	Number of scampi lures per rod
GEAR	NWORMS	Number of worm lures per rod
GEAR	OZ	Weight of the weight in ounces
GEAR	REEL	Type of reel used: 1 = casting; 2 = spin; both = both
GEAR	RELMECH	Note of the mechanism used to release fish
GEAR	RIDE	Observer assignment number for the day; e.g. 2 = second trip of the day
GEAR	SCAMPICOLOR	Color or color combination of scampi lures
GEAR	SDRIFT	The first drift gear was used (correlates to LOCNUM in the LOCATION table)
GEAR	TERM_WGT_BAIT	Whether or not the terminal weight had bait on it: 1 = yes; 0 = no
GEAR	TERMTYP	The type of weight used: 1 = jighead; 5 = other without hook; 6 = other with hook; 7 = jig other than jibhead, nearly always with two hooks; multi = multiple types; varied = varied types
GEAR	TRPYEAR	Year
GEAR	WORMSCOLOR	Color or color combination of the worm lure



Table 18: continued.

Table Name	Column Name	Description
LENGTHS		This table contains information on the lengths and weights of discarded fish. All yelloweye rockfish are measured, regardless if the person catching it was an observed angler.
LENGTHS	ASSN	Trip Identification Number; Digit 1 = ASSNN, Digit 2 = Always 0, Digits 3-5: Sampler ID, Digits 6-9 = Year, Digits 10-11 = Month, Digits 12-13= Day
LENGTHS	ASSN_Error	Indicates if there is an error in the ASSN column; See the luErrors Table for error code definitions
LENGTHS	DISPD	RecFIN disposition of fish: 1=thrown back alive, 6 = thrown back dead, 0 = boat fish (not typically used for onboard sampling)
LENGTHS	DISPD_Error	Indicates if there is an error in the DISPD column; See the luErrors Table for error code definitions
LENGTHS	FISHLNGTH	Species fork length (mm)
LENGTHS	FISHLNGTH_Error	Indicates if there is an error in the FISHLNGTH column; See the luErrors Table for error code definitions
LENGTHS	LENGTHS_Error	Indicates if a row was added to the LENGTHS Table; See the luErrors Table for error code definitions
LENGTHS	LOCNUM	Stop/Drift number within a trip
LENGTHS	LOCNUM_Error	Indicates if there is an error in the LOCNUM column; See the luErrors Table for error code definitions
LENGTHS	ODFWSP	ODFW assigned species code
LENGTHS	ODFWSP_Error	Indicates if there is an error in the ODFWSP column; See the luErrors Table for error code definitions
LENGTHS	RECORD_NUM	Unique identifier for every record in the table
LENGTHS	SEX	Sex of the fish: 1 = male; 2 = female
LENGTHS	WEIGHT	Calculated fish weight (based on length) in kg
LOCATION		This table contains drift level information
LOCATION	ASSN	Trip Identification Number; Digit 1 = ASSNN, Digit 2 = Always 0, Digits 3-5: Sampler ID, Digits 6-9 = Year, Digits 10-11 = Month, Digits 12-13= Day
LOCATION	ASSN_Error	Indicates if there is an error in the ASSN column; See the luErrors Table for error code definitions
LOCATION	DEPTH	Maximum fishing depth (feet)
LOCATION	DEPTH_Error	Indicates if there is an error in the DEPTH column; See the luErrors Table for error code definitions
LOCATION	EGISDEPTH	Ending depth estimated from GIS-mapped bathymetry (U.S. Coastal Relief Model [2])
LOCATION	ELAT	Ending latitude in decimal degrees
LOCATION	ELAT_Error	Indicates if there is an error in the ELAT column; See the luErrors Table for error code definitions
LOCATION	ELAT_ORIG	Ending latitude in its original format
LOCATION	ELON	Ending longitude in decimal degrees
LOCATION	ELON_Error	Indicates if there is an error in the ELON column; See the luErrors Table for error code definitions
LOCATION	ELON_ORIG	Ending longitude in its original format
LOCATION	ETIME	Drift end time; date format
LOCATION	ETIME_Error	Indicates if there is an error in the ETIME column; See the luErrors Table for error code definitions
LOCATION	ETIME_ORIG	Drift ending time in the original format: HHMM
LOCATION	FTYPE	Fishing boat action: 1 = free drift, 2 = stationed (engine in/out of gear to maintain position); 3 = anchored; 4 = troll
LOCATION	FTYPE_Error	Indicates if there is an error in the FTYPE column; See the luErrors Table for error code definitions
LOCATION	GFORMAT	Original location format (1=DDMMSS; 3=DDMMSS; 4=DDDDDD; 5=DDMMMM (created for 2001 data))
LOCATION	GFORMAT_Error	Indicates if there is an error in the GFORMAT column; See the luErrors Table for error code definitions
LOCATION	LOCATION_Error	Indicates if there is an error associated with location, time or gformat
LOCATION	LOCNUM	Stop/Drift number within a trip
LOCATION	LOCNUM_Error	Indicates if there is an error in the OBSANG column; See the luErrors Table for error code definitions
LOCATION	OBSANG	Indicates if seals and/or sea lions were observed within approximately 100 yards of the boat during fishing at this location; NULL = no; 1 = yes
LOCATION	PINNIPED	

Table 18: continued.

Table Name	Column Name	Description
LOCATION	PLBAIT	The total number of observed baits lost to seals and/or sea lions during fishing time at a location by the observed anglers; NULL = not applicable, 0 = no bait lost, or number of baits lost recorded
LOCATION	PLFISH	The total number of hooked sportfish lost to seals and/or sea lions during fishing time at a location by the observed anglers; NULL = not applicable, 0 = no bait lost, or number of hooked fish lost recorded
LOCATION	PLGEAR	The total number of gear setups lost to seals and/or sea lions during fishing time at this location by the observed anglers; NULL = not applicable, 0 = no gear lost, or number of gear lost recorded
LOCATION	PLTIME	The total number of minutes lost to seals and/or sea lions during fishing time at this location by the observed anglers; NULL = not applicable, 0 = no gear lost, or number of minutes moving away
LOCATION	PRMOVE	Indicates whether or not the boat left the location due to the presence of seals and/or sea lions. Some fishing time is required at a location for this to be true. NULL= not applicable, 0=no, boat did not move, 1=yes, boat moved due to marine mammals
LOCATION	SGISDEPTH	Starting depth estimated from GIS-mapped bathymetry (U.S. Coastal Relief Model [2])
LOCATION	SLAT	Starting latitude in decimal degrees
LOCATION	SLAT_Error	Indicates if there is an error in the SLAT column; See the luErrors Table for error code definitions
LOCATION	SLAT_ORIG	Starting latitude in its original format
LOCATION	SLON	Starting longitude in decimal degrees
LOCATION	SLON_Error	Indicates if there is an error in the SLON column; See the luErrors Table for error code definitions
LOCATION	SLON_ORIG	Starting longitude in its original format
LOCATION	STEMP	Water surface temperature (F) at the start of the drift
LOCATION	STIME	Drift start time; date format
LOCATION	STIME_Error	Indicates if there is an error in the STIME column; See the luErrors Table for error code definitions
LOCATION	STIME_ORIG	Drift starting time in the original format: HHMM
luERRORS	ERROR_CODE	This table contains all of the errors codes used in the Boat, Location, and Catch tables
luERRORS	ERROR_COLUMN	Error code
luERRORS	ERROR_Description	Indicates the column within a table that contains this error code
luERRORS	ERROR_TABLE	The description of the error codes. The error codes have the same definition across tables and columns; See the luErrors Table for error code definitions
luPORT	CNTY	Indicates which table contains this error code
luPORT	CNTY_NAME	This table contains information on the Port and County of landing for both PSMFC and ODFW codes
luPORT	INTSITE	FIPS county code
luPORT	ODFW_PORT	County Name
luPORT	ORBS_PORTID	MRFS Site Code
luREGS	BlkRf_Season	ODFW Port Name (may reflect the Bay associated with the Port)
luREGS	Cab_Season	ODFW assigned Port Code
luREGS	CabMinLen	This table contains fishing regulations data by date
luREGS	CabSubBag	Black rockfish season; OPEN/CLOSED
luREGS	CanSubBag	Cabezon season; OPEN/CLOSED
luREGS	GF_OpenDepth	Cabezon minimum total length (inches)
luREGS	KgrnLngMinLen	Cabezon sub-bag limit
luREGS	LingBagLim	Canary rockfish sub-bag limit
luREGS	LingMinLen	Open Depths for Groundfish
		Kelp greenling minimum total length (inches)
		Lingcod bag limit
		Lingcod minimum total length (inches)

Table 18: continued.

Table Name	Column Name	Description
luREGS	MarBagLim	Marine bag limit
luREGS	NsRf_Season	Nearshore rockfish season; OPEN/CLOSED
luREGS	OthGf_Season	Other groundfish season; OPEN/CLOSED
luREGS	RckfishBagLim	Rockfish bag limit
luREGS	RegDate	Date
luREGS	YeSubBag	Yelloweye rockfish sub-bag limit
luSPECIES		This is the look-up table for species information
luSPECIES	A_FL	Parameter <i>a</i> in the length-weight equation $W = aL^b$ using fork length
luSPECIES	A_TL	Parameter <i>a</i> in the length-weight equation $W = aL^b$ using total length
luSPECIES	ALPHA5	ALPHA5 species code
luSPECIES	B_FL	Parameter <i>b</i> in the length-weight equation $W = aL^b$ using fork length
luSPECIES	B_TL	Parameter <i>b</i> in the length-weight equation $W = aL^b$ using total length
luSPECIES	CDFGSP	California Department of Fish and Wildlife species code
luSPECIES	COMMON	Species common name
luSPECIES	FAMILY	Species scientific family
luSPECIES	MAXLEN	Species maximum length
luSPECIES	NODC8	NODC8 species code
luSPECIES	ODFWSP	ODFW assigned species code
luSPECIES	RECFINSP	RecFIN species code
luSPECIES	REGS_Group	If the species is in a specific group (e.g., nearshore rockfish) in the regulations table, that species is flagged in this column
luSPECIES	SCIENTIFIC	Scientific name
luSPECIES	Species_Group	Species group; elasmobranch, flatfish, invert, other_gf, salmonid, rockfish, or other
luSPECIES	Sp-ORDER	Species scientific Order
ORBS_BIOLOGICAL		This table contains the biological information on the species subsampled in the ORBS dockside sampling database for trips that were also observed in the ODFW onboard observer sampling program
ORBS_BIOLOGICAL	ASSN	Observer Program Trip Identification Number; Digit 1 = ASSNN, Digit 2 = Always 0, Digits 3-5: Sampler ID, Digits 6-9 = Year, Digits 10-11 = Month, Digits 12-13 = Day
ORBS_BIOLOGICAL	DATATYPE	Data type: used from 2001-2010; 1 = length and weight; 2 = age structures; 3 = lengths only; 4 = CWT data
ORBS_BIOLOGICAL	FISHLNGTH	Fish fork length measured in mm
ORBS_BIOLOGICAL	INTVNUM	Interview number of the day (TRPDATE) for a particular sampler (SID)
ORBS_BIOLOGICAL	ODFWSP	ODFW species code
ORBS_BIOLOGICAL	ORBS_PORT	ODFW ORBS port code
ORBS_BIOLOGICAL	SAMPLENUM	Species sample number, assigned by specimen (i.e. this number is unique for each fish within a trip)
ORBS_BIOLOGICAL	SAMPLENUM_Error	Indicates if there is an error in the SAMPLENUM column; See the luErrors Table for error code definitions
ORBS_BIOLOGICAL	SEX	Fish sex; M=male, F = female
ORBS_BIOLOGICAL	SID	Sampler identification number; Number can change within and between years and is not necessarily representative of the same individual
ORBS_BIOLOGICAL	TRPDATE	Trip date
ORBS_BIOLOGICAL	WEIGHT	Fish weight measured to the nearest 0.1 kg
ORBS_BOAT		This table contains the boat level information for the ORBS dockside sampling database for trips also observed in the ODFW onboard observer sampling program
ORBS_BOAT	ANGLERS	Total of all anglers on the vessel (includes crew that fished on charters)
ORBS_BOAT	ASSN	Observer Program Trip Identification Number; Digit 1 = ASSNN, Digit 2 = Always 0, Digits 3-5: Sampler ID, Digits 6-9 = Year, Digits 10-11 = Month, Digits 12-13 = Day

Table 18: continued.

Table Name	Column Name	Description
ORBS_BOAT	BOATNUM	ODFW assigned boat number
ORBS_BOAT	BOATTYPE	Boat type: C = charter; G = guideboat; P = private
ORBS_BOAT	CATCHAREA	Catch location related to ODFW salmon fishing areas
ORBS_BOAT	COMMENT	Interviewer comment
ORBS_BOAT	DEPARTTIME	Time the trip departed
ORBS_BOAT	FISHERY	Location of the fishery: E = estuary; O = ocean
ORBS_BOAT	INTVNUM	Interview number of the day (TRPDATE) for a paritucular sampler (SID)
ORBS_BOAT	INTVTIME	Time the angler was interviewed
ORBS_BOAT	ORBS_PORTID	ODFW ORBS port code
ORBS_BOAT	REEFLOC	Sub-area of the major reef location fished (Reef maps can be obtained with permissions from ODFW)
ORBS_BOAT	SID	Sampler identification number; Number can change within and between years and is not necessarily representative of the same individual
ORBS_BOAT	TRPDATE	Trip date
ORBS_BOAT	TRPHRS	Trip length in hours
ORBS_BOAT	TRPTYP	Trip target species: Salmon/Bottomfish/Combo (salmon)/Halibut/Tuna/Non-fishing/Spearfishing
ORBS_ENCOUNTER		This table contains the fish counter data from the ORBS dockside sampling database for trips also observed in the ODFW onboard observer sampling program
ORBS_ENCOUNTER	ASSN	Observer Program Trip Identification Number; Digit 1 = ASSNN, Digit 2 = Always 0, Digits 3-5: Sampler ID, Digits 6-9 = Year, Digits 10-11 = Month, Digits 12-13= Day
ORBS_ENCOUNTER	CAUGHT	Total catch of the species (ODFW_SPECIES) on the trip
ORBS_ENCOUNTER	INTVNUM	Interview number of the day (TRPDATE) for a paritucular sampler (SID)
ORBS_ENCOUNTER	NUMTAGGED	Number of black rockfish tagged
ORBS_ENCOUNTER	ODFWSP	ODFW species code
ORBS_ENCOUNTER	ORBS_PORT	ODFW ORBS port code
ORBS_ENCOUNTER	RELEASED	Total number of fish (ODFW_SPECIES) discarded on the trip
ORBS_ENCOUNTER	SID	Sampler identification number; Number can change within and between years and is not necessarily representative of the same individual
ORBS_ENCOUNTER	TRPDATE	Trip date
xxBOAT_2001_Errors		This table contains the Boat data for 2001 trips that need to be checked against the original datasheets
xxCATCHES_2001_Errors		This table contains the 2001 catch data corresponding to the trips in the xxBoat_2001_Errors table
xxLOCATION_2001_Errors		This table contains the 2001 location data corresponding to the trips in the xxBoat_2001_Errors table
xxORBS_BIOLOGICAL_2001		This table contains the 2001 biological ORBS data corresponding to trips in the xxBoatErrors_2001 table
xxORBS_BOAT_2001		This table contains the 2001 biological ORBS data corresponding to trips in the xxBoatErrors_2001 table
xxORBS_ENCOUNTER_2001		This table contains the 2001 biological ORBS data corresponding to trips in the xxBoatErrors_2001 table
xxxBoat_Original		This table contains the original boat table data received from ODFW
xxxCatches_Original		This table contains the original catch table data received from ODFW
xxxLength_Original		This table contains the original length table data received from ODFW
xxxLocation_Original		This table contains the original location table data received from ODFW

Table 19: All species encountered in the Observer Program, ranked by the number of drifts the species was encountered from 2001-2012.

Common name	Species code	Number kept	Number discarded	Drifts encountered	Percent (%) of drifts encountered
Black Rockfish	442	26177	1578	6911	56.79
Lingcod	484	2466	2432	2858	23.49
Blue Rockfish	445	4291	2055	2144	17.62
Yellowtail Rockfish	433	2499	1529	1591	13.07
Canary Rockfish	451	305	1497	1048	8.61
Kelp Greenling	481	757	73	700	5.75
Cabezon	556	565	190	608	5.00
Quillback Rockfish	441	394	9	331	2.72
China Rockfish	446	325	19	296	2.43
Yelloweye Rockfish	457	48	426	275	2.26
Vermilion Rockfish	444	286	22	250	2.05
Copper Rockfish	421	245	15	228	1.87
Widow Rockfish	431	289	40	133	1.09
Pacific Halibut	614	216	58	79	0.65
Coho Salmon	63	21	60	74	0.61
Tiger Rockfish	447	80	2	71	0.58
Red Irish Lord	527	9	45	53	0.44
Chinook Salmon	65	33	15	39	0.32
Buffalo Sculpin	523	3	39	35	0.29
Pacific Hake	203	0	48	29	0.24
Chub Mackerel (Pacific)	374	15	33	20	0.16
Rosethorn Rockfish	436	15	10	17	0.14
Greenstriped Rockfish	429	9	5	14	0.12
Brown Rockfish	416	16	2	13	0.11
Bocaccio	449	16	0	12	0.10
Rosy Rockfish	456	2	12	12	0.10
Sablefish	477	9	6	10	0.08
Redstripe Rockfish	453	13	8	9	0.07
Pacific Sanddab	604	9	2	8	0.07
Big Skate	42	31	3	5	0.04
Blue Shark	31	0	6	5	0.04
Chilipepper	435	4	12	5	0.04
Jack Mackerel	290	6	0	5	0.04
Pacific Herring	55	2	6	5	0.04
Sand Sole	634	2	3	5	0.04
Arrowtooth Flounder	606	1	3	4	0.03

Table 19: continued.

Common name	Species code	Number kept	Number discarded	Drifts encountered	Percent (%) of drifts encountered
Pacific Sardine	56	3	1	4	0.03
Rockfish Category	410	1	2	2	0.02
Pacific Lamprey	14	0	2	2	0.02
Redbanded Rockfish	418	2	0	2	0.02
Spiny Dogfish	35	0	2	2	0.02
Spotted Ratfish	49	1	1	2	0.02
Atka Mackerel	486	1	0	1	0.01
Butter Sole	618	0	1	1	0.01
Gopher Rockfish	423	1	0	1	0.01
Longnose Skate	46	0	1	1	0.01
Rock Greenling	482	0	2	1	0.01
Sculpins	490	0	1	1	0.01
Sixgill Shark	21	0	1	1	0.01
Wolf-Eel	350	1	0	1	0.01

Table 20: All species encountered in the ODFW Observer Program by county. Data within each county represent at least three vessels to meet ODFW standards for confidential data.

Common name	County	Number kept	Number discarded	Drifts encountered
Arrowtooth Flounder	Tillamook	1	3	4
Arrowtooth Flounder	Lincoln	0	0	0
Arrowtooth Flounder	Coos	0	0	0
Arrowtooth Flounder	Curry	0	0	0
Atka Mackerel	Tillamook	0	0	0
Atka Mackerel	Lincoln	1	0	1
Atka Mackerel	Coos	0	0	0
Atka Mackerel	Curry	0	0	0
Big Skate	Tillamook	0	0	0
Big Skate	Lincoln	31	3	5
Big Skate	Coos	0	0	0
Big Skate	Curry	0	0	0
Black Rockfish	Tillamook	3743	69	1140
Black Rockfish	Lincoln	14038	804	3837
Black Rockfish	Coos	4360	101	961
Black Rockfish	Curry	4036	604	973
Blue Rockfish	Tillamook	311	16	172
Blue Rockfish	Lincoln	1818	727	1052
Blue Rockfish	Coos	1243	259	402
Blue Rockfish	Curry	919	1053	518
Blue Shark	Tillamook	0	1	1
Blue Shark	Lincoln	0	5	4
Blue Shark	Coos	0	0	0
Blue Shark	Curry	0	0	0
Bocaccio	Tillamook	16	0	12
Bocaccio	Lincoln	0	0	0
Bocaccio	Coos	0	0	0
Bocaccio	Curry	0	0	0
Brown Rockfish	Tillamook	0	0	0
Brown Rockfish	Lincoln	2	0	1
Brown Rockfish	Coos	10	1	7
Brown Rockfish	Curry	4	1	5

Table 20: continued.

Common name	County	Number kept	Number discarded	Drifts encountered
Buffalo Sculpin	Tillamook	3	3	3
Buffalo Sculpin	Lincoln	0	32	28
Buffalo Sculpin	Coos	0	0	0
Buffalo Sculpin	Curry	0	4	4
Butter Sole	Tillamook	0	0	0
Butter Sole	Lincoln	0	1	1
Butter Sole	Coos	0	0	0
Butter Sole	Curry	0	0	0
Cabazon	Tillamook	43	16	52
Cabazon	Lincoln	392	143	418
Cabazon	Coos	85	12	81
Cabazon	Curry	45	19	57
Canary Rockfish	Tillamook	118	230	228
Canary Rockfish	Lincoln	78	818	484
Canary Rockfish	Coos	16	191	123
Canary Rockfish	Curry	93	258	213
Chilipepper	Tillamook	0	0	0
Chilipepper	Lincoln	0	0	0
Chilipepper	Coos	0	0	0
Chilipepper	Curry	4	12	5
China Rockfish	Tillamook	27	0	27
China Rockfish	Lincoln	162	11	156
China Rockfish	Coos	89	1	70
China Rockfish	Curry	47	7	43
Chinook Salmon	Tillamook	10	6	16
Chinook Salmon	Lincoln	22	9	22
Chinook Salmon	Coos	1	0	1
Chinook Salmon	Curry	0	0	0
Chub Mackerel (Pacific)	Tillamook	4	5	5
Chub Mackerel (Pacific)	Lincoln	10	0	3
Chub Mackerel (Pacific)	Coos	0	0	0
Chub Mackerel (Pacific)	Curry	1	28	12



Table 20: continued.

Common name	County	Number kept	Number discarded	Drifts encountered
Coho Salmon	Tillamook	7	13	19
Coho Salmon	Lincoln	9	39	43
Coho Salmon	Coos	5	5	9
Coho Salmon	Curry	0	3	3
Copper Rockfish	Tillamook	32	1	00
Copper Rockfish	Lincoln	119	9	115
Copper Rockfish	Coos	82	2	71
Copper Rockfish	Curry	12	3	12
Gopher Rockfish	Tillamook	0	0	0
Gopher Rockfish	Lincoln	0	0	0
Gopher Rockfish	Coos	0	0	0
Gopher Rockfish	Curry	1	0	1
Greenstriped Rockfish	Tillamook	8	0	8
Greenstriped Rockfish	Lincoln	1	5	6
Greenstriped Rockfish	Coos	0	0	0
Greenstriped Rockfish	Curry	0	0	0
Jack Mackerel	Tillamook	3	0	3
Jack Mackerel	Lincoln	3	0	2
Jack Mackerel	Coos	0	0	0
Jack Mackerel	Curry	0	0	0
Kelp Greenling	Tillamook	229	7	200
Kelp Greenling	Lincoln	387	41	359
Kelp Greenling	Coos	90	7	77
Kelp Greenling	Curry	51	18	64
Lingcod	Tillamook	447	498	558
Lingcod	Lincoln	1340	1490	1600
Lingcod	Coos	343	328	401
Lingcod	Curry	336	116	299
Longnose Skate	Tillamook	0	1	1
Longnose Skate	Lincoln	0	0	0
Longnose Skate	Coos	0	0	0
Longnose Skate	Curry	0	0	0

Table 20: continued.

Common name	County	Number kept	Number discarded	Drifts encountered
Pacific Hake	Tillamook	0	42	26
Pacific Hake	Lincoln	0	6	3
Pacific Hake	Coos	0	0	0
Pacific Hake	Curry	0	0	0
Pacific Halibut	Tillamook	60	13	23
Pacific Halibut	Lincoln	140	41	52
Pacific Halibut	Coos	16	4	4
Pacific Halibut	Curry	0	0	0
Pacific Herring	Tillamook	0	4	2
Pacific Herring	Lincoln	1	1	2
Pacific Herring	Coos	0	0	0
Pacific Herring	Curry	1	1	1
Pacific Lamprey	Tillamook	0	1	1
Pacific Lamprey	Lincoln	0	1	1
Pacific Lamprey	Coos	0	0	0
Pacific Lamprey	Curry	0	0	0
Pacific Sanddab	Tillamook	2	0	2
Pacific Sanddab	Lincoln	1	2	3
Pacific Sanddab	Coos	0	0	0
Pacific Sanddab	Curry	6	0	3
Pacific Sardine	Tillamook	1	0	1
Pacific Sardine	Lincoln	2	1	3
Pacific Sardine	Coos	0	0	0
Pacific Sardine	Curry	0	0	0
Quillback Rockfish	Tillamook	106	1	95
Quillback Rockfish	Lincoln	162	8	138
Quillback Rockfish	Coos	94	0	71
Quillback Rockfish	Curry	32	0	27
Red Irish Lord	Tillamook	7	6	12
Red Irish Lord	Lincoln	1	35	36
Red Irish Lord	Coos	1	0	1
Red Irish Lord	Curry	0	4	4

Table 20: continued.

Common name	County	Number kept	Number discarded	Drifts encountered
Redbanded Rockfish	Tillamook	1	0	1
Redbanded Rockfish	Lincoln	0	0	0
Redbanded Rockfish	Coos	1	0	1
Redbanded Rockfish	Curry	0	0	0
Redstripe Rockfish	Tillamook	11	0	5
Redstripe Rockfish	Lincoln	2	8	4
Redstripe Rockfish	Coos	0	0	0
Redstripe Rockfish	Curry	0	0	0
Rock Greenling	Tillamook	0	0	0
Rock Greenling	Lincoln			
Rock Greenling	Coos	0	2	1
Rock Greenling	Curry	0	0	0
Rosethorn Rockfish	Tillamook	15	0	9
Rosethorn Rockfish	Lincoln	0	9	7
Rosethorn Rockfish	Coos	0	0	0
Rosethorn Rockfish	Curry	0	1	1
Rosy Rockfish	Tillamook	2	0	2
Rosy Rockfish	Lincoln	0	1	1
Rosy Rockfish	Coos	0	1	1
Rosy Rockfish	Curry	0	10	8
Sablefish	Tillamook	0	0	0
Sablefish	Lincoln	9	6	10
Sablefish	Coos	0	0	0
Sablefish	Curry	0	0	0
Sand Sole	Tillamook	0	1	1
Sand Sole	Lincoln	1	1	2
Sand Sole	Coos	0	0	0
Sand Sole	Curry	1	1	2
Sculpins	Tillamook	0	0	0
Sculpins	Lincoln	0	1	1
Sculpins	Coos	0	0	0
Sculpins	Curry	0	0	0

Table 20: continued.

Common name	County	Number kept	Number discarded	Drifts encountered
Sixgill Shark	Tillamook	0	1	1
Sixgill Shark	Lincoln	0	0	0
Sixgill Shark	Coos	0	0	0
Sixgill Shark	Curry	0	0	0
Spiny Dogfish	Tillamook	0	0	0
Spiny Dogfish	Lincoln	0	2	2
Spiny Dogfish	Coos	0	0	0
Spiny Dogfish	Curry	0	0	0
Spotted Ratfish	Tillamook	1	0	1
Spotted Ratfish	Lincoln	0	0	0
Spotted Ratfish	Coos	0	0	0
Spotted Ratfish	Curry	0	1	1
Tiger Rockfish	Tillamook	50	1	44
Tiger Rockfish	Lincoln	19	1	19
Tiger Rockfish	Coos	11	0	8
Tiger Rockfish	Curry	0	0	0
Vermilion Rockfish	Tillamook	4	0	4
Vermilion Rockfish	Lincoln	55	5	44
Vermilion Rockfish	Coos	175	15	152
Vermilion Rockfish	Curry	52	2	50
Widow Rockfish	Tillamook	204	11	94
Widow Rockfish	Lincoln	76	28	31
Widow Rockfish	Coos	8	0	6
Widow Rockfish	Curry	1	1	2
Wolf-Eel	Tillamook	0	0	0
Wolf-Eel	Lincoln	1	0	1
Wolf-Eel	Coos	0	0	0
Wolf-Eel	Curry	0	0	0
Yelloweye Rockfish	Tillamook	24	110	108
Yelloweye Rockfish	Lincoln	7	229	95
Yelloweye Rockfish	Coos	16	54	44
Yelloweye Rockfish	Curry	1	33	28

Table 20: continued.

Common name	County	Number kept	Number discarded	Drifts encountered
Yellowtail Rockfish	Tillamook	1516	180	514
Yellowtail Rockfish	Lincoln	657	658	614
Yellowtail Rockfish	Coos	159	122	142
Yellowtail Rockfish	Curry	167	569	321

Table 21: Number of fish measured by year for groundfish-targeted trips, sampled by the ORBS (kept, n=438 trips) and the Observer (discarded, n=864 trips) Programs.

Year	Black rockfish		Blue rockfish		Canary rockfish		Yellowtail rockfish	
	Discarded	Kept	Discarded	Kept	Discarded	Kept	Discarded	Kept
2001	NA	28	NA	101	NA	20	NA	7
2003	131	53	209	62	38	44	221	64
2004	115	17	226	13	116	0	162	33
2005	265	91	307	60	189	0	162	24
2006	155	39	157	37	197	0	87	23
2007	159	172	188	84	130	0	138	56
2008	172	191	296	114	177	0	147	58
2009	180	105	138	20	203	0	153	29
2010	94	156	131	37	166	0	144	16
2011	60	66	88	43	90	0	54	7
2012	54	126	136	45	182	0	81	50
Total	1385	1044	1876	616	1488	64	1349	367

Table 22: Number of individual fish measured (by 2cm length bins) for groundfish-targeted trips, sampled by the ORBS (kept, n=438 trips) and Observer (discarded, n=864 trips) Programs.

Fork length (cm)	Black rockfish		Blue rockfish		Cabezon		Canary rockfish		China rockfish	
	Discarded	Kept	Discarded	Kept	Discarded	Kept	Discarded	Kept	Discarded	Kept
10-11	0	0	5	0	0	0	1	0	0	0
12-13	2	0	17	0	0	0	1	0	0	0
14-15	6	0	17	0	0	0	2	0	0	0
16-17	5	0	65	0	0	0	4	0	0	0
18-19	16	0	110	1	0	0	9	0	0	0
20-21	48	0	162	0	0	0	19	0	0	0
22-23	82	0	268	5	0	0	49	0	0	0
24-25	107	0	356	13	0	0	80	0	3	0
26-27	181	4	410	55	1	0	97	1	3	2
28-29	194	7	278	84	0	0	141	8	3	2
30-31	213	21	107	121	4	0	207	11	3	13
32-33	141	50	52	114	6	0	227	12	5	19
34-35	138	102	19	92	8	1	222	10	2	32
36-37	94	180	6	82	12	0	147	8	0	44
38-39	58	211	2	32	17	1	94	3	2	18
40-41	50	217	0	10	15	12	55	3	0	2
42-43	34	133	0	4	12	9	30	1	0	1
44-45	8	70	1	2	12	12	26	2	0	0
46-47	3	28	0	0	11	18	10	0	0	0
48-49	2	12	1	1	23	20	17	0	0	0
50-51	1	5	0	0	23	26	19	0	0	0
52-53	1	3	0	0	24	18	18	4	0	0
54-55	1	1	0	0	17	20	6	0	0	0
56-57	0	0	0	0	18	16	5	0	0	0
58-59	0	0	0	0	5	11	0	1	0	0
60-61	0	0	0	0	2	5	0	0	0	0
62-63	0	0	0	0	3	5	1	0	0	0
64-65	0	0	0	0	2	2	0	0	0	0
66-67	0	0	0	0	0	2	0	0	0	0
68-69	0	0	0	0	0	1	0	0	0	0
70-71	0	0	0	0	0	0	0	0	0	0
72-73	0	0	0	0	0	0	0	0	0	0
74-75	0	0	0	0	0	0	0	0	0	0
76-77	0	0	0	0	0	0	0	0	0	0
78-79	0	0	0	0	0	0	0	0	0	0
80-81	0	0	0	0	0	0	0	0	0	0
82-83	0	0	0	0	0	0	0	0	0	0
84-85	0	0	0	0	0	0	0	0	0	0
86-87	0	0	0	0	0	0	0	0	0	0
88-89	0	0	0	0	0	0	0	0	0	0
90-91	0	0	0	0	0	0	0	0	0	0
92-93	0	0	0	0	0	0	0	0	0	0
94-95	0	0	0	0	0	0	0	0	0	0
96-97	0	0	0	0	0	0	0	0	0	0
98-99	0	0	0	0	0	0	0	0	0	0
100-101	0	0	0	0	0	0	0	0	0	0
Total	1385	1044	1876	616	215	179	1487	64	21	133
Mean	30.84	39.57	25.38	32.75	47.49	51.60	33.63	35.85	31.17	35.52
Std. Dev.	5.81	3.97	4.22	3.95	7.92	6.29	6.70	6.77	4.17	2.78

Table 22: continued.

Fork length (cm)	Copper rockfish		Kelp greenling		Lingcod		Quillback rockfish		Vermilion rockfish	
	Discarded	Kept	Discarded	Kept	Discarded	Kept	Discarded	Kept	Discarded	Kept
10-11	0	0	0	0	0	0	0	0	0	0
12-13	0	0	0	0	0	0	0	0	0	0
14-15	0	0	0	0	0	0	0	0	0	0
16-17	1	0	0	0	0	0	0	0	0	0
18-19	0	0	2	0	0	0	0	0	0	0
20-21	1	0	1	0	1	0	0	0	0	0
22-23	0	0	3	0	1	0	0	0	0	0
24-25	0	0	8	0	3	0	1	2	0	0
26-27	3	1	11	0	3	0	2	1	0	0
28-29	0	2	14	7	1	0	2	7	0	0
30-31	1	5	11	15	8	0	2	5	0	0
32-33	1	7	9	34	11	0	1	18	0	2
34-35	0	11	7	58	11	0	0	16	0	7
36-37	2	11	5	78	19	0	0	33	0	6
38-39	1	12	4	40	35	1	0	43	1	5
40-41	0	24	1	9	78	1	1	41	1	10
42-43	0	25	2	4	119	0	0	17	1	13
44-45	1	28	1	0	169	0	0	5	2	30
46-47	0	19	0	0	154	0	0	3	1	35
48-49	0	5	1	0	203	0	0	2	0	19
50-51	0	7	0	1	293	0	0	0	2	15
52-53	0	2	1	0	318	1	0	0	0	9
54-55	0	1	0	0	275	21	0	0	1	4
56-57	0	0	0	0	196	43	0	0	3	2
58-59	0	0	0	0	242	50	0	0	0	0
60-61	0	0	0	1	30	61	0	0	0	0
62-63	0	0	0	0	6	64	0	0	0	0
64-65	0	0	0	0	0	50	0	0	0	0
66-67	0	0	0	0	3	36	0	0	0	0
68-69	0	0	0	0	1	45	0	0	0	0
70-71	0	0	0	0	1	28	0	0	0	0
72-73	0	0	0	0	0	26	0	0	0	0
74-75	0	0	0	0	1	15	0	0	0	0
76-77	0	0	0	0	0	21	0	0	0	0
78-79	0	0	0	0	0	10	0	0	0	0
80-81	0	0	0	0	0	13	0	0	0	0
82-83	0	0	0	0	0	12	0	0	0	0
84-85	0	0	0	0	0	8	0	0	0	0
86-87	0	0	0	0	0	2	0	0	0	0
88-89	0	0	0	0	0	10	0	0	0	0
90-91	0	0	0	0	0	5	0	0	0	0
92-93	0	0	0	0	0	4	0	0	0	0
94-95	0	0	0	0	0	1	0	0	0	0
96-97	0	0	0	0	0	2	0	0	0	0
98-99	0	0	0	0	0	1	0	0	0	0
100-101	0	0	0	0	0	1	0	0	0	0
Total	11	160	81	247	2182	533	9	193	12	157
Mean	30.99	42.01	31.24	36.26	51.17	67.38	30.29	38.26	49.36	45.88
Std. Dev.	8.31	5.37	6.23	3.32	6.16	9.49	4.76	4.21	6.27	4.88



Table 22: continued.

Fork length (cm)	Widow rockfish		Yelloweye rockfish		Yellowtail rockfish	
	Discarded	Kept	Discarded	Kept	Discarded	Kept
10-11	0	0	1	0	3	0
12-13	0	0	0	0	3	0
14-15	1	0	0	0	3	0
16-17	1	0	0	0	10	0
18-19	0	0	2	0	47	0
20-21	2	0	4	0	89	0
22-23	9	0	7	0	191	7
24-25	16	1	9	0	215	22
26-27	5	9	23	0	292	21
28-29	3	9	20	0	243	39
30-31	2	12	22	1	158	58
32-33	2	14	25	1	54	45
34-35	1	8	38	3	22	47
36-37	0	12	19	1	10	48
38-39	0	4	26	3	5	34
40-41	0	1	20	1	1	18
42-43	0	1	36	2	1	19
44-45	0	2	28	1	0	6
46-47	0	0	15	1	0	2
48-49	0	0	16	3	0	1
50-51	0	0	14	2	0	0
52-53	0	0	10	1	0	0
54-55	0	0	12	2	0	0
56-57	0	0	4	1	1	0
58-59	0	0	7	0	1	0
60-61	0	0	7	0	0	0
62-63	0	0	2	1	0	0
64-65	0	0	4	0	0	0
66-67	0	0	3	0	0	0
68-69	0	0	0	0	0	0
70-71	0	0	1	0	0	0
72-73	0	0	0	0	0	0
74-75	0	0	1	0	0	0
76-77	0	0	0	0	0	0
78-79	0	0	0	0	0	0
80-81	0	0	0	0	0	0
82-83	0	0	0	0	0	0
84-85	0	0	0	0	0	0
86-87	0	0	0	0	0	0
88-89	0	0	0	0	0	0
90-91	0	0	0	0	0	0
92-93	0	0	0	0	0	0
94-95	0	0	0	0	0	0
96-97	0	0	0	0	0	0
98-99	0	0	0	0	0	0
100-101	0	0	0	0	0	0
Total	42	73	376	24	1349	367
Total	42	73	376	24	1349	367
Mean	25.45	33.07	40.25	44.66	26.71	33.92
Std. Dev.	3.62	4.42	10.53	8.64	4.15	5.24

Note: All yelloweye rockfish and canary rockfish (from 2003-2009) are measured in the Observer Program if encountered by any eligible angler.

Table 23: Port and county names and codes for ports sampled in the Observer and ORBS Programs

Port Name	Observer Port Code	ORBS Port Code	County	
			Code	Name
Garibaldi	16	10	57	Tillamook
Depoe Bay	37	22		
Newport (north side)	44	24	41	Lincoln
Newport (South Beach)	50	24		
Charleston	79	34		
Bandon	93	36	11	Coos
Port Orford	99	38		
Gold Beach	104	40	15	Curry
Brookings	109	42		

Table 24: Species information for fish species observed in the Observer Program and the ORBS trips that were also interviewed. An \* indicates the species was only present in the ORBS trips.

ODFW species code	Scientific name	Common name	ODFW Regulations Group	RecFIN species code	ALPHA5 species code
0	<i>Missing species code</i>	Species code missing (2001 data only)	-	-	-
14	<i>Lampetra tridentata</i>	Pacific Lamprey	-	11	LMPPA
21	<i>Hexanchus griseus</i>	Sixgill Shark	-	20	SHSIX
31	<i>Prionace glauca</i>	Blue Shark	-	48	SHBLU
35	<i>Squalus acanthias</i>	Spiny Dogfish	-	55	SHSDG
42	<i>Raja binoculata</i>	Big Skate	-	66	SKBIG
46	<i>Raja rhina</i>	Longnose Skate	-	71	SKLGN
49	<i>Hydrolagus colliiei</i>	Spotted Ratfish	-	86	RATFS
55	<i>Clupea pallasii</i>	Pacific Herring	-	1.5	HERPA
56	<i>Sardinops sagax</i>	Pacific Sardine	-	104	SARPA
63	<i>Oncorhynchus kisutch</i>	Coho Salmon	-	118	SALCO
65	<i>Oncorhynchus tshawytscha</i>	Chinook Salmon	-	120	SALCK
203	<i>Merluccius productus</i>	Pacific Hake	-	181	PHAKE
290	<i>Trachurus symmetricus</i>	Jack Mackerel	-	462	JACMK
350	<i>Anarhichthys ocellatus</i>	Wolf-Eel	-	555	WOLFE
374	<i>Scomber japonicus</i>	Chub Mackerel (Pacific)	-	638	MACPA
410	-	Rockfish Category	OthGF	233	RFGEN
415*	<i>Sebastes serranoides</i>	Olive Rockfish	NsRf	284	RFOLV
416	<i>Sebastes auriculatus</i>	Brown Rockfish	NsRf	236	RFBRN
418	<i>Sebastes babcocki</i>	Redbanded Rockfish	OthGF	238	RFRBD
419*	<i>Sebastes brevispinis</i>	Silvergray Rockfish	OthGF	239	RFSLG
421	<i>Sebastes caurinus</i>	Copper Rockfish	NsRf	241	RFROP
423	<i>Sebastes carnatus</i>	Gopher Rockfish	NsRf	270	RFGRN
429	<i>Sebastes elongatus</i>	Greenstriped Rockfish	OthGF	245	RFGST
431	<i>Sebastes entomelas</i>	Widow Rockfish	OthGF	247	RFWID
433	<i>Sebastes flavidus</i>	Yellowtail Rockfish	OthGF	248	RFYTL
435	<i>Sebastes godesi</i>	Chilipepper	OthGF	249	RFPEP
436	<i>Sebastes helvomaculatus</i>	Rosethorn Rockfish	OthGF	250	RFRTN
441	<i>Sebastes maliger</i>	Quillback Rockfish	NsRf	252	RFQIL
442	<i>Sebastes melanops</i>	Black Rockfish	OthGF	253	RFBLK
444	<i>Sebastes miniatus</i>	Vermilion Rockfish	OthGF	255	RFVER
445	<i>Sebastes mystinus</i>	Blue Rockfish	OthGF	256	RFBLU
446	<i>Sebastes nebulosus</i>	China Rockfish	NsRf	257	RFCHN
447	<i>Sebastes nigrocinchus</i>	Tiger Rockfish	OthGF	258	RFTIG
449	<i>Sebastes paucispinis</i>	Bocaccio	OthGF	259	RFBOC
451	<i>Sebastes pinniger</i>	Canary Rockfish	OthGF	260	RFCAN
453	<i>Sebastes proriger</i>	Redstripe Rockfish	OthGF	261	RFRST
456	<i>Sebastes rosaceus</i>	Rosy Rockfish	OthGF	263	RFROS
457	<i>Sebastes ruberrimus</i>	Yelloweye Rockfish	OthGF	264	RFYFY
477	<i>Anoplopoma fimbria</i>	Sablefish	-	313	SABLE
481	<i>Hexagrammos decagrammus</i>	Kelp Greenling	OthGF	303	GRNKP

Table 24: continued.

ODFWSP species code	Scientific name	Common name	Regulations group	RecFIN species code	ALPHA5 species code
482	<i>Hexagrammos lagocephalus</i>	Rock Greenling	OthGF	304	GRNRK
484	<i>Ophiodon elongatus</i>	Lingcod	OthGF	307	LNGCD
486	<i>Pleurogrammus monopterygius</i>	Atka Mackerel	-	311	-
490	-	Sculpins	-	318	SCFAM
523	<i>Enophrys bison</i>	Buffalo Sculpin	-	339	SCBUF
527	<i>Hemilepidotus hemilepidotus</i>	Red Irish Lord	-	346	SCRIL
556	<i>Scorpaenichthys marmoratus</i>	Cabezon	Cab	379	SCCAB
604	<i>Citharichthys sordidus</i>	Pacific Sanddab	-	663	DABPA
606	<i>Atheresthes stomias</i>	Arrowtooth Flounder	-	671	FLRAR
608*	<i>Eopsetta jordani</i>	Petrale Sole	-	673	SOLP
614	<i>Hippoglossus stenolepis</i>	Pacific Halibut	-	693	HALPA
618	<i>Isopsetta isolepis</i>	Buttler Sole	-	677	SOLBT
620*	<i>Pleuronectes bilineatus</i>	Rock Sole	-	678	SOLRK
634	<i>Psettichthys melanostictus</i>	Sand Sole	-	691	SOLSD

Note: Abbreviations for the Regulations group are as follows: NsRf = nearshore rockfish; OtherGF = Other groundfish not listed in a particular regulations category; Cab = cabezon.

Table 25: Summary of depth regulations by year for groundfish-targeted trips.

Year	Depths open	Number of observed drifts	Depth restriction dates
2001	All	1249	
2003	All	1126	
2004	All	247	June 1 - Sept. 30
	<40 fm	658	
2005	All	365	June 1 - Sept. 30
	<40 fm	584	
2006	All	234	June 1 - Sept. 30
	<40 fm	866	
2007	All	66	April 1 - Sept. 30
	<40 fm	1330	
2008	All	151	April 1 - July 6 & Sept. 7 - Sept. 30 July 7 - Sept. 6
	<40 fm	597	
	<20 fm	601	
2009	All	108	April 1 - Sept. 30
	<40 fm	786	
2010	All	31	April 1 - July 23 July 24 - Dec. 31
	<40 fm	436	
	<20 fm	501	
2011	All	20	April 1 - July 20 July 21 - Sept. 30
	<40 fm	450	
	<20 fm	362	
2012	All	59	April 1 - Sept. 30
	<30 fm	1242	

Table 26: Error codes found in the database. A complete table of error codes by table and column can be found in the ancillary table luERROR.

Error Code	Error Code Description
1	Value was corrected
1.1	Value was corrected; sampler error
1.2	Value was corrected; key entry error
1.3	Value was corrected; sampler error; based on adjacent rows, drifts
1.4	Correct value added
2	Value was incorrect; replaced with <i>NULL</i>
2.1	Value was not collected; sampler error; replaced with '98'
2.5	Value was incorrect; datasheets missing; replaced with <i>NULL</i>
2.6	Value was incorrect; data not collected in 2003
3.3	Value was replaced with informed guess; based on surrounding drifts
3.5	Value was added based on informed guess; datasheets missing
4	Row added
4.1	Value was added based on speeds of other drifts
5.1	No values in row corrected; datasheets missing
5.2	Value was not corrected; datasheets missing
6	Possible lat long error; no error identified and no change to the database
7	Checked datasheet for errors; no error found and no change to the database

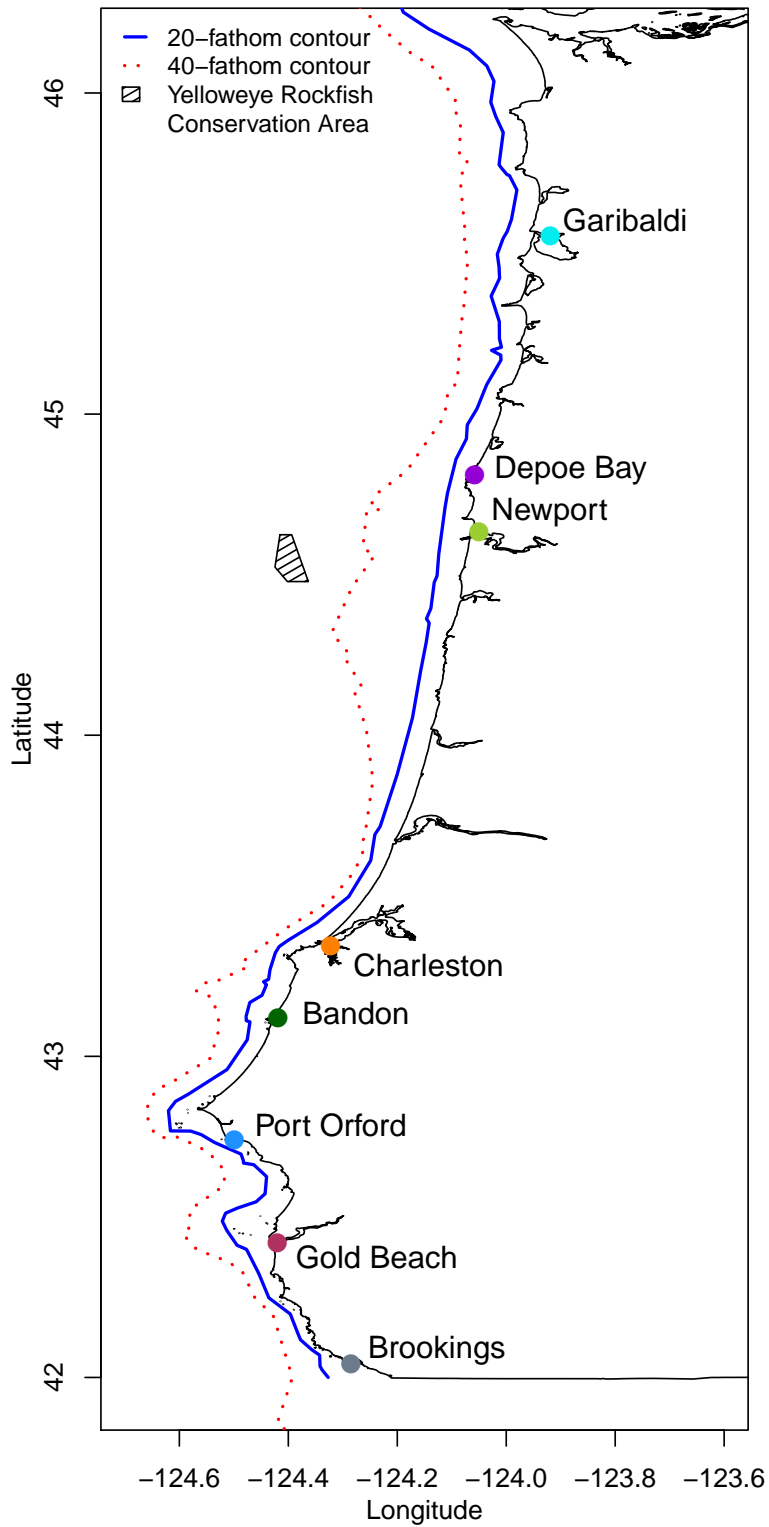


Figure 1: Map of the ports sampled in the ODFW Observer Program.

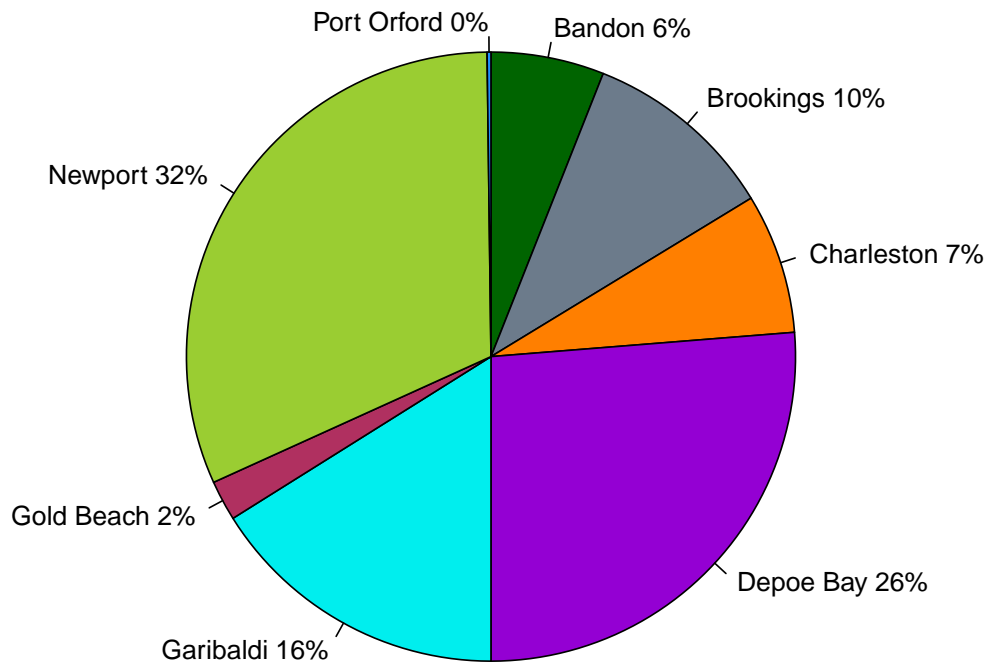


Figure 2: Percent of observed trips by port from the ODFW Observer Program.



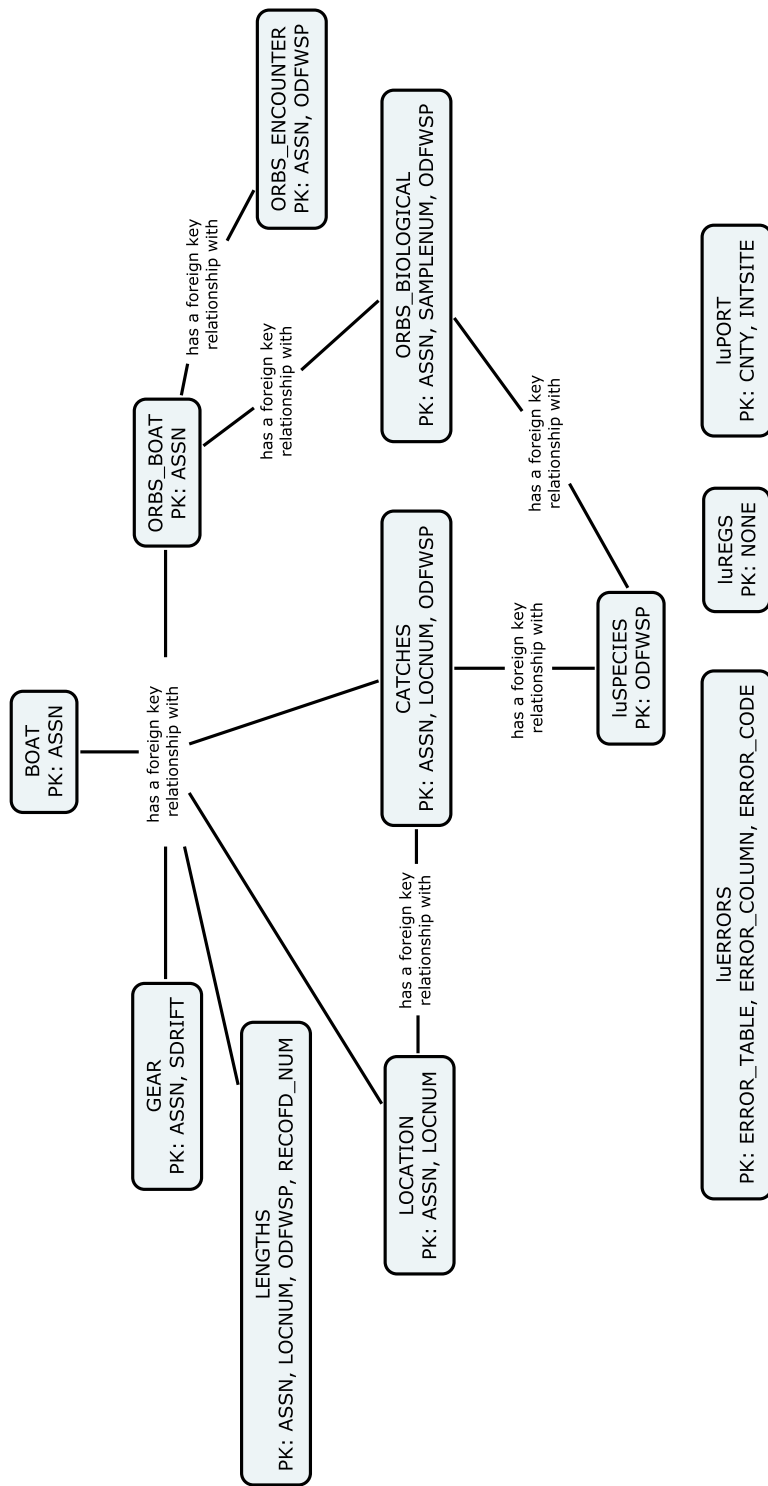


Figure 3: ODFW Observer Program database diagram, including primary keys (PK) and foreign key relationships.

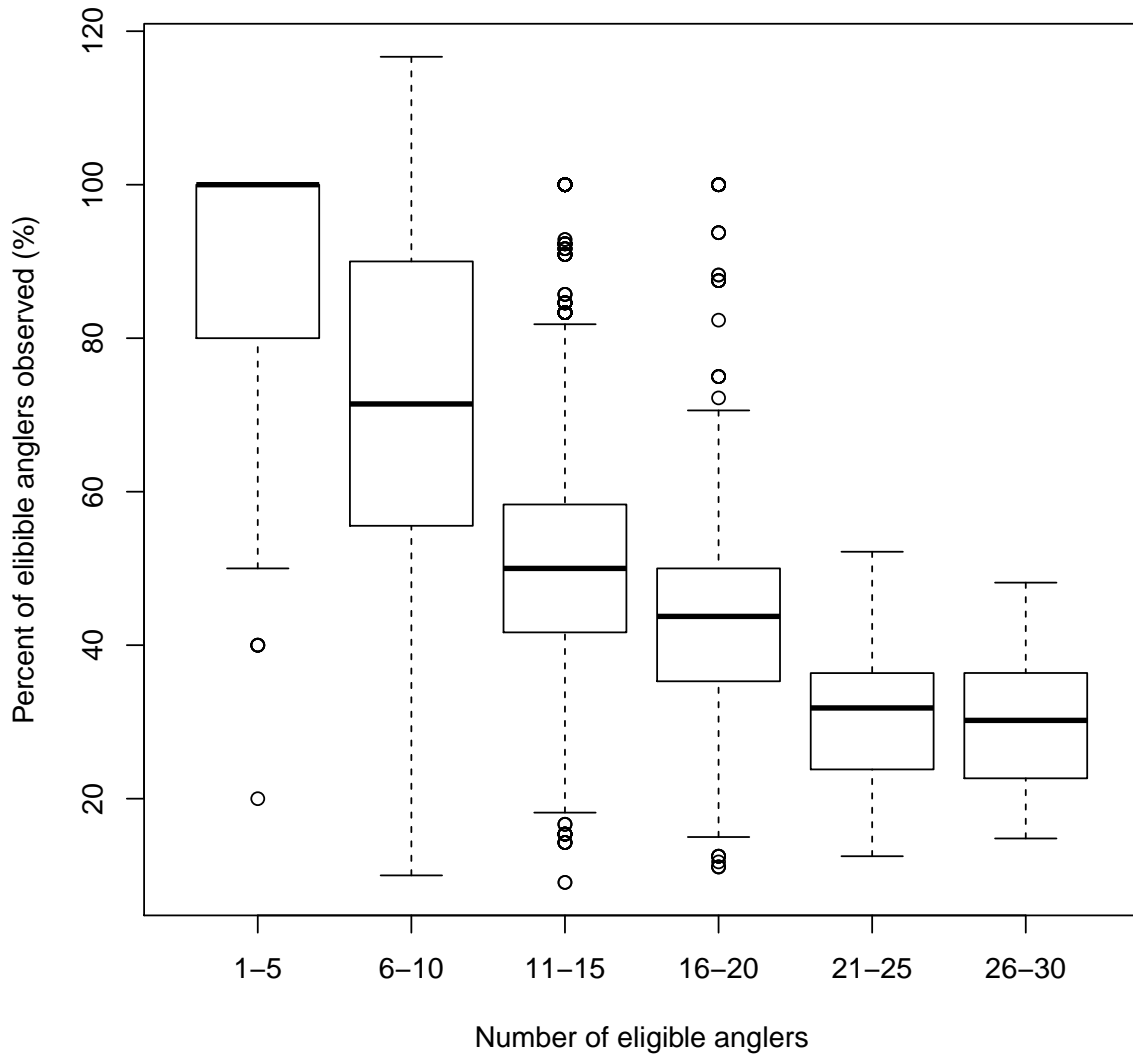


Figure 4: The percent of anglers observed versus the number of eligible anglers on a trip from the ODFW Observer Program.

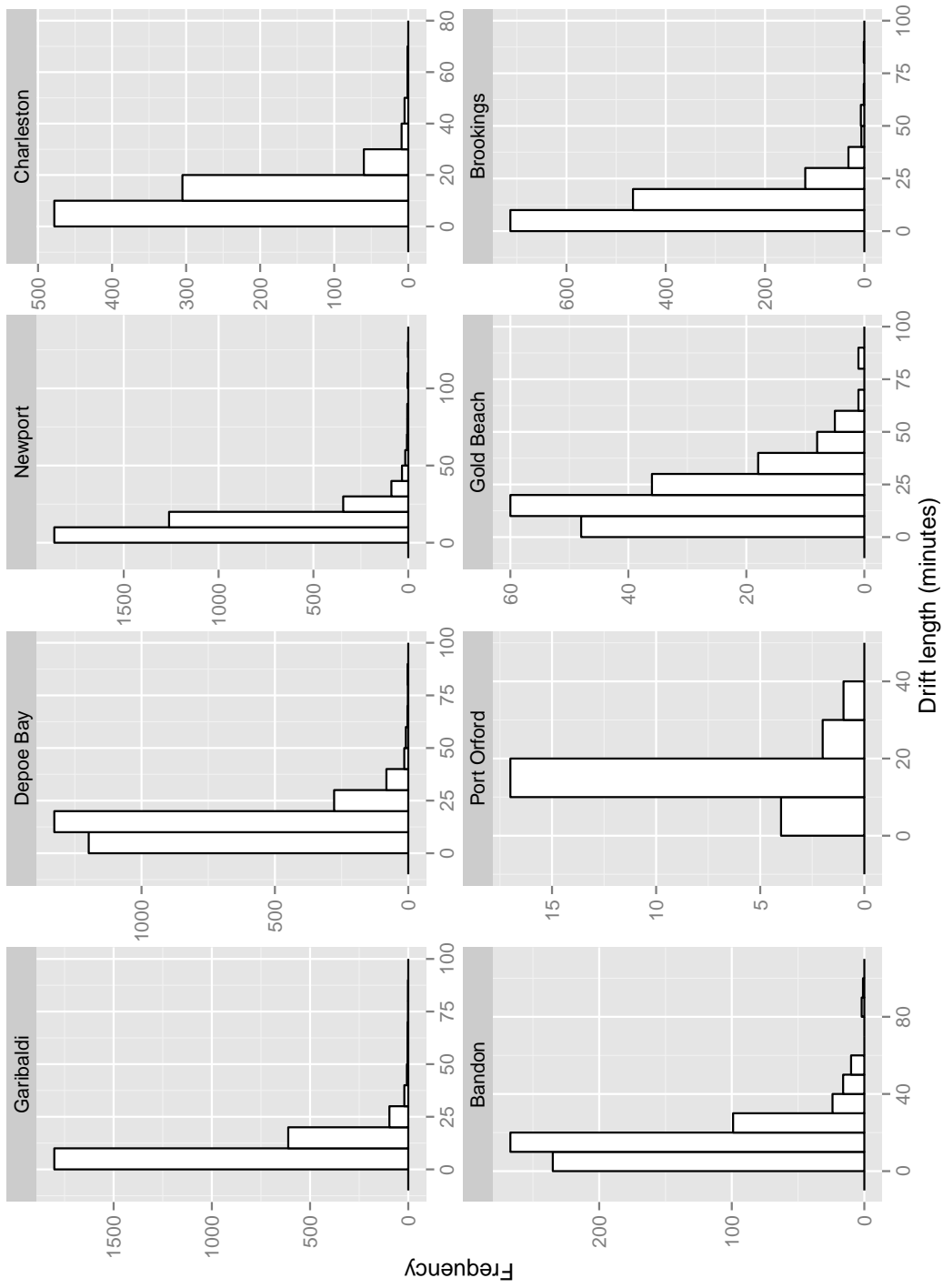


Figure 5: Histogram of the elapsed time for drifts by port with starting and ending time data available.

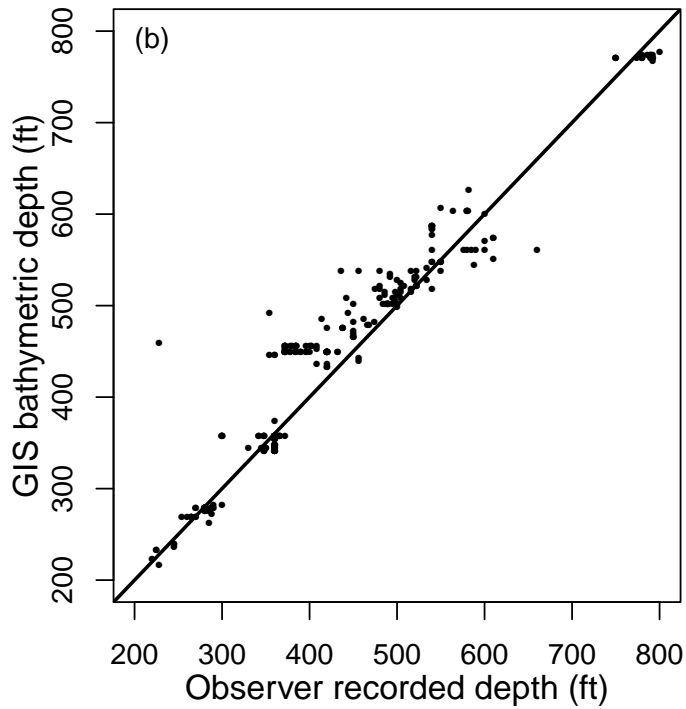
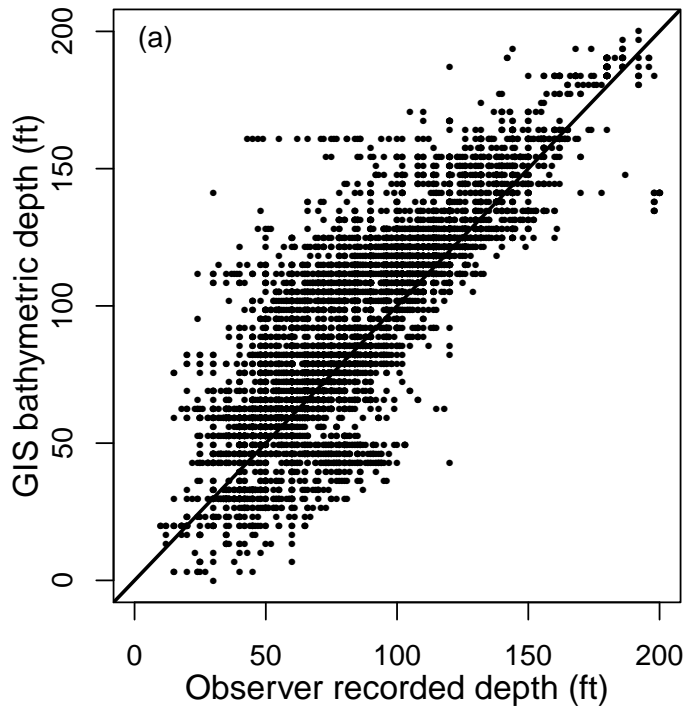


Figure 6: Comparison between the observer-recorded drift starting depth and the GIS determined depth calculated using the drift starting location, for observer recorded drifts of (a) 0-200ft and (b) 201-800ft.

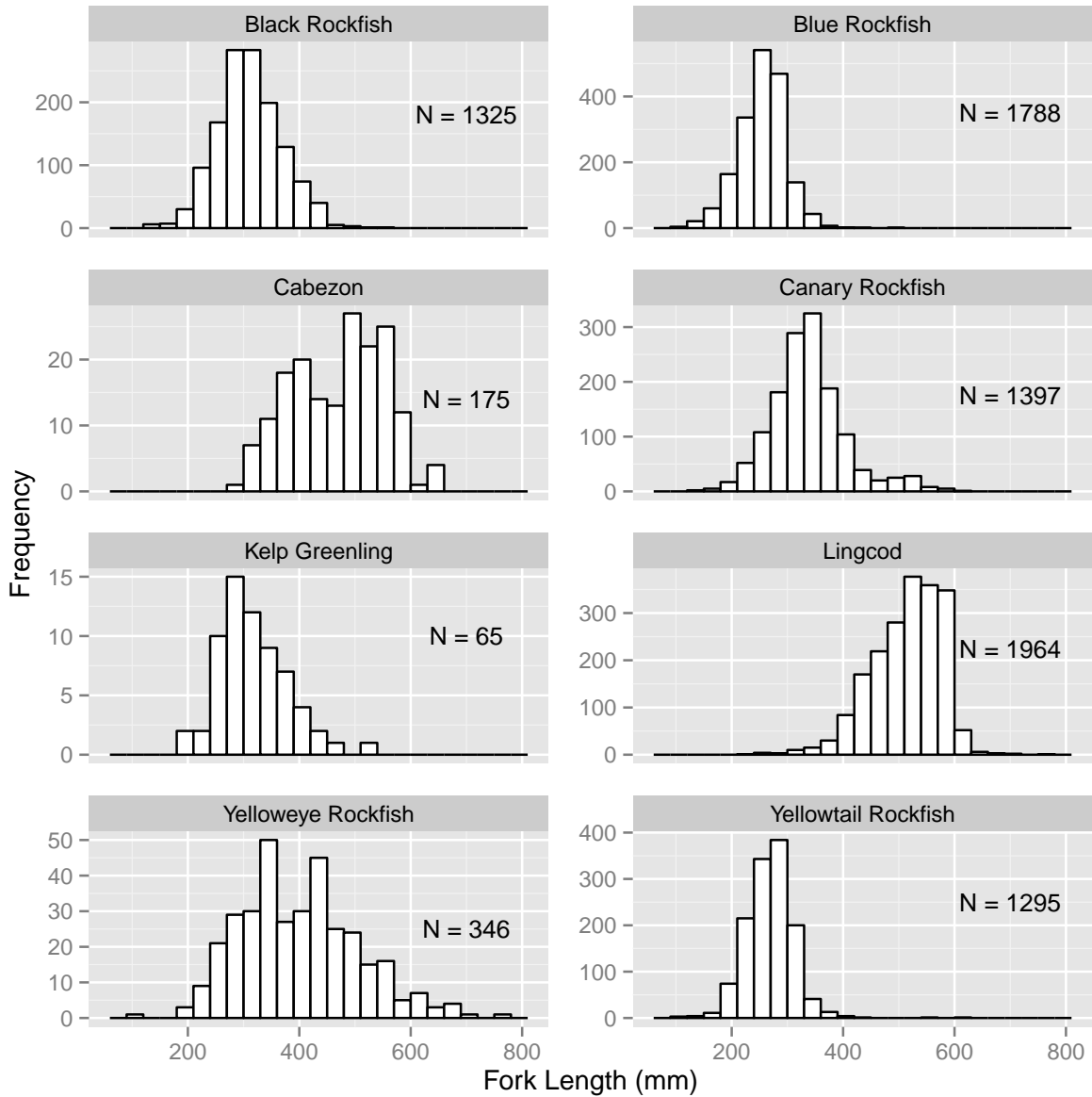


Figure 7: Length distributions of discarded fish for species with more than 50 measured fish in the database, all years combined.

## References

- [1] Elsasoft. 2012. SqlSpec (Version 6.7 ) [Software]. Available from: [www.elsasoft.org](http://www.elsasoft.org).
- [2] NOAA National Geophysical Data Center, U.S. Coastal Relief Model, November 2012. Available from: <http://www.ngdc.noaa.gov/mgg/coastal/crm.html>.
- [3] Oregon Department of Fish and Wildlife. 2011. Sport groundfish onboard sampling. Oregon Department of Fish and Wildlife, Marine Resources Program, Newport, OR.
- [4] Ocean Sampling Project. 2012. Ocean recreational boat survey and commercial troll salmon project: 2012 procedures manual. Oregon Department of Fish and Wildlife, Marine Resources Program, Newport, OR.

## Appendix A. Metadata

This appendix contains the metadata associated with the ODFW Observer Program relational database.

Table A.1: Database table metadata generated from SqlSpec [1].

Table	Column	Datatype	Length	Bytes	NULL values	Primary key	Foreign key (FK)
BOAT	ANGLERS	tinyint	3	1	yes		
BOAT	AREA	tinyint	3	1	yes		
BOAT	ASSN	bigint	19	8	no	yes	
BOAT	ASSN_Error	numeric	3	5	yes		
BOAT	ASSNN	tinyint	3	1	yes		
BOAT	BOATNUM	smallint	5	2	yes		
BOAT	BOATNUM_Error	numeric	3	5	yes		
BOAT	CNTY	smallint	5	2	no		
BOAT	CNTY_Error	numeric	3	5	yes		
BOAT	INTSITE	smallint	5	2	no		
BOAT	INTSITE_Error	numeric	3	5	yes		
BOAT	INTVUER	smallint	5	2	yes		
BOAT	INTVUER_Error	float	15	4	yes		
BOAT	LANDING	varchar	50	50	yes		
BOAT	LANDING_Error	numeric	3	5	yes		
BOAT	NUMLOCS	float	15	4	yes		
BOAT	NUMLOCS_Error	numeric	3	5	yes		
BOAT	NUMSP	float	15	4	yes		
BOAT	NUMSP_Error	numeric	3	5	yes		
BOAT	ODFW_TRPTYP	varchar	50	50	yes		
BOAT	PORT	varchar	50	50	yes		
BOAT	PORT_Error	numeric	3	5	yes		
BOAT	ST	tinyint	3	1	yes		
BOAT	ST_Error	numeric	3	5	yes		
BOAT	TRPDATE	date	10	3	yes		
BOAT	TRPDATE_ORIG	nvarchar	50	200	yes		
BOAT	TRPTYP	varchar	50	50	yes		
BOAT	WAVE	tinyint	3	1	yes		
CATCHES	ASSN	bigint	19	8	no	composite	composite FK to LOCATION.ASSN
CATCHES	ASSN_Error	numeric	3	5	yes		
CATCHES	CATCHES_Error	numeric	3	5	yes		
CATCHES	DISCD	tinyint	3	1	yes		
CATCHES	DISCD_Error	numeric	3	5	yes		
CATCHES	DISCDALIV	tinyint	3	1	yes		
CATCHES	DISCDALIV_Error	numeric	3	5	yes		
CATCHES	DISCDDEAD	tinyint	3	1	yes		
CATCHES	DISCDDEAD_Error	numeric	3	5	yes		
CATCHES	KEPT	tinyint	3	1	yes		
CATCHES	KEPT_Error	numeric	3	5	yes		
CATCHES	LOCNUM	smallint	5	2	no	composite	composite FK to LOCATION.LOCNUM
CATCHES	ODFWSP	smallint	5	2	no	composite	composite FK to SPECIES.ODFWSP
CATCHES	ODFWSP_Error	numeric	3	5	yes		
CATCHES	SPNUM	nchar	10	40	yes		



Table A.1: continued.

Table	Column	Datatype	Length	Bytes	NULL values	Primary key	Foreign key (FK)
CATCHES	SPNUM_Error	float	15	4	yes		
GEAR	ASSN	bigint	19	8	no	composite	BOAT.ASSN
GEAR	Assumption_DE	nvarchar	255	1020	yes		
GEAR	BAIT	nvarchar	255	1020	yes		
GEAR	BOAT	float	15	4	yes		
GEAR	COCACHOESCOLOR	nvarchar	255	1020	yes		
GEAR	COMMENTA	nvarchar	255	1020	yes		
GEAR	COMMENTB	nvarchar	255	1020	yes		
GEAR	EDRIFT	smallint	5	2	yes		
GEAR	FLIESCOLOR	nvarchar	255	1020	yes		
GEAR	HOOK_SIZE_STYLE	nvarchar	255	1020	yes		
GEAR	INTVUER	float	15	4	yes		
GEAR	MMDD	nvarchar	255	1020	yes		
GEAR	MULTIPLESETUPS	nvarchar	255	1020	yes		
GEAR	NCOCACHOES	float	15	4	yes		
GEAR	NFLIES	float	15	4	yes		
GEAR	NHOOKS	nvarchar	255	1020	yes		
GEAR	NSCAMPI	float	15	4	yes		
GEAR	NWORMS	float	15	4	yes		
GEAR	OZ	nvarchar	255	1020	yes		
GEAR	REEL	nvarchar	255	1020	yes		
GEAR	RELMECH	nvarchar	255	1020	yes		
GEAR	RIDE	float	15	4	yes		
GEAR	SCAMPICOLOR	nvarchar	255	1020	yes		
GEAR	SDRIFT	smallint	5	2	no	composite	
GEAR	TERMLWGT_BAIT	nvarchar	255	1020	yes		
GEAR	TERMTYP	nvarchar	255	1020	yes		
GEAR	TRPYEAR	float	15	4	yes		
GEAR	WORMSCOLOR	nvarchar	255	1020	yes		
LENGTHS	ASSN	bigint	19	8	no	composite	BOAT.ASSN
LENGTHS	ASSN_Error	numeric	3	5	yes		
LENGTHS	DISPD	nvarchar	50	50	yes		
LENGTHS	DISPD_Error	float	15	4	yes		
LENGTHS	FISHLENGTH	smallint	5	2	yes		
LENGTHS	FISHLENGTH_Error	float	15	4	yes		
LENGTHS	LENGTHS_Error	float	15	4	yes		
LENGTHS	LOCNUM	smallint	5	2	no	composite	
LENGTHS	LOCNUM_Error	float	15	4	yes		
LENGTHS	ODFWSP	smallint	5	2	no	composite	
LENGTHS	ODFWSP_Error	float	15	4	yes		
LENGTHS	RECORD_NUM	identity	10	4	no	composite	
LENGTHS	SEX	tinyint	3	1	yes		
LENGTHS	WEIGHT	nvarchar	50	50	yes		
LOCATION	ASSN	bigint	19	8	no	composite	BOAT.ASSN

Table A.1: continued.

Table	Column	Datatype	Length	Bytes	NULL values	Primary key	Foreign key (FK)
LOCATION	ASSN_Error	numeric	3	5	yes		
LOCATION	DEPTH	int	10	4	yes		
LOCATION	DEPTH_Error	numeric	3	5	yes		
LOCATION	EGSDEPTH	float	15	4	yes		
LOCATION	ELAT	float	15	4	yes		
LOCATION	ELAT_Error	numeric	3	5	yes		
LOCATION	ELAT_ORIG	float	15	4	yes		
LOCATION	ELON	float	15	4	yes		
LOCATION	ELON_Error	numeric	3	5	yes		
LOCATION	ELON_ORIG	float	15	4	yes		
LOCATION	ETIME	smalldatetime	16	4	yes		
LOCATION	ETIME_Error	numeric	3	5	yes		
LOCATION	ETIME_ORIG	nvarchar	50	200	yes		
LOCATION	FTYPE	smallint	5	2	yes		
LOCATION	FTYPE_Error	float	15	4	yes		
LOCATION	GFORMAT	tinyint	3	1	yes		
LOCATION	GFORMAT_Error	numeric	3	5	yes		
LOCATION	LOCATION_Error	numeric	3	5	yes		
LOCATION	LOCNUM	smallint	5	2	no	composite	
LOCATION	OBSANG	tinyint	3	1	yes		
LOCATION	OBSANG_Error	float	15	4	yes		
LOCATION	SGSDEPTH	float	15	4	yes		
LOCATION	SLAT	float	15	4	yes		
LOCATION	SLAT_Error	numeric	3	5	yes		
LOCATION	SLAT_ORIG	float	15	4	yes		
LOCATION	SLON	float	15	4	yes		
LOCATION	SLON_Error	numeric	3	5	yes		
LOCATION	SLON_ORIG	float	15	4	yes		
LOCATION	STEMP	varchar	50	50	yes		
LOCATION	STIME	smalldatetime	16	4	yes		
LOCATION	STIME_Error	numeric	3	5	yes		
LOCATION	STIME_ORIG	nvarchar	50	200	yes		
LOCATION	ERROR_CODE	numeric	3	5	no	composite	
LOCATION	ERROR_COLUMN	varchar	50	50	no	composite	
LOCATION	ERROR_Description	varchar	500	500	yes		
LOCATION	ERROR_TABLE	varchar	50	50	no	composite	
LOCATION	CNTY	smallint	5	2	no	composite	
LOCATION	CNTY_NAME	nvarchar	max	max	yes		
LOCATION	INTSITE	smallint	5	2	no	composite	
LOCATION	ODFW_PORT	nvarchar	max	max	yes		
LOCATION	ORBS_PORTID	smallint	5	2	yes		
LOCATION	BlkRf_Season	varchar	50	50	yes		
LOCATION	Cab_Season	varchar	50	50	yes		
LOCATION	CabMinLen	varchar	50	50	yes		

Table A.1: continued.

Table	Column	Datatype	Length	Bytes	NULL values	Primary key	Foreign key (FK)
luREGS	CabSubBag	varchar	50	50	yes		
luREGS	CanSubBag	varchar	50	50	yes		
luREGS	GF_OpenDepth	varchar	50	50	yes		
luREGS	KgrmlngMinLen	varchar	50	50	yes		
luREGS	LingBagLim	varchar	50	50	yes		
luREGS	LingMinLen	varchar	50	50	yes		
luREGS	MarBagLim	varchar	50	50	yes		
luREGS	NsRf_Season	varchar	50	50	yes		
luREGS	OthGf_Season	varchar	50	50	yes		
luREGS	RckfishBagLim	varchar	50	50	yes		
luREGS	RegDate	date	10	3	no	yes	
luREGS	YeSubBag	varchar	50	50	yes		
luSPECIES	ALPHA5	nchar	5	20	yes		
luSPECIES	COMMON	varchar	50	50	yes		
luSPECIES	MAXLEN	int	10	4	yes		
luSPECIES	ODFWSP	smallint	5	2	no	yes	
luSPECIES	REFINSP	float	15	4	yes		
luSPECIES	REGS_Group	varchar	50	50	yes		
luSPECIES	SCIENTIFIC	varchar	50	50	yes		
luSPECIES	Species_Group	varchar	50	50	yes		
ORBS_BIOLOGICAL	ASSN	bigint	19	8	no	composite	
ORBS_BIOLOGICAL	DATATYPE	smallint	5	2	yes		
ORBS_BIOLOGICAL	FISLENGTH	smallint	5	2	yes		
ORBS_BIOLOGICAL	INTVNUM	smallint	5	2	no		
ORBS_BIOLOGICAL	ODFWSP	smallint	5	2	no	composite	luSPECIES.ODFWSP
ORBS_BIOLOGICAL	ORBS_PORT	smallint	5	2	no		
ORBS_BIOLOGICAL	SAMPLENUM	smallint	5	2	no	composite	
ORBS_BIOLOGICAL	SAMPLENUM_Error	float	15	4	yes		
ORBS_BIOLOGICAL	SEX	nvarchar	1	4	yes		
ORBS_BIOLOGICAL	SID	smallint	5	2	no		
ORBS_BIOLOGICAL	TRPDATE	datetime	23	8	no		
ORBS_BIOLOGICAL	WEIGHT	real	7	4	yes		
ORBS_BOAT	ANGLERS	smallint	5	2	no		
ORBS_BOAT	ASSN	bigint	19	8	no	yes	BOAT.ASSN
ORBS_BOAT	BOATNUM	nvarchar	20	80	yes		
ORBS_BOAT	BOATTYPE	nvarchar	1	4	no		
ORBS_BOAT	CATCHAREA	smallint	5	2	no		
ORBS_BOAT	COMMENT	nvarchar	100	400	yes		
ORBS_BOAT	DEPARTTIME	datetime	23	8	yes		
ORBS_BOAT	FISHERY	nvarchar	1	4	no		
ORBS_BOAT	INTVNUM	smallint	5	2	no		
ORBS_BOAT	INTVTIME	datetime	23	8	no		
ORBS_BOAT	ORBS_PORTID	smallint	5	2	no		
ORBS_BOAT	REEFLOC	smallint	5	2	yes		

Table A.1: continued.

Table	Column	Datatype	Length	Bytes	NULL values	Primary key	Foreign key (FK)
ORBS_BOAT	SID	smallint	5	2	no		
ORBS_BOAT	TRPDATE	datetime	23	8	no		
ORBS_BOAT	TRPHRS	real	7	4	yes		
ORBS_BOAT	TRPTYP	nvarchar	1	4	no		
ORBS_ENCOUNTER	ASSN	bigint	19	8	no	composite	
ORBS_ENCOUNTER	CAUGHT	smallint	5	2	yes		
ORBS_ENCOUNTER	INTVNUM	smallint	5	2	no		
ORBS_ENCOUNTER	NUMTAGGED	smallint	5	2	yes		
ORBS_ENCOUNTER	ODFWSP	smallint	5	2	no		
ORBS_ENCOUNTER	ORBS_PORT	smallint	5	2	no		
ORBS_ENCOUNTER	RETURNED	int	10	4	yes		
ORBS_ENCOUNTER	SID	smallint	5	2	no		
ORBS_ENCOUNTER	TRPDATE	datetime	23	8	no		
						composite	luSPECIES,ODFWSP

## **Appendix B. Data forms**

This appendix contains the data forms used by observers in the ODFW Observer Program from 2001-2012. Datasheets include the general data form used to collect catch information and the data forms used to collect lengths of discarded fish and gear information.

**ON-BOARD  
SAMPLING  
SPORT  
BOTTOMFISH  
FISHERY**

Sampler: \_\_\_\_\_  
 Date: \_\_\_\_/\_\_\_\_/\_\_\_\_  
 Boat: \_\_\_\_\_  
 Port: \_\_\_\_\_  
 Number of anglers on boat: \_\_\_\_  
 Form: \_\_\_\_ of \_\_\_\_

Species	Start Location			End Location			# Obs. Anglers			Start Location			End Location			# Obs. Anglers		
	Lat	Lon	Depth	Lat	Lon	Depth	Lat	Lon	Depth	Lat	Lon	Depth	Lat	Lon	Depth	Lat	Lon	Depth
1	KEPT																	
	REL																	
2	KEPT																	
	REL																	
3	KEPT																	
	REL																	
4	KEPT																	
	REL																	
5	KEPT																	
	REL																	
6	KEPT																	
	REL																	
7	KEPT																	
	REL																	
8	KEPT																	
	REL																	
9	KEPT																	
	REL																	
10	KEPT																	
	REL																	
11	KEPT																	
	REL																	
12	KEPT																	
	REL																	
13	KEPT																	
	REL																	
14	KEPT																	
	REL																	
15	KEPT																	
	REL																	

Figure B.1: Onboard observer data form for 2001 and 2003.

# Onboard Sampling Form - Oregon

1 Assign. Page: \_\_\_ of \_\_\_

Stops  Spp N   
 Sample#  Date   
 Boat

	DRIFT					GFormat (dec. mins)	SDepth (ft)	ObsAng	FType
	# 1	# 2	# 3	# 4	# 5				
START	Lat	Lon	Time	Lat	Lon	Time	Lat	Lon	Time
END	Lat	Lon	Time	Lat	Lon	Time	Lat	Lon	Time
Port#	Elg. Angs.		Cnty		Site				
Trip Type	Area								
Captain=									
Conditions=									
Target=									
1 >	REL	REL	1	REL	REL	1	REL	REL	1
2 >	KEPT	KEPT		KEPT	KEPT		KEPT	KEPT	
3 >	REL	REL		REL	REL		REL	REL	
4 >	KEPT	KEPT		KEPT	KEPT		KEPT	KEPT	
5 >	REL	REL		REL	REL		REL	REL	
6 >	KEPT	KEPT		KEPT	KEPT		KEPT	KEPT	
7 >	REL	REL		REL	REL		REL	REL	
8 >	KEPT	KEPT		KEPT	KEPT		KEPT	KEPT	
9 >	REL	REL		REL	REL		REL	REL	
Remarks=									

Entered: \_\_\_\_\_  
 Checked: \_\_\_\_\_

**Trip Type:** 1=am1/2, 2=pm1/2, 3=mid1/2, 4=night, 5=3/4-full day, 7=other **Area:** 1=3 mi or less, 2= >3 mi **FType:** 1=drift, 4=troll

Figure B.2: Onboard observer data form for 2004.

2005 ON-BOARD SAMPLING FORM - Oregon

Page <input type="text"/> of <input type="text"/>	STOP#									
Assign <input type="text"/>	Stops: <input type="text"/>	Spp: <input type="text"/>	Lat	Lat	Lat	Lat	Lat	Lat	Lat	Lat
Sampler=	Date	Boat#	Lon 1	Lon 1	Lon 1	Lon 1	Lon 1	Lon 1	Lon 1	Lon 1
2 0 0 5			Time	Time	Time	Time	Time	Time	Time	Time
Btm	Hbt	Sat-Btm	Target (circle one)	Target (circle one)	Target (circle one)	Target (circle one)	Target (circle one)	Target (circle one)	Target (circle one)	Target (circle one)
	CityF	Site / PortF	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth
	Elg/Angs	Temp	ft	ft	ft	ft	ft	ft	ft	ft
	Trip Type=	ObsAng	Ftyp	Ftyp	Ftyp	Ftyp	Ftyp	Ftyp	Ftyp	Ftyp
Area	1-<3mi	2>3mi								
1	KEPT	REL								
	REL	Alive-Dead								
2	KEPT	REL								
	REL	Alive-Dead								
3	KEPT	REL								
	REL	Alive-Dead								
4	KEPT	REL								
	REL	Alive-Dead								
5	KEPT	REL								
	REL	Alive-Dead								
6	KEPT	REL								
	REL	Alive-Dead								
7	KEPT	REL								
	REL	Alive-Dead								
8	KEPT	REL								
	REL	Alive-Dead								
9	KEPT	REL								
	REL	Alive-Dead								

Trp Typ: 1=am/2 2=pm/2 3=mid/2 4=twlight 5=3/4-1day 7=other Ftyp: 1=Drift 4=Troll Gfnt: 3=deg.minsec 1=deg.min.100hr/min

Figure B.3: Onboard observer data form for 2005 and 2006.







# Released Fish Form

Pg #  of #

1. Sampler

2.\*Subregion

3. Year

4. Month

5. Boat Name

## Type 0 - EXAMINED RELEASED FISH MEASUREMENTS

	* Species Code					*Modex	* Areax	*Fork Len. (mm)	Weight (kg)	*Dispo	Sex	Drift #
1						6						1
2												2
3												3
4												4
5												5
6												6
7												7
8												8
9												9
10												10
11												11
12												12
13												13
14												14
15												15
16												16
17												17
18												18
19												19
20												20
21												21
22												22
23												23
24												24
25												25
26												26
27												27
28												28
29												29
30												30

\* Dispo: What happened to the fish? - 0="Boat fish", 1=Thrown back alive, 6=Thrown back dead or nearly so, 7=Other (explain)  
 MOdEx - 1=MM 2=BB 6=PC 7=PR      Sex - 1=male 2=female  
 AREAx - 1=Ocean < 3 miles 2=Ocean > 3 miles 5=Inland      Subregion - 1=\$.CA 2=N.CA 3=OR 4=WA

Figure B.6: Onboard observer discard lengths form for 2003.

**DISCARDED FISH**

Pg #  of #

1. Interviewer				Year			Month		Day		4. Date	
<input type="text"/>				2 0 0 4			<input type="text"/>		<input type="text"/>		<input type="text"/>	
3 2.*Subregion		3.*Wave		5.Vessel Name								
<input type="text"/>		<input type="text"/>		<input type="text"/>								

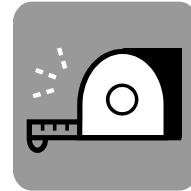
**TYPE 0 - EXAMINED DISCARDED CATCH MEASUREMENTS**

	* Species			*Modex	*Areax	* Fork Len. (mm)	Weight (kg)				*Dispo	Sex	CPFV Stop #	
1							9	9	9	9				1
2														2
3														3
4														4
5														5
6														6
7														7
8														8
9														9
10														10
11														11
12														12
13														13
14														14
15														15
16														16
17														17
18														18
19														19
20														20
21														21
22														22
23														23
24														24
25														25
26														26
27														27
28														28
29														29
30														30

\* Dispo: What happened to the fish? - 0=Retained by boat, 1=Thrown back alive, 6=Thrown back dead  
**MODEx** - 1=MM 2=BB 6=PC 7=PR      **Sex** - 1=male 2=female  
**AREAx** - 1=Ocean < 3 miles 2=Ocean > 3 miles 5=Inland      **Subregion** - 1=S.CA 2=N.CA 3=OR 4=WA

Figure B.7: Onboard observer discard lengths form for 2004.

# Released Fish Lengths Form



			Sampler	2	0	5				Date
3	Subregion		Wave	Boat Code						

	Common Name	Spp Code	Mode	AreaX	Length, fork (mm)				Weight (kg)			Dispo.	Sex	Stop #	
1			6												1
2			6												2
3			6												3
4			6												4
5			6												5
6			6												6
7			6												7
8			6												8
9			6												9
10			6												10
11			6												11
12			6												12
13			6												13
14			6												14
15			6												15
16			6												16
17			6												17
18			6												18
19			6												19
20			6												20
21			6												21
22			6												22
23			6												23
24			6												24
25			6												25

Dispo: 1=thrown back alive, 6=thrown back dead or nearly so, 0=boat fish, 7=other (explain)  
 AreaX: 1=ocean 3 mi. or less, 2=ocean >3 mi, 5=inland  
 Sex: 1=male, 2=female, 8=unknown (for kelp greenling and lingcod only; leave blank for all other spp)  
 ModeX: 6=party/charter

Figure B.8: Onboard observer discard lengths form for 2005.

**DISCARDED FISH**

Pg#  of#

1. Interviewer

2.\*Subregion (=0regon)

Year:     Month:   Day:

4. Date

<<Assign #

5.Vessel Name>>

**TYPE 0 - EXAMINED DISCARDED CATCH MEASUREMENTS**

	* Species	* Modex	* Areax	* Fork Len. (mm)	Weight (kg)	* Dispo	Sex	CPEV- Stop #
1		6						1
2		6						2
3		6						3
4		6						4
5		6						5
6		6						6
7		6						7
8		6						8
9		6						9
10		6						10
11		6						11
12		6						12
13		6						13
14		6						14
15		6						15
16		6						16
17		6						17
18		6						18
19		6						19
20		6						20
21		6						21
22		6						22
23		6						23
24		6						24

\* Dispo: What happened to the fish? - 0=Retained by boat, 1=Thrown back alive, 6=Thrown back dead (includes bait)  
 MODEx - 1=MM-2=BB 6=PC 7=PR      Sex - M=male F=female T=transitional  
 AREAx - 1=Ocean < 3 miles 2=Ocean > 3 miles 5=Inland      Subregion - 1=S.CA 2=N.CA 3=OR 4=WA

**Gear Form**

Effective Stop #

Notes

Tackle: casting (1) spin (2)

Hooks per rod: (1) (2) (3) 1 on weight (4)

Lures: shrimp flies (1)   $n=$  per rod. Color: \_\_\_\_\_

worms (2)   $n=$  per rod. Color: \_\_\_\_\_

cocahoes (3)   $n=$  per rod. Color: \_\_\_\_\_

Hook size & style: \_\_\_\_\_

Fresh bait: not used (1) chunk (2) half (3) whole (4) \_\_\_\_\_

Figure B.9: Onboard observer discard lengths and gear form for 2006-2008.

**DISCARDED FISH**

Pg#  of#

1. Interviewer

2.\*Subregion (=0regon)

Year     Month   Day

4. Date

<<Assign #  5. Vessel "Name">>

**TYPE 0 - EXAMINED DISCARDED CATCH MEASUREMENTS**

	* Species	*Modex	*Areax	*Fork Len. (mm)	Weight (kg)	*Dispo	Sex	M/F	GPFV	Stop #
1		6								1
2		6								2
3		6								3
4		6								4
5		6								5
6		6								6
7		6								7
8		6								8
9		6								9
10		6								10
11		6								11
12		6								12
13		6								13
14		6								14
15		6								15
16		6								16
17		6								17
18		6								18
19		6								19
20		6								20
21		6								21
22		6								22
23		6								23
24		6								24

\* Dispo: What happened to the fish? - 0=Retained by boat, 1=Thrown back alive, 6=Thrown back dead (includes bait)  
 MODEx - 1=MM-2=BB 6=PC 7=PR Sex - M=male F=female T=transitional  
 AREAx - 1=Ocean < 3 miles 2=Ocean > 3 miles 5=Inland Subregion - 1=S.CA 2=N.CA 3=OR 4=WA

**Gear Form**

Effective Drift #

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Tackle: casting (1) spin (2)

# hooks per rod: 1 2 3 Terminal wgt ► jighead (1) diamond dbl hk (2) football dbl hk (3) pencil dbl hk (4) other hooked (5) NO hooks (6)

Terminal wgt oz ► \_\_\_\_\_ Terminal wgt with BAIT ► yes (1) no (0)

Lure Type: shrimp flies   $\eta$ = \_\_\_\_\_ per rod. Majority color: \_\_\_\_\_ -or- various (v)  
 worms   $\eta$ = \_\_\_\_\_ per rod. Majority color: \_\_\_\_\_ -or- various (v)  
 cocahoes   $\eta$ = \_\_\_\_\_ per rod. Majority color: \_\_\_\_\_ -or- various (v)  
 scampi   $\eta$ = \_\_\_\_\_ per rod. Majority color: \_\_\_\_\_ -or- various (v)

Fresh bait: not used (1) chunk (2) half (3) whole (4) Hook size & style: \_\_\_\_\_

Figure B.10: Onboard observer discard lengths and gear form for 2009-2012.

# RECENT TECHNICAL MEMORANDUMS

SWFSC Technical Memorandums are accessible online at the SWFSC web site (<http://swfsc.noaa.gov>). Copies are also available from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161 (<http://www.ntis.gov>). Recent issues of NOAA Technical Memorandums from the NMFS Southwest Fisheries Science Center are listed below:

- NOAA-TM-NMFS-SWFSC-509 Evaluation of an automated acoustic beaked whale detection algorithm using multiple validation and assessment methods.  
E.K. JACOBSON, T. M. YACK, J. BARLOW  
(March 2013)
- 510 Handbook for recognizing, evaluating, and documenting human interaction in stranded cetaceans and pinnipeds.  
MOORE K. T. and S. G. BARCO  
(March 2013)
- 511 A guide to constructing hydrophone arrays for passive acoustic data collection during NMFS shipboard cetacean surveys.  
RANKIN, S., BARLOW, J. BARKLEY, Y. and VALTIERRA, R.  
(May 2013)
- 512 The Sacramento Index (*SI*).  
O'FARRELL, M. R., M. S. MOHR, M. L. PALMER-ZWAHLEN, and A. M. GROVER  
(June 2013)
- 513 Sample size recommendations for estimating stock composition using genetic stock identification (GSI).  
ALLEN, S. D., W. H. SATTERTHWAITTE, and M. S. MOHR  
(June 2013)
- 514 Sources of human-related injury and mortality for U. S. Pacific west coast marine mammal stock assessments, 2007-2011.  
CARRETTA, J. V., S. M. WILKIN, M. M. MUTO, and K. WILKINSON  
(July 2013)
- 515 Photographic guide of pelagic juvenile rockfish (*SEBASTES* SPP.) and other fishes in mid-water trawl surveys off the coast of California.  
SAKUMA, K. M., A. J. AMMANN, and D. A. ROBERTS  
(July 2013)
- 516 Form, function and pathology in the pantropical spotted dolphin (*STENELLA ATTENUATA*).  
EDWARDS, E. F., N. M. KELLAR, and W. F. PERRIN  
(August 2013)
- 517 Summary of PAMGUARD beaked whale click detectors and classifiers used during the 2012 Southern California behavioral response study.  
KEATING, J. L., and J. BARLOW  
(September 2013)
- 518 Seasonal gray whales in the Pacific northwest: an assessment of optimum sustainable population level for the Pacific Coast Feeding Group.  
PUNT, A. E., and J. E. MOORE  
(September 2013)