2008 OCEAN SELECTIVE FISHERY SAMPLING REPORT

SUBMITTED BY:

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D R A F T

1. INTRODUCTION

The Pacific Fishery Management Council (PFMC) adopted 2008 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. The Washington Department of Fish and Wildlife (WDFW) implemented a monitoring plan to test some of these assumptions through dockside catch and effort sampling along with 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: first, to estimate the number of legal and sublegal sized chinook salmon encountered during the Washington non-Treaty ocean troll and recreational fisheries and, second, to collect genetic material (DNA tissue samples) from sublegal and legal sized chinook to estimate the stock composition by age. In 2008, WDFW was funded only for DNA data collection from the non-Treaty troll fishery in CRC Area 1. However, as time allowed, DNA data were collected during the summer non-Treaty troll and sport fisheries as well.

3. SEASON DESCRIPTION

3.1 Ocean Recreational Fisheries

Chinook-only fisheries: The ocean recreational fishery from Cape Falcon, Oregon to Leadbetter Point, Washington and west of the Buoy 10 line at the Columbia River mouth (CRC Area 1) was open for chinook only seven days per week from June 1 through June 28. The ocean area from Leadbetter Point to the U.S.-Canada border (CRC Areas 2-4) was open for chinook only five days per week from June 1 through June 28. Area 1 operated under the overall area guideline of 5,300 chinook; the areas north of Leadbetter Point operated under a quota of 8,200 chinook.

All-species fisheries:

Area 1: The ocean recreational fishery in Area 1 was open for all salmon species Sunday through Thursday from June 29 through August 17. A daily bag limit of two salmon was in effect. All retained coho were required to have a healed adipose fin clip. The Columbia Control Zone was closed. Including the June chinook fishery, a total of 64 fishing days were available in the area.

Area 2: The ocean recreational fishery from Leadbetter Point to the Queets River was open for all salmon species Sunday through Thursday from June 29 to August 24, and seven days per week from August 25 to September 13. A daily bag limit of two salmon was in effect. All retained coho were required to have a healed adipose fin clip. The Grays Harbor Control Zone was closed beginning August 1. Including the June chinook fishery, a total of 81 fishing days were available in the area.

Area 3: The ocean recreational fishery from the Queets River to Cape Alava was open for all salmon species Tuesday through Saturday from July 1 through August 24, and seven days per week from August 25 through September 13. From September 20 to October 5, 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 was in effect. All retained coho were required to have a healed adipose fin clip. Including the June chinook fishery, a total of 95 fishing days were available in the area.

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 July 1 through August 25. A daily bag limit of two salmon was in effect; 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. Including the June chinook fishery, a total of 60 fishing days were available in the area.

Area 4B state waters add-on fishery: The area between the Bonilla-Tatoosh line and the Sekiu River was open for all salmon except chinook seven days per week from August 26 to September 13. A daily bag limit of two salmon was in effect. All retained coho were required to have a healed adipose fin clip. A total of 19 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 3-6, May 10-13, May 17-20, May 24-27, May 31-June 3, June 7-10, June 14-17, and June 21-24 for all salmon except coho (a total of 32 days). The fishery reopened from Cape Falcon to the U.S./Canada border July 1-2, July 5-8, July 12-15, July 19-22, July 26-29, August 2-5, August 9-12, August 16-19, August 23-26, August 30-September 2, September 6-9, and September 13-16 for all salmon species except no chum retention north of Cape Alava, WA in August and September. A total of 46 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). Recreational anglers were also solicited to use voluntary trip reports while fishing to record the above information.

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 was voluntary trip reports. Whenever possible, ride-along trips on charter vessels in Neah Bay occurred.

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, 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.

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 CTC funded dockside DNA data collection from the non-Treaty troll fishery in the area south of Leadbetter Point (CRC Area 1) only in a joint project with Oregon Department of Fish and Wildlife. No funding was available for dockside DNA data collection in other areas or for onboard observers. However, dockside CWT samplers in areas north of Leadbetter Point collected DNA samples from landed chinook as time allowed.

5. RESULTS

5.1 Recreational Catch and Effort

In CRC Area 1, a total of 14,080 anglers harvested 10,832 coho (95 percent of the 11,380 revised coho quota) and 3,713 chinook. In Area 2, a total of 18,730 anglers harvested 7,528 coho (8 fish over the 7,520 coho quota) and 9,644 chinook. In Area 3, a total of 2,071 anglers harvested 541 coho (92 percent of the 590 coho quota) and 736 chinook. In Area 4, a total of 6,370 anglers harvested 2,161 coho (2,024 in the PFMC ocean fishery on a quota of 2,060 and 137 in the Area 4B add-on fishery on a quota of 4,000) and 1,357 chinook. 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 Landed in Washington

A total of 77 coho and 1,242 chinook harvested in Area 1 during the non-Treaty troll fishery were landed in Washington State ports. From Area 2, catches landed in Washington totaled 1,132 coho and 4,673 chinook. A total of 490 coho and 2,222 chinook were harvested in Area 3 and landed in Washington, while Area 4 catches totaled 7 coho and 499 chinook. Total catches north of Cape Falcon (landed in both Washington and Oregon) were 2,084 coho (70 percent of the 3,000 revised coho quota) and 14,024 chinook (68 percent of the 20,500 revised 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 chinook salmon encountered by observers in the ocean fisheries are shown in Table 3.

During the recreational fisheries, in Area 1, ride-along samplers on charter boats observed 127 chinook encountered; of those, 70 were legal sized and 57 were sublegal sized, resulting in a sublegal sized rate of 45%, compared with 74% in 2007. In Area 2, ride-along samplers on charter boats observed 216 chinook encountered; of those, 184 were legal sized and 32 were sublegal sized, resulting in a sublegal sized rate of 15%, compared with 56% in 2006. In Areas 3 and 4 (combined for chinook in this report since the FRAM chinook model combines those areas), observers on charter boats encountered only 3 chinook, all of which were legal sized; voluntary angler trip reports showed a total of 5 chinook, all legal sized.

5.4 Mark Rates in Selective Fisheries

Tables 4 and 5 show the mark rates of legal sized coho and chinook, respectively, observed in the ocean recreational fisheries by onboard observers and from voluntary angler trip reports. Table 6 reports chinook and coho mark rates observed by Tribal samplers in the non-selective

Treaty troll fishery in Areas 3 and 4, and table 7 shows chinook mark rates observed by dockside recreational fishery samplers.

In Area 1, a total of 304 coho encounters were observed aboard chartered fishing vessels; of these encounters, 176 coho were adipose fin clipped. The overall coho mark rate through the season was 60%, while the mark rates by month were 62% in July and 58% in August. Voluntary angler trips reports indicated an overall coho mark rate of 52% through the season (Table 4). For chinook, a total of 71 encounters were observed; 22 of these were adipose fin clipped. The overall observed chinook mark rate was 34% through the season (Table 5). Dockside landings indicated a chinook mark rate of 37% through the season (Table 7).

In Area 2, a total of 339 coho encounters were observed aboard chartered fishing vessels; 184 of these were adipose fin clipped. The overall coho mark rate through the season was 58%, while the mark rates by month were 44% in July, 65% in August, and 65% in September (Table 4). For chinook, a total of 122 encounters were observed; 66 of these were adipose fin clipped. The overall observed chinook mark rate was 41% through the season (Table 5). Dockside landings indicated a chinook mark rate of 48% through the season (Table 7).

No onboard observer data were collected from the recreational fishery in Area 3, and few angler trip reports were submitted. Dockside interviews indicated a recreational fishery coho mark rate of 37% (Table 9); dockside examination of landed chinook in the recreational fishery indicates a chinook mark rate of 42% (Table 7). Dockside sampling of the non-selective Treaty troll fishery indicates mark rates of 41% and 45% on chinook and coho, respectively (Table 6).

In Area 4, onboard observers encountered only 8 coho; voluntary angler trip reports totaled 51 coho encounters. The overall coho mark rate based on angler trip reports was 51% (Table 4) while dockside interviews indicated a coho mark rate of 37% (Table 9). Too few chinook were encountered through either onboard observation or angler trip reports to make an estimate of mark rate; based on dockside examination, the recreational fishery chinook mark rate was 52% through the season (Table 7). Dockside sampling of the non-selective Treaty troll fishery indicates mark rates in Area 4 of 34% and 39% on chinook and coho, respectively (Table 6).

5.5 Chinook to Coho Ratios

Table 8 shows observed ratios of encountered chinook to coho by month in the ocean recreational fisheries. Based on the on-board observation data, 0.39 chinook were encountered per coho in Area 1, 0.56 chinook were encountered per coho in Area 2, and 0.50 chinook per coho were encountered in Area 4.

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

Pre-season projections of 2008 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 0824 was the final pre-season assessment of the PFMC's adopted fishery package for the 2008 ocean fisheries.

Table 9 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 60% compared to 64% projected pre-season. The observed coho mark rate for the season in the Area 2 recreational selective fishery was 58% compared to 56% projected pre-season. Based on dockside sampling reports, the observed coho mark rate in Area 3 was 37% compared to 53% projected pre-season; the observed coho mark rate in the Area 3 non-selective Treaty troll fishery was 45% (Table 6). In Area 4, the observed coho mark rate was 37% compared to 48% projected pre-season.

5.7 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 9 compares coho mark rates based on dockside interview data with those seen during on-board observation. Table 10 compares coho release rates based on dockside interview data with release rates computed through on-board observation data.

Information collected by samplers dockside showed a bias towards lower coho mark rates and higher numbers of salmon released where comparisons are possible. This is consistent with results from previous years. Dockside sampling data from Area 1 showed an overall coho mark rate of 52% compared with 60% observed on-water; the release rate reported dockside was 50% compared to a rate of 43% observed on the water. In Area 2, an overall coho mark rate of 50% was reported dockside compared with 58% observed on-water; the release rate reported dockside was 50%, compared with a release rate of 45% observed on the water. No onboard observation data were collected in Area 3; dockside sampling data showed an overall coho mark rate of 37% and a release rate of 64%. In Area 4, onboard encounters were insufficient to calculate mark or release rates, but the mark rate reported dockside was 37% and the reported release rate was 64%.

5.8 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, 68% 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 99.5%. In Area 2, 47% of the total estimated coho landed by the recreational fishery were sampled dockside; a

compliance rate of 99.5% was observed during the selective coho fishery. In Area 3, 74% of the total estimated coho landed by the recreational fishery were sampled; the observed compliance rate was 98.5%. In Area 4, 42% were sampled dockside; a compliance rate of 97.4% was observed. Table 11 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 five seasons.

The WDFW Enforcement Program monitored compliance with selective fishery regulations in the recreational fisheries coastwide. Enforcement staff contacted 475 vessels in Area 1 and found no unmarked coho. In Area 2, enforcement found 3 unmarked coho in 1,071 vessel contacts. In Areas 3 and 4, no unmarked coho were found in 66 and 438 vessel contacts, respectively.

During the non-Treaty troll fisheries, a total of 725 coho (43% of the total coho landed in Washington) were examined dockside by WDFW sampling staff. These samplers encountered 5 unmarked coho in the landed catch, for a compliance rate of 99.3%.

5.9 Drop Off Rates

On-water observers 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 data ranged from 2.3% in Area 2 to 5.4% in Area 4. Estimates of drop off mortality rates from on-water observation data collected during the recreational fisheries are compared with FRAM projections in Table 12.

5.10 Estimated Mortality

Table 13 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 14. This analysis uses estimates of coho mark rates from on-water sampling where available 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 2,048 which, when combined with a total coho retention of 10,832, puts the estimate of total coho mortality in the Area 1 selective fishery at 12,880. This compares to a pre-season projected total mortality of 11,949 coho.

Incidental coho mortality in Area 2 is estimated at 1,589 which, when combined with a total coho retention of 7,528, puts the estimate of total coho mortality in the Area 2 fishery at 9,117. This compares to a pre-season projected total mortality of 9,218 coho.

In Area 3, incidental mortality is estimated at 209 which, when combined with a total coho retention of 540, puts the estimate of total coho mortality in the Area 3 selective fishery at 749. This compares to a pre-season projected total mortality of 743 coho.

Incidental coho mortality in Area 4 is estimated at 811 which, when combined with a total coho retention of 2,161, puts the estimate of total coho mortality in the Area 4 selective fishery at 2,971. This compares to a pre-season projected total mortality of 7,595 coho.

5.11 DNA Samples

Table 15 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 65 sublegal and 413 legal sized chinook were DNA sampled in Area 1. In Area 2, 105 DNA samples were collected from sublegal sized chinook, and 298 samples were collected from legal sized chinook. From Area 3, no DNA samples were collected from sublegal sized chinook, and 108 samples were collected from legal sized chinook. In Area 4, total of 3 sublegal and 113 legal sized chinook were DNA sampled.

The number of chinook DNA samples collected by month, area, size class, and sampling type from the non-Treaty troll fisheries is shown in Table 16. As there was no onboard observer program for the troll fishery in 2008, no samples were obtained from sublegal sized chinook. In Area 1, DNA was collected from 345 chinook. In Area 2, DNA from was collected from 281 chinook. From Area 3, 484 chinook were DNA sampled. In Area 4, DNA samples were collected from 149 chinook.

Baseline data for stock composition estimates are currently being analyzed. The DNA samples collected in this project will be archived and held for future analysis when the baseline database is complete.

Table 1. Angler trips, and chinook and coho catch by month from the 2008 recreational fishery between Cape Falcon, Oregon and the U.S.-Canada border.

ANGLER TRIPS						
	June	July	August	September	October	**TOTAL**
Area 1	777	4,506	5,156	-	-	**10,439**
Area 2	2,660	8,381	5,880	1,809	-	**18,730**
Area 3	281	535	709	508	38	**2,071**
Area 4	1,066	2,475	2,582	247	-	**6,370**
TOTAL WA	**4,784**	**15,897**	**14,327**	**2,564**	**38**	**37,610**
OREGON (Area 1)	551	1,875	1,215	-	-	**3,641**
TOTAL NOF	**5,335**	**17,772**	**15,542**	**2,564**	**38**	**41,251**

CHINOOK						
	June	July	August	September	October	**TOTAL**
Area 1	474	1,166	1,258	-	-	**2,898**
Area 2	2,145	4,459	2,735	305	-	**9,644**
Area 3	80	244	300	106	6	**736**
Area 4	311	725	317	3	-	**1,357**
TOTAL WA	**3,011**	**6,594**	**4,611**	**414**	**6**	**14,635**
OREGON (Area 1)	167	343	305	-	-	**815**
TOTAL NOF	**3,178**	**6,937**	**4,916**	**414**	**6**	**15,450**

COHO						
	June	July	August	September	October	**TOTAL**
Area 1	331	3,337	4,973	-	-	**8,641**
Area 2	30	2,550	3,383	1,564	-	**7,528**
Area 3	-	102	273	165	1	**541**
Area 4	-	679	1,459	23	-	**2,161**
TOTAL WA	**361**	**6,669**	**10,088**	**1,752**	**1**	**18,871**
OREGON (Area 1)	101	1,108	982	-	-	**2,191**
TOTAL NOF	**462**	**7,777**	**11,070**	**1,752**	**1**	**21,062**

Table 2. Chinook and coho catch by month from the 2008 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	361	847	7	24	3	**1,242**	4	65	8	**77**
Area 2	1,380	1,657	671	764	201	**4,673**	165	645	322	**1,132**
Area 3	24	1,259	501	380	58	**2,222**	186	265	39	**490**
Area 4	47	434	1	17	0	**499**	0	7	0	**7**
TOTAL WA	**1,812**	**4,197**	**1,180**	**1,185**	**262**	**8,636**	**355**	**982**	**369**	**1,706**
OREGON (Area 1)	2,616	2,489	127	136	20	**5,388**	49	300	29	**378**
TOTAL NOF	**4,428**	**6,686**	**1,307**	**1,321**	**282**	**14,024**	**404**	**1,282**	**398**	**2,084**

Table 3: On-board chinook encounters by size class in the 2008 ocean recreational fisheries.

	RECREATIONAL FISHERY					
Statistical	**Area 1**		**Area 2**		**Area 3/4**	
Month	**Legal**	**Sublegal**	**Legal**	**Sublegal**	**Legal**	**Sublegal**
May	-	-	-	-	-	-
June	-	-	61	0	-	-
July	54	46	63	9	3	0
August	16	11	57	15	0	0
September	-	-	3	8	0	0
TOTALS	**70**	**57**	**184**	**32**	**3**	**0**

Table 4. Mark rates of legal-sized coho encountered by on-board observers and from voluntary trip reports in the 2008 ocean recreational fisheries.

		Onboard Observer data					Voluntary angler trip reports				
		Total Coho Encountered	Marked	Unmarked	Unknown	Mark Rate	Total Coho Encountered	Marked	Unmarked	Unknown	Mark Rate
Area 1	July	198	117	73	8	62%	59	26	33	0	44%
	August	106	59	42	5	58%	66	39	27	0	59%
	September	-	-	-	-	-	-	-	-	-	-
	TOTAL	**304**	**176**	**115**	**13**	**60%**	**125**	**65**	**60**	**0**	**52%**
Area 2	July	106	45	57	4	44%	1	1	0	0	N/A
	August	180	107	58	15	65%	0	0	0	0	N/A
	September	53	32	17	4	65%	9	5	4	0	N/A
	TOTAL	**339**	**184**	**132**	**23**	**58%**	**10**	**6**	**4**	**0**	**N/A**
Area 3	July	0	0	0	0	N/A	23	5	18	0	22%
	August	0	0	0	0	N/A	0	0	0	0	N/A
	September	0	0	0	0	N/A	0	0	0	0	N/A
	TOTAL	**0**	**0**	**0**	**0**	**N/A**	23	**5**	**18**	**0**	**N/A**
Area 4	July	8	1	4	3	N/A	42	22	20	0	52%
	August	0	0	0	0	N/A	9	4	5	0	44%
	September	0	0	0	0	N/A	0	0	0	0	N/A
	TOTAL	**8**	**1**	**4**	**3**	**N/A**	**51**	**26**	**25**	**0**	**51%**

Table 5. Mark rates of legal-sized chinook encountered by on-board observers and from voluntary trip reports in the 2008 ocean recreational fisheries.

		Onboard Observer data					Voluntary angler trip reports				
		Total Chinook Encountered	Marked	Unmarked	Unknown	Mark Rate	Total Chinook Encountered	Marked	Unmarked	Unknown	Mark Rate
Area 1	July	54	20	32	2	38%	5	0	5	0	N/A
	August	16	2	11	3	15%	4	0	4	0	N/A
	September	1	0	0	1	N/A	4	0	4	0	N/A
	TOTAL	**71**	**22**	**43**	**6**	**34%**	**13**	**0**	**13**	**0**	**N/A**
Area 2	June	61	34	20	7	63%	0	0	0	0	N/A
	July	63	22	32	9	41%	1	1	0	0	N/A
	August	57	10	42	5	19%	0	0	0	0	N/A
	September	2	0	2	0	N/A	0	0	0	0	N/A
	TOTAL	**122**	**66**	**96**	**14**	**41%**	**1**	**1**	**0**	**0**	**N/A**
Area 3/4	July	3	3	0	0	N/A	5	4	1	0	N/A
	August	0	0	0	0	N/A	0	0	0	0	N/A
	September	0	0	0	0	N/A	0	0	0	0	N/A
	TOTAL	**3**	**3**	**0**	**0**	**N/A**	**5**	**4**	**1**	**0**	**N/A**

Table 6. Mark rates of landed chinook and coho encountered by dockside Tribal samplers in the 2008 ocean Treaty troll (non-selective) fisheries.

		Chinook				Coho			
		Total Chinook Encountered	Marked	Unmarked	Mark Rate	Total Coho Encountered	Marked	Unmarked	Mark Rate
Area 3	May	10	0	10	0%	-	-	-	-
	June	350	144	206	41%	-	-	-	-
	July	92	28	64	30%	110	53	57	48%
	August	66	39	27	59%	49	18	31	37%
	September	0	0	0	N/A	0	0	0	N/A
	TOTAL	**518**	**211**	**307**	**41%**	**159**	**71**	**88**	**45%**
Area 4	May	205	41	164	20%	-	-	-	-
	June	3,499	1,178	2,321	34%	-	-	-	-
	July	618	199	419	32%	119	27	92	23%
	August	1,243	521	722	42%	760	374	386	49%
	September	1,139	371	768	33%	2,883	1,072	1,811	37%
	TOTAL	**6,704**	**2,310**	**4,394**	**34%**	**3,762**	**1,473**	**2,289**	**39%**

Table 7. Mark rates of legal-sized chinook based on dockside sampling data in the 2008 ocean recreational fisheries.

		Dockside sampling data				
		Total Chinook Encountered	Marked	Unmarked	Unknown	Mark Rate
Area 1	June	369	143	226	0	39%
	July	946	361	585	0	38%
	August	590	209	381	0	35%
	September	-	-	-	-	N/A
	TOTAL	**1,905**	**713**	**1,192**	**0**	**37%**
Area 2	June	1,251	668	583	0	53%
	July	2,179	1,071	1,108	0	49%
	August	1,033	431	602	0	42%
	September	160	52	108	0	N/A
	TOTAL	**3,372**	**2,222**	**2,401**	**0**	**48%**
Area 3	June	50	18	32	0	36%
	July	166	78	88	0	47%
	August	198	79	119	0	40%
	September	76	26	50	0	N/A
	TOTAL	**440**	**183**	**257**	**0**	**42%**
Area 4	June	124	51	73	0	41%
	July	282	162	120	0	57%
	August	121	61	60	0	50%
	September	-	-	-	-	N/A
	TOTAL	**527**	**274**	**253**	**0**	**52%**

Table 8. Numbers of chinook and coho encountered by on-board observers in the 2008 ocean recreational fisheries.

		Total Chinook Encountered	Total Coho Encountered	Chinook per Coho Ratio
Area 1	July	104	225	0.46
	August	28	115	0.24
	September	-	-	-
	TOTAL	**132**	**340**	**0.39**
Area 2	June	61	1	61.00
	July	72	124	0.58
	August	72	199	0.36
	September	11	63	0.17
	TOTAL	**216**	**387**	**0.56**
Area 4	July	4	8	0.50
	August	0	0	N/A
	September	0	0	N/A
	TOTAL	**4**	**8**	**0.50**

Table 9. Mark rates of legal sized coho encountered during on-board observation and observed and reported during dockside sampling observation in the 2008 ocean recreational fisheries compared with the FRAM preseason projected mark rates.

		Onboard Observer Data			Dockside Data		
		Total Coho Encountered	Observed Mark Rate	**Projected Mark Rate**	Marked Coho Encountered	Unmarked Coho Reported	Observed Mark Rate
Area 1	July	198	62%	**65%**	3,279	3,147	51%
	Aug.	106	58%	**62%**	2,576	2,326	53%
	Sept.	-	-	**64%**	-	-	-
	Total	**304**	**60%**	**64%**	**5,855**	**5,473**	**52%**
Area 2	July	106	44%	**57%**	1,274	1,321	49%
	Aug.	180	65%	**56%**	1,429	1,311	52%
	Sept.	53	65%	**56%**	782	793	50%
	Total	**339**	**58%**	**56%**	**3,485**	**3,425**	**50%**
Area 3	July	0	N/A	**50%**	93	164	36%
	Aug.	0	N/A	**56%**	187	260	42%
	Sept.	0	N/A	**43%**	115	254	31%
	Total	**0**	**N/A**	**53%**	**395**	**678**	**37%**
Area 4	July	8	N/A	**48%**	258	281	48%
	Aug.	0	N/A	**49%**	616	1,072	36%
	Sept.	0	N/A	**54%**	10	130	7%
	Total	**8**	**N/A**	**48%**	**884**	**1,483**	**37%**

Table 10. Comparison of coho release rates observed on-water and reported through dockside interviews in the 2008 ocean recreation fisheries.

		On-Board Observation			Dockside Interview		
		Coho Retained	Coho Released	Release Rate	Coho Retained	Coho Released	Release Rate
Area 1	July	117	84	42%	3,285	3,402	51%
	August	59	49	45%	2,598	2,416	48%
	September	-	-	-	-	-	-
	Total	**176**	**133**	**43%**	**5,883**	**5,818**	**50%**
Area 2	June	0	0	N/A	14	59	81%
	July	44	59	57%	1,265	1,340	51%
	August	107	67	39%	1,436	1,331	48%
	September	31	24	44%	786	848	52%
	Total	**182**	**150**	**45%**	**3,487**	**3,519**	**50%**
Area 3	July	-	-	-	94	171	65%
	August	-	-	-	188	266	59%
	September	-	-	-	119	272	70%
	Total	**-**	**-**	**-**	**401**	**709**	**64%**
Area 4	July	1	4	80%	259	371	59%
	August	0	0	N/A	639	1,129	64%
	September	0	0	N/A	10	133	93%
	Total	**1**	**4**	**80%**	**908**	**1,633**	**64%**

Table 11. Compliance with coho selective fishery regulations observed through dockside port sampling interviews in the 2008 ocean recreation fisheries.

		Total Coho Sampled	Marked Coho Sampled	Unmarked Coho Sampled	% Sampled Coho Marked
Area 1	July	3,285	3,279	6	99.8%
	August	2,598	2,576	22	99.2%
	September	-	-	-	-
	Total	**5,883**	**5,855**	**28**	**99.5%**
Area 2	June	14	14	0	100.0%
	July	1,265	1,260	5	99.6%
	August	1,436	1,429	7	99.5%
	September	786	782	4	99.5%
	Total	**3,487**	**3,471**	**16**	**99.5%**
Area 3	July	94	93	1	98.9%
	August	188	187	1	99.5%
	September	119	115	4	96.6%
	Total	**401**	**395**	**6**	**98.5%**
Area 4	July	259	258	1	99.6%
	August	639	616	23	96.4%
	September	10	10	0	100.0%
	Total	**908**	**884**	**24**	**97.4%**

Table 12. Estimated drop off mortality rate in the 2008 ocean recreational fisheries using on-water observation data.

		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	July	464	173	24	23	5.2%
	August	189	58	8	9	4.3%
	Sept.	-	-	-	-	-
	Total	**653**	**231**	**32**	**33**	**5.0%**
Area 2	June	62	9	1	3	2.0%
	July	204	41	6	10	2.8%
	August	275	38	5	14	1.9%
	Sept.	76	12	2	4	2.2%
	Total	**555**	**91**	**13**	**28**	**2.3%**
Area 4	July	13	5	1	1	5.4%
	August	0	0	0	0	N/A
	Sept.	0	0	0	0	N/A
	Total	**13**	**5**	**1**	**1**	**5.4%**

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 13. Preseason FRAM (model run 0824) projected coho mortality in the 2008 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	471	466	4	5	33	736	67%	37	37	74	545
	July	8,149	8,055	72	94	648	13,292	65%	665	720	1,385	9,534
	August	1,560	1,537	14	23	157	2,782	62%	139	171	310	1,870
	Sept.	0	0	0	0	0	0	64%	0	0	0	0
	Total	**10,180**	**10,058**	**90**	**122**	**838**	**16,810**	**64%**	**841**	**928**	**1,769**	**11,949**
Area 2	June	244	240	2	4	27	450	56%	23	29	52	296
	July	2,008	1,975	18	33	223	3,728	57%	186	241	427	2,435
	August	5,268	5,172	46	96	658	10,299	56%	515	704	1,219	6,487
	Sept.	0	0	0	0	0	0	56%	0	0	0	0
	Total	**7,520**	**7,387**	**66**	**133**	**908**	**14,477**	**56%**	**724**	**974**	**1,698**	**9,218**
Area 3	July	540	529	5	11	75	1,107	50%	55	80	135	675
	August	0	0	0	0	0	0	56%	0	0	0	0
	Sept./Oct.	50	48	0	2	11	132	43%	7	11	18	68
	Total	**590**	**577**	**5**	**13**	**86**	**1,239**	**53%**	**62**	**91**	**153**	**743**
Area 4	July	4,143	4,060	36	83	571	8,481	48%	424	607	1,031	5,174
	August	1,917	1,876	17	41	284	4,066	49%	203	301	504	2,421
	Sept.	0	0	0	0	0	0	54%	0	0	0	0
	Total	**6,060**	**5,936**	**53**	**124**	**855**	**12,547**	**48%**	**627**	**908**	**1,535**	**7,595**

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 14. Estimated actual coho mortality in the 2008 ocean recreational fisheries.

		Total Retention	Marked Retention	Marked Released	Unmarked Retention	Unmarked Released	Total Handled a/	Observed Mark Rate b/	Drop Off Mortality c/	Release Mortality d/	Incidental Mortality e/	Total Mortality f/
Area 1	June	432	431	26	1	270	727	62%	36	41	78	510
	July	4,445	4,437	266	8	2,773	7,485	62%	374	426	800	5,245
	August	5,955	5,904	354	50	4,239	10,548	58%	527	643	1,170	7,125
	Sept.	0	0	0	0	0	0	-	0	0	0	0
	Total	**10,832**	**10,772**	**646**	**59**	**7,282**	**18,760**	**60%**	**938**	**1,110**	**2,048**	**12,880**
Area 2	June	30	30	2	0	38	70	44%	3	6	9	39
	July	2,550	2,540	152	10	3,231	5,933	44%	297	474	770	3,321
	August	3,383	3,367	202	16	1,834	5,419	65%	271	285	556	3,939
	Sept.	1,564	1,556	93	8	831	2,488	65%	124	129	254	1,818
	Total	**7,528**	**7,493**	**450**	**35**	**5,933**	**13,910**	**58%**	**696**	**894**	**1,589**	**9,117**
Area 3	July	102	101	6	1	180	288	36%	14	26	40	142
	August	273	271	16	1	380	669	42%	33	55	89	362
	Sept./Oct.	165	160	10	6	365	540	31%	27	52	79	245
	Total	**540**	**532**	**32**	**8**	**924**	**1,496**	**37%**	**75**	**134**	**209**	**749**
Area 4	July	679	677	41	3	740	1,460	48%	73	109	182	862
	August	1,459	1,406	84	53	2,539	4,082	36%	204	367	571	2,030
	Sept.	23	23	1	0	293	317	7%	16	41	57	80
	Total	**2,161**	**2,106**	**126**	**55**	**3,572**	**5,859**	**37%**	**293**	**518**	**811**	**2,971**

a/ Total retention + Total released.

b/ Observed mark rates in Area 3 and in Area 4 assumed from dockside sampling data.

c/ 5% of total handled.

d/ 14% of (unmarked released + marked released).

e/ Drop off + Release mortality.

f/ Total retention + Incidental mortality.

Table 15. 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	48	48
	July	52	29	234	315
	August	13	8	142	163
	September	-	-	-	-
	Total	**65**	**37**	**376**	**478**
Area 2	June	53	0	45	98
	July	52	8	216	276
	August	51	12	55	118
	September	2	7	0	9
	Total	**105**	**27**	**271**	**403**
Area 3	June	-	-	27	27
	July	-	-	47	47
	August	-	-	40	40
	September	-	-	21	21
	Total	**-**	**-**	**108**	**108**
Area 4	June	0	0	12	12
	July	3	0	62	65
	August	0	0	51	51
	September	-	-	-	-
	Total	**3**	**0**	**113**	**116**

Table 16. 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	-	-	233	233
	June	-	-	95	95
	July	-	-	2	2
	August	-	-	12	12
	September	-	-	3	3
	Total	**0**	**0**	**345**	**345**
Area 2	May	-	-	152	152
	June	-	-	92	92
	July	-	-	37	37
	August	-	-	0	0
	September	-	-	0	0
	Total	**0**	**0**	**281**	**281**
Area 3	May	-	-	13	13
	June	-	-	183	183
	July	-	-	161	161
	August	-	-	108	108
	September	-	-	19	19
	Total	**0**	**0**	**484**	**484**
Area 4	May	-	-	31	31
	June	-	-	106	106
	July	-	-	12	12
	August	-	-	0	0
	September	-	-	0	0
	Total	**0**	**0**	**149**	**149**