2009 OCEAN SELECTIVE FISHERY SAMPLING REPORT

SUBMITTED BY:

WASHINGTON DEPARTMENT OF FISH AND WILDLIFE
FISH MANAGEMENT PROGRAM
600 CAPITOL WAY NORTH
OLYMPIA, WASHINGTON 98501-1091

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D R A F T

1. INTRODUCTION

The Pacific Fishery Management Council (PFMC) adopted 2009 recreational and commercial troll fisheries for all salmon species in the area between Cape Falcon, Oregon and the U.S./Canada border. Mark-selective fisheries for coho were included in all four Catch Record Card areas (Areas 1, 2, 3, and 4) for both recreational and commercial fisheries.

Council-area fisheries were adopted based on assumptions regarding coho and Chinook abundance, distribution of stocks, Chinook age class distributions, coho mark rates, compliance with selective fishery regulations, and incidental mortality. For the eleventh consecutive year, the Washington Department of Fish and Wildlife (WDFW) implemented a monitoring plan to test some of these assumptions through dockside catch and effort sampling and on-water observations of the fisheries in progress. Both dockside and on-water sampling included collection of DNA tissue samples from Chinook.

2. OBJECTIVES

The objectives of the mark-selective coho fishery monitoring portion of this project are to test some of the assumptions used during the process of modeling ocean fisheries, specifically to determine coho mark rates by area and month, to determine compliance with selective fishery regulations, to estimate incidental mortality, and to compare release information collected dockside with observed release data.

The objectives of the Chinook DNA portion of this project are to estimate the number of legal and sublegal-sized Chinook salmon encountered during the Washington recreational fisheries and, to collect genetic material (DNA tissue samples) from sublegal and legal-sized Chinook to estimate the stock composition by age. In 2009, WDFW was funded only for dockside DNA data collection from the spring non-Treaty troll fishery in CRC Areas 2-4. However, as time allowed, DNA data were collected from the CRC Area 1 spring non-Treaty troll fishery, and from the summer non-Treaty troll and sport fisheries in all catch areas as well.

3. SEASON DESCRIPTION

3.1 Ocean Recreational Fisheries

CRC Area 1: The ocean recreational fishery in Area 1 was open for all salmon species seven days per week from June 28 through August 31 and from September 7 through September 30. A daily bag limit of two salmon, one of which could be a Chinook, was in effect through July 30; the bag limit was modified to two salmon on July 31. All retained coho were required to have a healed adipose fin clip. The Columbia Control Zone was closed. A total of 89 fishing days were available in the area.

CRC Area 2: The ocean recreational fishery from Leadbetter Point to the Queets River was open for all salmon species Sunday through Thursday from June 28 to July 23, and seven days per week from July 24 to September 20. A daily bag limit of two salmon, one of which could be a Chinook, plus one additional pink salmon was in effect through July 30; the bag limit was modified to two salmon plus one additional pink salmon on July 31. All retained coho were required to have a healed adipose fin clip. The Grays Harbor Control Zone was closed beginning August 1. A total of 79 fishing days were available in the area.

CRC Area 3: The ocean recreational fishery from the Queets River to Cape Alava was open for all salmon species Tuesday through Saturday from June 27 through July 17, and seven days per week from July 18 through September 20. From September 26 to October 11, salmon fishing was restricted to the part of Area 3 north of 47°50'00" north latitude and south of 48°00'00" north latitude, seven days per week. A daily bag limit of two salmon, one of which could be a Chinook, plus two additional pink salmon was in effect through July 30; the bag limit was modified to two salmon plus two additional pink salmon on July 31. All retained coho were required to have a healed adipose fin clip. A total of 96 fishing days were available in the area.

CRC Area 4: The ocean recreational fishery from Cape Alava to the U.S./Canada border was open for all salmon species Tuesday through Saturday from June 27 through July 17, and seven days per week from July 18 through September 20. A daily bag limit of two salmon, one of which could be a Chinook, plus two additional pink salmon was in effect through July 30; the bag limit was modified to two salmon plus two additional pink salmon on July 31. Beginning August 1, Chinook retention east of the Bonilla-Tatoosh line and chum retention were prohibited. All retained coho were required to have a healed adipose fin clip. A total of 80 fishing days were available in the area.

3.2 Non-Treaty Commercial Troll Fisheries

The non-Treaty troll fishery was open from Cape Falcon, Oregon to the U.S./Canada border May 1-5, May 8-12, May 16-19, May 23-26, May 30-June 2, June 6-9, June 13-16, June 20-23, and June 27-30 for all salmon except coho (a total of 38 days). The fishery reopened from Cape Falcon to the U.S./Canada border July 1-7, July 11-14, July 18-21, July 25-28, August 1-4, August 8-11, August 15-18, August 22-25, August 29-September 1, September 5-8, and September 12-15 for all salmon species except no chum retention north of Cape Alava, WA in August and September. A total of 47 fishing days were available during the summer fishery.

4. METHODS

Direct on-water observation of salmon encounters was the primary method used in CRC Areas 1 and 2 to estimate the encounter ratios of legal to sublegal-sized Chinook, marked to unmarked coho, and drop-offs, and to collect DNA samples from sublegal Chinook in the recreational fishery. Observers from WDFW rode along on charter vessels to collect encounter rate data

from the recreational fisheries. These observers recorded all hook-ups aboard the vessel; for each hook-up, the following information was recorded: result of the hook-up (fish kept, released, or dropped off), species, mark status, and size class (legal or sublegal). As time allowed, samplers also solicited recreational anglers to complete Voluntary Trip Reports (VTRs) while fishing to record the above information.

A sampling protocol was established for the charter observers so that the most important information relative to this study was collected first. The first priority for the observers was to record the species, mark status, size category, and result of each hook-up aboard the vessel. This allows estimation of legal to sublegal Chinook encounter ratios, marked to unmarked coho encounter ratios, and drop-off numbers. The second priority was to collect DNA samples (a small non-lethal clipping from the tip of the dorsal fin), lengths, and scale samples from sublegal-sized Chinook. DNA from sublegal-sized Chinook was prioritized above that from legal-sized Chinook since legal-sized fish were available on the dock as well as at sea. The third priority was to collect DNA, lengths, and scale samples from legal-sized Chinook.

Due to the lack of availability of charter vessels fishing in CRC Areas 3 and 4, the primary method used to gather selective fishery encounter statistics from these areas was VTRs. Samplers in Areas 3 and 4 were stationed in port beginning at 5:00 AM four or five days per week. These samplers approached anglers as they prepared to depart for fishing, explained the purpose of the VTR and how to complete it, and encouraged anglers to record all encounters and return the form to a dockside sampler at the end of the day. Drop boxes were also provided in the ports, as was the option for postage-paid mail-in. The VTR was designed to capture information identical to that collected by on-board observers.

Dockside samplers were placed in the four major landing ports for the ocean fisheries: Neah Bay, La Push, Westport, and Ilwaco (including the port of Chinook). The recreational fisheries in each port were sampled a minimum of 4 to 5 days per week, with weekend and weekday days stratified. On each sample day, a total recreational boat count was obtained either by counting boats exiting the port or entering the port. A minimum of 20% of the boats returning to the port within each boat type (charter and private) was sampled, which should provide weekly estimates of salmon catch by species and mark status with CVs no higher than 5%. Information collected during each sample included number of anglers, target species, area fished, landed catch by species, mark status of landed salmon, identification and recovery of coded wire tags, and angler estimates of released salmon by species and mark status and of released groundfish by species. Additionally, dockside samplers collected DNA samples, lengths, and scale samples from landed Chinook as time allowed.

The Pacific Salmon Commission's Chinook Technical Committee (CTC) funded dockside DNA data collection from the May-June non-Treaty troll fishery in the area north of Leadbetter Point (CRC Areas 2-4). No funding was available for dockside DNA data collection in CRC Area 1, for summer fishery DNA sampling, or for onboard observers. However, dockside samplers collected DNA samples from landed Chinook in all fisheries and areas as time allowed.

5. RESULTS

5.1 Recreational Catch and Effort

In CRC Area 1, a total of 54,431 anglers (42,181 Washington, 12,250 Oregon) harvested 83,811 coho (64,392 WA, 19,419 OR; 87 percent of the 96,500 revised coho quota) and 5,182 Chinook (4,202 WA, 980 OR). In Area 2, a total of 37,831 anglers harvested 53,868 coho (97 percent of the 55,270 revised coho quota) and 5,023 Chinook. In Area 3, a total of 5,077 anglers harvested 6,896 coho (85 percent of the 8,080 coho quota) and 680 Chinook. In Area 4, a total of 16,471 anglers harvested 13,336 coho (83 percent of the 16,100 revised coho quota) and 2,447 Chinook. Total catches north of Cape Falcon were 157,912 coho (90% of the revised coastwide quota of 175,950) and 13,331 Chinook (65% of the coastwide Chinook quota of 20,500). Table 1 shows estimated total recreational effort and landed coho and Chinook catch by month for the catch areas north of Cape Falcon.

5.2 Non-Treaty Troll Catch

A total of 2,254 coho and 261Chinook harvested in Area 1 during the non-Treaty troll fishery were landed in Washington State ports; an additional 12,688 coho and 712 Chinook were landed by Oregon-licensed trollers into Oregon State ports. From Area 2, catches landed in Washington totaled 10,060 coho and 8,132 Chinook. A total of 7,157 coho and 2,722 Chinook were harvested in Area 3 and landed in Washington, while Area 4 catches totaled 584 coho and 1,201 Chinook. Total catches north of Cape Falcon (landed in both Washington and Oregon) were 32,743 coho (97 percent of the 33,600 coho quota) and 13,028 Chinook (64 percent of the 20,500 Chinook quota). Table 2 shows estimated total non-Treaty commercial troll landed coho and Chinook catch by month for the catch areas north of Cape Falcon.

5.3 Legal and Sublegal-sized Chinook Encountered

The numbers of legal and sublegal-sized marked and unmarked Chinook salmon encountered in the ocean recreational fisheries are shown in Table 3.

In Area 1, ride-along samplers on charter boats observed 108 Chinook encountered; of those, 25 were legal-sized and 83 were sublegal-sized, resulting in a sublegal-sized rate of 77%, compared with 45% in 2008. A total of 43 Chinook were recorded from Area 1 on VTRs; 10 were legal-sized and 33 were sublegal-sized, resulting in a sublegal-sized rate of 77%, identical to that observed by WDFW ride-along staff.

In Area 2, ride-along samplers on charter boats observed 159 Chinook encountered; of those, 53 were legal-sized and 106 were sublegal-sized, resulting in a sublegal-sized rate of 67%, compared with 15% in 2008. A total of 65 Chinook were recorded from Area 2 on VTRs; 35 were legal-sized and 30 were sublegal-sized, resulting in a sublegal-sized rate of 46%.

In Area 3, VTRs recorded 142 total Chinook encounters; 37 were legal-sized and 105 were sublegal-sized. The resulting sublegal-sized rate was 74%.

In Area 4, a total of 496 Chinook were recorded on VTRs; 150 were legal-sized and 346 were sublegal-sized. The resulting sublegal-sized rate was 70%.

5.4 Mark Rates of Legal-sized Chinook

Table 4 shows observed mark rates of legal-sized Chinook in the 2009 ocean recreational fisheries. The table compares mark rates recorded by on-board observers, in VTRs, and by dockside samplers.

In Area 1, ride-along samplers on charter boats observed 25 legal-sized Chinook and saw a legal-sized mark rate of 60% over the season. Ten legal-sized Chinook were recorded on VTRs, with a mark rate of 40%. Dockside samplers examined 1,802 legal-sized Chinook and observed a mark rate of 67% through the season.

Ride-along samplers in Area 2 observed 53 legal-sized Chinook and a mark rate of 47%. Encounters of legal-sized Chinook on VTRs totaled 35, with a mark rate of 54%. Dockside samplers examined 1,628 legal-sized Chinook and observed a mark rate of 60% through the season.

In Area 3, both VTRs and dockside sampling indicated a legal-sized Chinook mark rate of 49%. A total of 37 legal-sized Chinook encounters were recorded on VTRs, and 447 legal-sized Chinook were examined dockside.

In Area 4, 150 legal-sized Chinook were recorded on VTRs with a mark rate of 57%. Dockside samplers examined a total of 911 Chinook and observed a mark rate of 58%.

5.5 Chinook to Coho Ratios

Table 5 shows observed ratios of encountered Chinook to coho by month in the ocean recreational fisheries. The table includes Chinook and coho encounters (retained and released) of all size class and mark status categories, and compares data collected on-board, from VTRs, and through dockside interviews and observation.

On-board observation showed a rate of 0.15 Chinook encountered per coho in Area 1, compared to 0.39 in 2008. VTR data indicated a rate of 0.25 Chinook encountered per coho, while dockside sampling indicated a rate of 0.16 Chinook encountered per coho.

In Area 2, on-board observers saw 0.13 Chinook encountered per coho, compared to 0.56 in 2008. VTR data indicated a rate of 0.17 Chinook encountered per coho, while dockside sampling indicated a rate of 0.10 Chinook encountered per coho.

In Area 3, VTR data indicated a rate of 0.12 Chinook encountered per coho. Dockside sampling showed a similar rate of 0.11 Chinook encountered per coho.

In Area 4, anglers recorded a rate of 0.23 Chinook encountered per coho on VTRs. Dockside sampling showed a similar rate of 0.22 Chinook encountered per coho.

5.6 Coho Mark Rates

Table 6 shows the mark rates of legal-sized coho observed in the ocean recreational fisheries by onboard observers and from VTRs, and based on dockside interview data.

In Area 1, a total of 722 coho encounters were observed aboard chartered fishing vessels; of these encounters, 446 coho were marked. The overall coho mark rate through the season was 62%, while the mark rates by month were 63% in July and 60% in August. Voluntary trip reports indicated an overall coho mark rate of 59% through the season.

In Area 2, a total of 1,301 coho encounters were observed aboard chartered fishing vessels; 706 of these were marked. The overall coho mark rate through the season was 54%, while the mark rates by month were 55% in June, 55% in July, 56% in August, and 50% in September. Voluntary trip reports indicated an overall coho mark rate of 50% through the season.

In Area 3, a total of 1,101 coho encounters were recorded on VTRs; 525 of these coho were marked. The overall coho mark rate through the season was 48%, while the mark rates by month were 33% in June, 42% in July, 55% in August, and 50% in September.

In Area 4, a total of 2,129 coho encounters were recorded on VTRs; 834 of these coho were marked. The overall coho mark rate through the season was 39%, while the mark rates by month were 41% in July, 37% in August, and 39% in September.

5.7 Comparison of Pre-season and Post-season Estimates of Mark Rates

Pre-season projections of 2009 coho mark rates were estimated using the Fishery Regulation Assessment Model (FRAM). The FRAM uses inputs of pre-season run size projections and historic coded wire tag recovery data to predict the resulting impacts from a proposed fishery. FRAM model run 0921 was the final pre-season assessment of the PFMC's adopted fishery package for the 2009 ocean fisheries.

Table 7 compares the coho mark rates projected by the FRAM model with those observed through on-water monitoring and through dockside interviews by month and area for the recreational fisheries. The observed coho mark rate for the season in the Area 1 recreational selective fishery was 62% compared to 72% projected pre-season. The observed coho mark rate for the season in the Area 2 recreational selective fishery was 54% compared to 67% projected pre-season. Based on VTRs, the observed coho mark rate in Area 3 was 48% compared to 60% projected pre-season. In Area 4, the observed coho mark rate based on VTRs was 39% compared to 57% projected pre-season.

5.8 Comparison of Dockside and Observer Data in Recreational Selective Fisheries

Observation data during recreational selective coho fisheries were collected in part to investigate potential bias in estimates of coho mark rates and release rates based on angler recollection of released coho. Table 7 compares coho mark rates based on dockside interview data with those seen during on-board observation and reported on VTRs. Table 8 compares coho release rates based on dockside interview data with release rates computed through on-board observation data and VTRs.

Information collected by samplers dockside showed a bias towards lower coho mark rates and higher numbers of salmon released in all areas. This is consistent with results from previous years.

Dockside sampling data from Area 1 showed an overall coho mark rate of 55% compared with 62% observed on-water; the release rate reported dockside was 47% compared to a rate of 42% observed on the water. In Area 2, an overall coho mark rate of 49% was reported dockside compared with 54% observed on-water; the release rate reported dockside was 52%, compared with a release rate of 47% observed on the water. In Area 3, an overall coho mark rate of 38% was reported dockside, compared with a mark rate of 48% indicated by VTR data; the release rate reported dockside was 64% compared to a rate of 54% observed on VTRs. In Area 4, dockside sampling data indicated an overall coho mark rate of 33% compared with 39% observed on VTRs; the release rate reported dockside was 70% compared to a rate of 65% indicted by VTRs.

5.9 Comparison of Mark Rates in Recreational Selective Fisheries and Non-Selective Treaty Troll Fisheries

The Chinook and coho mark rates observed dockside in the non-selective 2009 Treaty troll fishery are shown in table 9. While fishing regulations, size limits, and areas fished can differ between the Treaty troll fishery and the selective ocean recreational fishery, comparing mark rates in the two fisheries may offer additional insight into the possibility of comparing mark rates in adjacent non-selective fisheries to mark rate data collected during mark selective fisheries.

The mark rates observed in landed coho from the Treaty troll fishery were 42% and 43% in Areas 3 and 4 respectively. This compares to VTR observed mark rates in the recreational fishery of 48% and 39% respectively.

The Chinook mark rate observed from dockside sampling in Area 4 in the Treaty troll fishery was 50%, slightly lower than that reported by recreational VTRs (57%).

5.10 Compliance

Information on compliance with selective regulations was collected through both dockside sampling by the WDFW sampling program and enforcement activities conducted by WDFW Enforcement staff.

Compliance with the selective fishery regulations in the recreational fisheries was high for both private and charter vessels. In Area 1, 44% of the total estimated coho landed in Washington by the recreational fishery were sampled dockside by the Ocean Sampling Program; the observed compliance rate in this area was 99.7%. In Area 2, 32% of the total estimated coho landed by the recreational fishery were sampled dockside; a compliance rate of 99.4% was observed during the selective coho fishery. In Area 3, 66% of the total estimated coho landed by the recreational fishery were sampled; the observed compliance rate was 99.6%. In Area 4, 39% were sampled dockside; a compliance rate of 97.9% was observed. Table 10 reports compliance rates observed by dockside samplers for the recreational fisheries by area and month. These rates are similar to the compliance rates observed in the last six seasons.

The WDFW Enforcement Program monitored compliance with selective fishery regulations in the recreational fisheries coastwide. The enforcement selective fishery compliance report was not available at print time for this report, but in past years, dockside sampling compliance data and enforcement compliance data have shown close correlation.

During the non-Treaty troll fisheries, a total of 7,338 coho (37% of the total coho landed in Washington) were examined dockside by WDFW sampling staff. These samplers encountered 18 unmarked coho in the landed catch, for a compliance rate of 99.8%.

5.11 Drop Off Rates

On-water observers and volunteer anglers were asked to record information on fish that were hooked but lost before being brought to the boat, commonly referred to as drop offs. For this study, the definition of drop off was that the fish was actually hooked but became free before it could be landed. This definition calls for some judgment on the part of the observers recording the data, resulting in potential bias.

Current Council methodology for estimating mortality due to drop off uses a rate of 5% of the total number of fish handled (retention plus release). Drop-off mortality rates for the recreational fisheries throughout the season estimated from on-water observation and VTR data ranged from 0.8% in Area 3 to 4.9% in Area 1. Estimates of drop off mortality rates from on-water observation and VTR data collected during the recreational fisheries are compared with FRAM projections in Table 11.

5.12 Estimated Mortality

Table 12 shows the FRAM pre-season projections of total coho mortality in the ocean recreational fisheries. Estimates of actual coho mortality in these fisheries are shown in Table 13. This analysis uses estimates of coho mark rates from on-water sampling or VTRs to estimate total coho released. Estimates of incidental mortality are calculated using rates adopted by the Council for recreational fisheries (5% drop off mortality and 14% hooking mortality).

In Area 1, incidental mortality is estimated at 15,358 which, when combined with a total coho retention of 83,811 puts the estimate of total coho mortality in the Area 1 selective fishery at 99,169. This compares to a pre-season projected total mortality of 100,453 coho.

Incidental coho mortality in Area 2 is estimated at 11,860 which, when combined with a total coho retention of 53,868, puts the estimate of total coho mortality in the Area 2 fishery at 65,728. This compares to a pre-season projected total mortality of 75,598 coho.

In Area 3, incidental mortality is estimated at 1,673 which, when combined with a total coho retention of 6,896, puts the estimate of total coho mortality in the Area 3 selective fishery at 8,403. This compares to a pre-season projected total mortality of 5,455 coho.

Incidental coho mortality in Area 4 is estimated at 4,838 which, when combined with a total coho retention of 13,336, puts the estimate of total coho mortality in the Area 4 selective fishery at 18,174. This compares to a pre-season projected total mortality of 22,184 coho.

In-season adjustments in sub-Area coho quotas make comparisons between area-specific pre-season FRAM projections of total mortality with post-season estimates of total mortality difficult. Coho are routinely transferred at an impact-neutral rate on stocks of concern between sub-Area quotas in-season to extend season length for consistency between sub-Areas.

In 2009, a total of 8,300 coho were transferred into the Area 1 quota from Area 2; the resulting impact-neutral reduction to the Area 2 quota was 8,750 coho. Another 1,250 coho were transferred from the Area 2 to Area 3 quota, and a total of 2,250 coho were transferred to the Area 3 quota from Area 4.

Table 14 compares total estimated coho mortality by Area calculated using three methods:

- post-season using actual landed catch plus estimated release mortality based on observed mark rates (table 13),
- pre-season by FRAM, using pre-season sub-Area quota and mark rate assumptions (table 12), and
- post-season using adjusted sub-Area quotas as projected landed catch plus estimated release mortality based on pre-season projected mark rates (what would have been modeled by FRAM pre-season, had adjusted sub-Area quotas been in place).

5.13 Volume of On-Water Data Collected

Table 15 compares the number of coho encounters recorded by on-water observers and on VTRs with the total estimated number of handled coho in the Washington portion of

the 2009 ocean recreational fisheries. The number of handled coho is calculated as the total estimated number of marked and unmarked retained fish plus marked and unmarked released fish, based on observed coho mark rates.

Overall, an estimated 2% of the total number of handled coho in Washington ocean recreational fisheries was documented by on-board observers or volunteer anglers. In Area 1, 1,033 encounters (1% of total handled) were recorded; in Area 2, 1,875 encounters (2% of total handled) were recorded. From Area 3, 1,225 encounters (9% of total handled) were documented, and in Area 4, 2,319 encounters (7% of total handled) were recorded.

Table 16 compares the number of Chinook encounters recorded by on-water observers and on VTRs with the total estimated number of handled Chinook in the Washington portion of the 2009 ocean recreational fisheries. The number of handled Chinook is estimated from dockside sampling data and represents the total estimated number of retained fish plus released fish.

Overall, an estimated 3% of the total number of handled Chinook in Washington ocean recreational fisheries was documented by on-board observers or volunteer anglers. In Area 1, 177 encounters (1% of total handled) were recorded; in Area 2, 261 encounters (2% of total handled) were recorded. From Area 3, 151 encounters (7% of total handled) were documented, and in Area 4, 541 encounters (5% of total handled) were recorded.

5.14 DNA Samples

Table 17 shows the number of Chinook DNA samples collected by month, area, size class, and sampling type (on-board or dockside) from the ocean recreational fisheries. A total of 20 sublegal and 349 legal-sized Chinook were DNA sampled in Area 1. In Area 2, 40 DNA samples were collected from sublegal-sized Chinook, and 300 samples were collected from legal-sized Chinook. From Area 3, no DNA samples were collected from sublegal-sized Chinook, and 7 samples were collected from legal-sized Chinook. In Area 4, no sublegal DNA samples were collected, but 104 legal-sized Chinook were DNA sampled.

The number of Chinook DNA samples collected by WDFW samplers by month, area, size class, and sampling type from the non-Treaty troll fisheries is shown in Table 18. As there was no onboard observer program for the troll fishery in 2009, no samples were obtained from sublegal-sized Chinook. In Area 1, DNA was collected from 33 Chinook. In Area 2, DNA from was collected from 342 Chinook. From Area 3, 1,159 Chinook were DNA sampled. In Area 4, DNA samples were collected from 345 Chinook.

Table 1. Angler trips, and chinook and coho catch by month from the 2009 recreational fishery between Cape Falcon, Oregon and the U.S.-Canada border.

	ANGLER TRIPS					
	June	July	August	September	October	**TOTAL**
Area 1	193	10,271	30,247	1,470	-	**42,181**
Area 2	777	10,217	21,238	5,599	-	**37,831**
Area 3	102	1,462	2,700	601	212	**5,077**
Area 4	225	6,436	8,608	1,202	-	**16,471**
TOTAL WA	**1,297**	**28,386**	**62,792**	**8,872**	**212**	**101,560**
OREGON (Area 1)	85	5,698	6,097	370	-	**12,250**
TOTAL NOF	**1,382**	**34,084**	**68,889**	**8,872**	**212**	**113,810**

	CHINOOK					
	June	July	August	September	October	**TOTAL**
Area 1	10	925	3,239	28	-	**4,202**
Area 2	124	2,080	2,594	225	-	**5,023**
Area 3	7	194	329	53	97	**680**
Area 4	51	1,277	1,071	47	-	**2,447**
TOTAL WA	**192**	**4,476**	**7,233**	**353**	**97**	**12,351**
OREGON (Area 1)	4	422	543	11	-	**980**
TOTAL NOF	**196**	**4,898**	**7,776**	**353**	**97**	**13,331**

	COHO					
	June	July	August	September	October	**TOTAL**
Area 1	334	17,246	45,207	1,605	-	**64,392**
Area 2	539	10,745	33,181	9,403	-	**53,868**
Area 3	165	1,944	4,317	377	92	**6,896**
Area 4	118	4,807	7,500	912	-	**13,336**
TOTAL WA	**1,157**	**34,742**	**90,204**	**12,297**	**92**	**138,493**
OREGON (Area 1)	138	9,593	9,330	358	-	**19,419**
TOTAL NOF	**1,295**	**44,335**	**99,534**	**12,297**	**92**	**157,912**

Table 2. Chinook and coho catch by month from the 2009 non-treaty troll fishery between Cape Falcon, Oregon and the U.S.-Canada border.

	CHINOOK						COHO			
	May	June	July	August	September	**TOTAL**	July	August	September	**TOTAL**
Area 1	146	49	20	46	0	**261**	587	1,667	0	**2,254**
Area 2	3,576	3,111	955	405	85	**8,132**	1,933	5,291	2,836	**10,060**
Area 3	1,372	523	522	272	33	**2,722**	2,466	3,888	803	**7,157**
Area 4	597	461	138	3	2	**1,201**	458	102	24	**584**
TOTAL WA	**5,691**	**4,144**	**1,635**	**726**	**120**	**12,316**	**5,444**	**10,948**	**3,663**	**20,055**
OREGON (Area 1)	119	232	240	117	4	**712**	9,065	3,458	165	**12,688**
TOTAL NOF	**5,810**	**4,376**	**1,875**	**843**	**124**	**13,028**	**14,509**	**14,406**	**3,828**	**32,743**

Table 3: On-board chinook encounters by size class and mark status in the 2009 ocean recreational fisheries.

		On-board observation				VTRs			
		LEGAL-SIZED		SUBLEGAL-SIZED		LEGAL-SIZED		SUBLEGAL-SIZED	
		Marked	Unmarked	Marked	Unmarked	Marked	Unmarked	Marked	Unmarked
Area 1	June	0	0	0	0	1	0	0	0
	July	3	6	29	32	3	1	20	10
	August	12	4	13	9	0	5	2	1
	September	0	0	0	0	0	0	0	0
	TOTAL	**15**	**10**	**42**	**41**	**4**	**6**	**22**	**11**
Area 2	June	1	2	2	1	0	0	0	0
	July	18	16	35	21	7	13	11	11
	August	5	10	30	8	12	3	1	7
	September	1	0	6	3	0	0	0	0
	TOTAL	**25**	**28**	**73**	**33**	**19**	**16**	**12**	**18**
Area 3	June	-	-	-	-	0	1	0	1
	July	-	-	-	-	11	13	19	46
	August	-	-	-	-	7	5	8	30
	September	-	-	-	-	0	0	0	1
	TOTAL	**-**	**-**	**-**	**-**	**18**	**19**	**27**	**78**
Area 4	June	-	-	-	-	3	2	5	2
	July	-	-	-	-	63	43	90	180
	August	-	-	-	-	19	16	15	40
	September	-	-	-	-	1	3	9	5
	TOTAL	**-**	**-**	**-**	**-**	**86**	**64**	**119**	**227**

Table 4. Comparison of mark rates of legal-sized chinook based on on-board observation, VTRs, and dockside sampling data in the 2009 ocean recreational fisheries.

		On-board observation				VTRs				Dockside sampling data			
		Total Chinook Encountered	Marked	Unmarked	Mark Rate	Total Chinook Encountered	Marked	Unmarked	Mark Rate	Total Chinook Encountered	Marked	Unmarked	Mark Rate
Area 1	June	0	0	0	-	1	1	0	100%	7	5	2	71%
	July	9	3	6	33%	4	3	1	75%	625	442	183	71%
	August	16	12	4	75%	5	0	5	0%	1,157	746	411	64%
	Sept	0	0	0	-	0	0	0	-	13	7	6	54%
	TOTAL	**25**	**15**	**10**	**60%**	**10**	**4**	**6**	**40%**	**1,802**	**1,200**	**602**	**67%**
Area 2	June	3	1	2	33%	0	0	0	-	71	41	30	58%
	July	34	18	16	53%	20	7	13	35%	925	561	364	61%
	August	15	5	10	33%	15	12	3	80%	631	366	265	58%
	Sept	1	1	0	100%	0	0	0	-	72	44	28	61%
	TOTAL	**53**	**25**	**28**	**47%**	**35**	**19**	**16**	**54%**	**1,628**	**1,012**	**687**	**60%**
Area 3	June	-	-	-	-	1	0	1	0%	7	1	6	14%
	July	-	-	-	-	24	11	13	46%	177	88	89	50%
	August	-	-	-	-	12	7	5	58%	176	91	85	52%
	Sept	-	-	-	-	0	0	0	-	94	39	55	41%
	TOTAL	-	-	-	-	**37**	**18**	**19**	**49%**	**447**	**218**	**229**	**49%**
Area 4	June	-	-	-	-	5	3	2	60%	27	14	13	52%
	July	-	-	-	-	106	63	43	59%	591	349	242	59%
	August	-	-	-	-	35	19	16	54%	266	149	117	56%
	Sept	-	-	-	-	4	1	3	25%	27	18	9	67%
	TOTAL	-	-	-	-	**150**	**86**	**64**	**57%**	**911**	**530**	**381**	**58%**

Table 5. Total numbers of chinook and coho encountered by on-board observers, reported in VTRs, and recorded by dockside samplers during the 2009 ocean recreational fisheries.

		Onboard Observer data			VTRs			Dockside sampling data		
		Total Chinook Encountered	Total Coho Encountered	Chinook per Coho Ratio	Total Chinook Encountered	Total Coho Encountered	Chinook per Coho Ratio	Total Chinook Encountered	Total Coho Encountered	Chinook per Coho Ratio
Area 1	June	0	0	-	1	7	0.14	105	405	0.26
	July	87	476	0.18	39	124	0.31	4156	22994	0.18
	August	43	366	0.12	8	67	0.12	4317	28675	0.15
	Sept	0	0	-	0	0	-	25	1613	0.02
	TOTAL	**130**	**842**	**0.15**	**47**	**191**	**0.25**	**8,498**	**53,282**	**0.16**
Area 2	June	8	35	0.23	0	0	-	147	891	0.16
	July	108	603	0.18	42	139	0.30	1906	9611	0.20
	August	62	543	0.11	27	257	0.11	1696	20840	0.08
	Sept	14	298	0.05	0	0	-	169	6151	0.03
	TOTAL	**192**	**1,479**	**0.13**	**69**	**396**	**0.17**	**3,771**	**36,602**	**0.10**
Area 3	June	-	-	-	2	114	0.02	18	459	0.04
	July	-	-	-	94	533	0.18	454	5287	0.09
	August	-	-	-	54	557	0.10	645	6636	0.10
	Sept	-	-	-	1	21	0.05	251	636	0.39
	TOTAL	-	-	-	**151**	**1,225**	**0.12**	**1,350**	**12,559**	**0.11**
Area 4	June	-	-	-	16	27	0.59	97	177	0.55
	July	-	-	-	415	1,214	0.34	2277	7723	0.29
	August	-	-	-	106	1,011	0.10	1215	7734	0.16
	Sept	-	-	-	20	94	0.21	231	1790	0.13
	TOTAL	-	-	**-**	**541**	**2,319**	**0.23**	**3,723**	**17,247**	**0.22**

Table 6. Mark rates of legal-sized coho encountered by on-board observers and from voluntary trip reports in the 2009 ocean recreational fisheries.

		Onboard Observer data					VTRs				
		Total Coho Encountered	Marked	Unmarked	Unknown	Mark Rate	Total Coho Encountered	Marked	Unmarked	Unknown	Mark Rate
Area 1	June	0	0	0	0	-	4	3	1	0	N/A
	July	406	255	151	0	63%	103	63	40	0	61%
	August	316	191	125	0	60%	55	29	26	0	53%
	Sept	0	0	0	0	-	0	0	0	0	-
	TOTAL	**722**	**446**	**276**	**0**	**62%**	**162**	**95**	**67**	**0**	**59%**
Area 2	June	33	18	15	0	55%	0	0	0	0	-
	July	526	290	236	0	55%	122	60	62	0	49%
	August	470	261	209	0	56%	225	114	110	1	51%
	Sept	272	137	135	0	50%	0	0	0	0	-
	TOTAL	**1,301**	**706**	**595**	**0**	**54%**	**347**	**174**	**172**	**1**	**50%**
Area 3	June	-	-	-	-	-	78	26	52	0	33%
	July	-	-	-	-	-	498	211	286	1	42%
	August	-	-	-	-	-	505	278	227	0	55%
	Sept	-	-	-	-	-	20	10	10	0	50%
	TOTAL	-	-	-	-	-	**1,101**	**525**	**575**	**1**	**48%**
Area 4	June	-	-	-	-	-	8	1	7	0	N/A
	July	-	-	-	-	-	1,119	462	655	2	41%
	August	-	-	-	-	-	915	337	577	1	37%
	Sept	-	-	-	-	-	87	34	53	0	39%
	TOTAL	-	-	-	-	**-**	**2,129**	**834**	**1,292**	**3**	**39%**

Table 7. Mark rates of legal-sized coho encountered during on-board observation and reported by voluntary angler trip reports and during dockside sampling observation in the 2009 ocean recreational fisheries compared with the FRAM pre-season projected mark rates.

		Onboard Observer Data			VTRs		Dockside Data		
		Total Coho Encountered	Observed Mark Rate	**Projected Mark Rate**	Total Coho Encountered	Observed Mark Rate	Marked Coho Encountered	Unmarked Coho Reported	Observed Mark Rate
Area 1	June	0	-	**76%**	4	N/A	269	136	66%
	July	406	63%	**74%**	103	61%	13,080	9,914	57%
	Aug.	316	60%	**71%**	55	53%	15,462	13,213	54%
	Sept.	0	-	**69%**	0	-	811	802	50%
	Total	**722**	**62%**	**72%**	**162**	**59%**	**28,542**	**23,127**	**55%**
Area 2	June	33	55%	**70%**	0	-	388	503	44%
	July	526	55%	**69%**	122	49%	4,717	4,894	49%
	Aug.	470	56%	**67%**	225	51%	10,081	10,759	48%
	Sept.	272	50%	**61%**	0	-	3,012	3,139	49%
	Total	**1,301**	**54%**	**67%**	**347**	**50%**	**17,810**	**18,792**	**49%**
Area 3	June	-	-	**68%**	78	33%	151	308	33%
	July	-	-	**65%**	498	42%	1,773	3,514	34%
	Aug.	-	-	**65%**	505	55%	2,709	3,927	41%
	Sept.	-	-	**37%**	20	50%	228	408	36%
	Total	-	-	**60%**	**1,101**	**48%**	**4,710**	**7,849**	**38%**
Area 4	June	-	-	**49%**	8	N/A	100	77	56%
	July	-	-	**60%**	1,119	41%	2,650	5,073	34%
	Aug.	-	-	**55%**	915	37%	2,485	5,249	32%
	Sept.	-	-	**59%**	87	39%	513	1,277	29%
	Total	-	-	**57%**	**2,129**	**39%**	**5,648**	**11,599**	**33%**

Table 8. Comparison of coho release rates observed on-water, from voluntary trip reports, and reported through dockside interviews in the 2009 ocean recreation fisheries.

		On-Board Observation			VTRs			Dockside Data		
		Coho Retained	Coho Released	Release Rate	Coho Retained	Coho Released	Release Rate	Coho Retained	Coho Released	Release Rate
Area 1	June	-	-	-	3	2	N/A	252	153	38%
	July	247	170	41%	62	41	40%	12,309	10,685	46%
	August	184	142	44%	28	28	50%	14,963	13,712	48%
	September	-	-	-	-	-	-	796	817	51%
	Total	**431**	**312**	**42%**	**90**	**69**	**43%**	**28,068**	**25,214**	**47%**
Area 2	June	18	15	45%	-	-	-	328	563	63%
	July	286	248	46%	53	70	57%	4,597	5,014	52%
	August	257	220	46%	112	114	50%	9,897	10,943	53%
	September	136	137	50%	-	-	-	2,975	3,176	52%
	Total	**679**	**605**	**47%**	**165**	**184**	**53%**	**17,469**	**19,133**	**52%**
Area 3	June	-	-	-	36	70	66%	146	313	68%
	July	-	-	-	209	299	59%	1,690	3,597	68%
	August	-	-	-	266	255	49%	2,602	4,034	61%
	September	-	-	-	10	11	52%	227	409	64%
	Total	-	-	**-**	**485**	**565**	**54%**	**4,519**	**8,040**	**64%**
Area 4	June	-	-	-	5	19	79%	67	110	62%
	July	-	-	-	408	734	64%	2,288	5,435	70%
	August	-	-	-	326	605	65%	2,439	5,295	68%
	September	-	-	-	33	60	65%	513	1,277	71%
	Total	-	-	-	**767**	**1,399**	**65%**	**5,240**	**12,007**	**70%**

Table 9. Mark rates of landed chinook and coho encountered by dockside Tribal samplers in the 2009 ocean Treaty troll (non-selective) fisheries.

		Chinook				Coho			
		Total Chinook Examined	Marked	Unmarked	Mark Rate	Total Coho Examined	Marked	Unmarked	Mark Rate
Area 3	May	0	0	0	-	-	-	-	-
	June	0	0	0	-	-	-	-	-
	July	0	0	0	-	0	0	0	-
	August	17	5	12	29%	524	219	305	42%
	September	0	0	0	-	0	0	0	-
	TOTAL	**17**	**5**	**12**	**29%**	**524**	**219**	**305**	**42%**
Area 4	May	653	284	369	43%	-	-	-	-
	June	2,643	1,538	1,105	58%	-	-	-	-
	July	619	241	378	39%	7,488	3,383	4,105	45%
	August	1,005	374	631	37%	12,451	5,252	7,199	42%
	September	0	0	0	-	0	0	0	-
	TOTAL	**4,920**	**2,437**	**2,483**	**50%**	**19,939**	**8,635**	**11,304**	**43%**

Table 10. Compliance with coho selective fishery regulations observed during dockside port sampling interviews in the 2009 ocean recreational fisheries.

		Total Coho Sampled	Marked Coho Sampled	Unmarked Coho Sampled	% Sampled Coho Marked
Area 1	June	252	251	1	99.6%
	July	12,309	12,273	36	99.7%
	August	14,963	14,913	50	99.7%
	September	796	796	0	100.0%
	Total	**28,068**	**27,982**	**86**	**99.7%**
Area 2	June	328	328	0	100.0%
	July	4,597	4,560	37	99.2%
	August	9,897	9,846	51	99.5%
	September	2,975	2,963	12	99.6%
	Total	**17,469**	**17,369**	**100**	**99.4%**
Area 3	June	146	145	1	99.3%
	July	1,690	1,679	11	99.3%
	August	2,602	2,597	5	99.8%
	September	227	225	2	99.1%
	Total	**4,519**	**4,501**	**18**	**99.6%**
Area 4	June	67	67	0	100.0%
	July	2,288	2,237	51	97.8%
	August	2,439	2,387	52	97.9%
	September	513	507	6	98.8%
	Total	**5,240**	**5,131**	**109**	**97.9%**

Table 11. Estimated drop off mortality rate in the 2009 ocean recreational fisheries using on-water observation data and voluntary trip reports.

		On-Board Observation					VTRs				
		Total Salmon Handled	Observed Drop Offs	Estimated Observed Drop Off Mortality a/	FRAM Total Drop Off Mortality b/	Observed Drop Off Mortality Rate c/	Total Salmon Handled	Observed Drop Offs	Estimated Observed Drop Off Mortality a/	FRAM Total Drop Off Mortality b/	Observed Drop Off Mortality Rate c/
Area 1	June	0	0	-	-	-	6	2	0	0	4.7%
	July	486	196	27	24	5.6%	134	29	4	7	3.0%
	August	362	100	14	18	3.9%	63	12	2	3	2.7%
	Sept	0	0	-	-	-	0	0	-	-	-
	Total	**848**	**296**	**41**	**42**	**4.9%**	**197**	**41**	**6**	**10**	**2.9%**
Area 2	June	39	4	1	2	1.4%	0	0	-	-	-
	July	620	91	13	31	2.1%	162	25	4	8	2.2%
	August	528	77	11	26	2.0%	252	33	5	13	1.8%
	Sept	282	30	4	14	1.5%	0	0	-	-	-
	Total	**1,430**	**198**	**28**	**72**	**1.9%**	**414**	**58**	**8**	**21**	**2.0%**
Area 3	June	-	-	-	-	-	108	8	1	5	1.0%
	July	-	-	-	-	-	600	29	4	30	0.7%
	August	-	-	-	-	-	574	39	5	29	1.0%
	Sept	-	-	-	-	-	22	0	0	1	0.0%
	Total	**-**	**-**	**-**	**-**	**-**	**1,196**	**68**	**10**	**60**	**0.8%**
Area 4	June	-	-	-	-	-	40	8	1	2	2.8%
	July	-	-	-	-	-	1,530	114	16	77	1.0%
	August	-	-	-	-	-	1,027	110	15	51	1.5%
	Sept	-	-	-	-	-	113	1	0	6	0.1%
	Total	**-**	**-**	**-**	**-**	**-**	**2,670**	**225**	**32**	**134**	**1.2%**

a/ Assume 14% hooking mortality rate on observed drop offs.

b/ Total drop off mortality calculated using FRAM methodology (5% of handled fish).

c/ Estimated drop off mortality/Total salmon handled; 5% used by FRAM pre-season.

Table 12. Pre-season FRAM (model run 0921) projected coho mortality in the 2009 ocean recreational fisheries.

		Total Retention	Marked Retention	Marked Release Mortality	Unmarked Retention	Unmarked Release Mortality	Total Handled a/	Predicted Mark Rate	Drop Off Mortality b/	Release Mortality c/	Incidental Mortality d/	Total Mortality e/
Area 1	June	569	565	5	4	27	794	76%	40	32	72	641
	July	20,659	20,506	183	153	1,049	29,457	74%	1,473	1,232	2,705	23,364
	August	59,956	59,452	531	504	3,460	88,467	71%	4,423	3,991	8,414	68,370
	Sept.	7,016	6,949	62	67	462	10,760	69%	538	524	1,062	8,078
	Total	**88,200**	**87,472**	**781**	**728**	**4,998**	**129,478**	72%	**6,474**	**5,779**	**12,253**	**100,453**
Area 2	June	750	743	7	7	47	1,132	70%	57	54	111	861
	July	21,351	21,152	189	199	1,362	32,432	69%	1,622	1,551	3,173	24,524
	August	38,169	37,766	337	403	2,765	60,331	67%	3,017	3,102	6,119	44,288
	Sept.	5,000	4,934	44	66	454	8,557	61%	428	498	926	5,926
	Total	**65,270**	**64,595**	**577**	**675**	**4,628**	**102,452**	67%	**5,123**	**5,205**	**10,328**	**75,598**
Area 3	June	42	42	0	0	3	65	68%	3	3	6	48
	July	1,488	1,471	13	17	118	2,424	65%	121	131	252	1,740
	August	2,550	2,521	23	29	196	4,110	65%	206	219	425	2,975
	Sept./Oct.	500	483	4	17	119	1,379	37%	69	123	192	692
	Total	**4,580**	**4,517**	**40**	**63**	**436**	**7,978**	60%	**399**	**476**	**875**	**5,455**
Area 4	June	284	278	2	6	42	604	49%	30	44	74	358
	July	7,131	7,029	63	102	697	12,555	60%	628	760	1,388	8,519
	August	8,936	8,783	78	153	1,047	16,976	55%	849	1,125	1,974	10,910
	Sept.	2,000	1,971	18	29	201	3,563	59%	178	219	397	2,397
	Total	**18,351**	**18,061**	**161**	**290**	**1,987**	**33,698**	57%	**1,685**	**2,148**	**3,833**	**22,184**

a/ Marked handled + Unmarked handled.

b/ 5% of total handled.

c/ Marked release mortality + unmarked release mortality.

d/ Drop off + Release mortality.

e/ Total retention + Incidental mortality.

Table 13. Estimated actual coho mortality in the 2009 ocean recreational fisheries.

		Total Retention	Marked Retention	Marked Released Mortality a/	Unmarked Retention	Unmarked Released Mortality b/	Total Handled c/	Observed Mark Rate d/	Drop Off Mortality e/	Release Mortality f/	Incidental Mortality g/	Total Mortality h/
Area 1	June	472	471	4	2	33	739	66%	37	37	74	547
	July	26,839	26,761	225	78	2,225	44,338	63%	2,217	2,450	4,667	31,506
	August	54,537	54,354	457	182	4,997	93,489	60%	4,674	5,453	10,128	64,664
	Sept.	1,963	1,963	16	0	272	4,022	50%	201	288	489	2,452
	Total	**83,811**	**83,548**	**702**	**263**	**7,527**	**142,588**	**62%**	**7,129**	**8,229**	**15,358**	**99,169**
Area 2	June	539	539	5	0	63	1,021	55%	51	67	119	658
	July	10,745	10,658	90	86	1,224	20,128	55%	1,006	1,314	2,320	13,065
	August	33,181	33,010	277	171	3,720	61,733	56%	3,087	3,997	7,084	40,265
	Sept.	9,403	9,365	79	38	1,297	19,230	50%	962	1,376	2,337	11,740
	Total	**53,868**	**53,573**	**450**	**295**	**6,304**	**102,112**	**54%**	**5,106**	**6,754**	**11,860**	**65,728**
Area 3	June	165	164	1	1	46	505	33%	25	48		
	July	1,944	1,931	16	13	369	4,695	42%	235	385	620	2,564
	August	4,317	4,309	36	8	493	8,100	55%	405	530	935	5,252
	Sept./Oct.	470	466	4	4	66	968	50%	48	70	118	588
	Total	**6,896**	**6,870**	**58**	**26**	**974**	**14,268**	**48%**	**713**	**1,032**	**1,673**	**8,403**
Area 4	June	118	118	1	0	13	216	56%	11	14	25	143
	July	4,807	4,700	39	107	954	11,904	41%	595	994	1,589	6,396
	August	7,500	7,340	62	160	1,798	20,780	37%	1,039	1,859	2,898	10,398
	Sept.	912	901	8	11	199	2,388	39%	119	207	326	1,238
	Total	**13,336**	**13,059**	**110**	**278**	**2,964**	**35,288**	**39%**	**1,764**	**3,073**	**4,838**	**18,174**

a/ 6% of marked retention multiplied by 0.14 hooking mortality

b/ Total retention divided by observed mark rate less total retention multiplied by 0.14 hooking mortality

c/ Total retention + (Total released mortality divided by 0.14 mooking mortality).

d/ Observed mark rates assumed from dockside sampling data where observer data and VTR data are unavailable.

e/ 5% of total handled.

f/ Unmarked released mortality + marked released mortality.

g/ Drop off + release mortality.

h/ Total retention + incidental mortality.

Table 14. Comparison of total projected coho mortality in 2009 ocean recreational fisheries calculated post-season using observed mark rates and actual catch, pre-season by FRAM (model run 0921), and post-season using sub-Area quotas resulting from in-season transfers combined with realease mortality based on projected mark rates.

	Total mortality based on actual landed catch plus release mortality calculated from observed mark rates	Total mortality projected by FRAM run 0921	Total projected mortality based on adjusted sub-Area quotas and projected release mortalities using pre-season projected mark rates
Area 1	99,169	100,453	109,336
Area 2	65,728	75,598	64,015
Area 3	8,403	5,455	9,623
Area 4	18,174	22,184	19,463
Coastwide Total	**191,475**	**203,689**	**202,438**

Table 15. Number of coho encounters recorded by WDFW on-board samplers and on VTRs from the 2009 ocean recreational fishery compared with the estimated total handled coho (Washington only).

	On-board observation	VTRs	Estimated total handled a/	Percent of estimated total handled sampled
Area 1	842	191	109,551	1%
Area 2	1,479	396	102,112	2%
Area 3	-	1,225	14,268	9%
Area 4	-	2,319	35,288	7%
TOTAL WA	**2,321**	**4,131**	**261,219**	**2%**

a/ Total retention + (Total released mortality divided by 0.14 mooking mortality); WA only.

Table 16. Number of Chinook encounters recorded by WDFW on-board samplers and on VTRs from the 2009 ocean recreational fishery compared with the estimated total handled Chinook (Washington only).

	On-board observation	VTRs	Estimated total handled a/	Percent of estimated total handled sampled
Area 1	130	47	19,158	1%
Area 2	192	69	11,602	2%
Area 3	-	151	2,018	7%
Area 4	-	541	10,261	5%
TOTAL WA	**322**	**808**	**43,039**	**3%**

a/ Total retention + Total released; WA only; estimated from dockside sampling.

Table 17. Number of chinook DNA samples collected from the ocean recreational fishery by size class and sample type.

		On-Board Sampling		Dockside Sampling	Total Number of
		Sublegal-Sized	Legal-Sized	Legal-Sized	**DNA Samples**
Area 1	June	0	0	0	0
	July	8	58	144	210
	August	12	26	120	158
	September			1	1
	Total	**20**	**84**	**265**	**369**
Area 2	June	3	3		6
	July	27	54	100	181
	August	12	33	96	141
	September	1	8	9	18
	Total	**40**	**95**	**205**	**340**
Area 3	June	-	-	0	0
	July	-	-	3	3
	August	-	-	4	4
	September	-	-	0	0
	Total	**-**	**-**	**7**	**7**
Area 4	June	-	-	0	0
	July	-	-	71	71
	August	-	-	33	33
	September	-	-	0	-
	Total	-	-	**104**	**104**

Table 18. Number of chinook DNA samples collected from the non-treaty troll fishery by size class and sample type.

		On-Board Sampling		Dockside Sampling	Total Number of
		Sublegal-Sized	Legal-Sized	Legal-Sized	**DNA Samples**
Area 1	May	-	-	1	1
	June	-	-	0	0
	July	-	-	20	20
	August	-	-	12	12
	September	-	-	0	0
	Total	-	-	**33**	**33**
Area 2	May	-	-	172	172
	June	-	-	105	105
	July	-	-	23	23
	August	-	-	42	42
	September	-	-	0	0
	Total	-	-	**342**	**342**
Area 3	May	-	-	661	661
	June	-	-	315	315
	July	-	-	126	126
	August	-	-	55	55
	September	-	-	2	2
	Total	-	-	**1,159**	**1,159**
Area 4	May	-	-	132	132
	June	-	-	213	213
	July	-	-	0	0
	August	-	-	0	0
	September	-	-	0	0
	Total	-	-	**345**	**345**