

**2013 Summer Mark-Selective Recreational Chinook Fisheries
In Marine Areas 5, 6, 9, 10, 11, 12 and 13**

Post-season Report

REVISED DRAFT

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INTRODUCTION

In recent years, abundant runs of hatchery Chinook salmon (*Oncorhynchus tshawytscha*) have been mixed with depressed runs of wild Chinook salmon in the marine environments of the Strait of Juan de Fuca and Puget Sound. Providing recreational anglers with opportunities to harvest abundant hatchery stocks while simultaneously protecting weaker, wild stocks has proven to be a significant conservation and management challenge. The combination of large-scale hatchery marking (i.e., fin clipping) programs and mark-selective harvest regulations makes it possible for anglers to pursue and harvest hatchery Chinook salmon while minimally impacting wild salmon populations. In such “mark-selective fisheries” (MSFs), anglers are generally allowed to retain adipose-fin clipped (“marked”) hatchery fish and are required to release unharmed any unclipped (“unmarked”, predominantly wild) salmon encountered¹.

Since the Washington Department of Fish and Wildlife (WDFW) implemented the first marine mark-selective Chinook fishery in Marine Catch Areas 5 and 6 (Strait of Juan de Fuca) in 2003 based on state-tribal agreements (Thiesfeld and Hagen-Breaux 2005a, WDFW 2008a), mark-selective Chinook salmon fishing regulations have been implemented on a pilot basis in multiple Puget Sound Marine Catch Areas during both the summer and winter seasons. As of the close of the summer 2013 fishing season, pilot *summer* Chinook MSFs have occurred in Areas 5 and 6 for eleven consecutive seasons, in Areas 9, 10, 11, and 13 for seven consecutive seasons and in Area 12 for two consecutive seasons. Additionally, pilot *winter* Chinook MSFs have occurred in Areas 8-1 and 8-2 for eight consecutive seasons, in Areas 7, 9 and 10 for six consecutive seasons, in Areas 11 and 12 for four consecutive seasons and in Area 6 for one season².

During the 2013 summer season (May through September), WDFW implemented seven pilot mark-selective Chinook fisheries in Areas 5, 6, 9, 10, 11, 12 and 13. The Chinook MSF seasons in each area were scheduled as follows:

- Areas 5 and 6 from July 1 through August 15, 2013;
- Areas 9 and 10 from July 16 through August 31, 2013;
- Area 11 from June 1 through September 30, 2013;
- Area 12 from July 1 through September 30, 2013; and
- Area 13 from May 1 through September 30, 2013.

Consistent with the 2004 (and 2010 update) Puget Sound Chinook Harvest Management Plan (Puget Sound Indian Tribes and WDFW 2004 and 2010), a key goal of implementing each of these Chinook MSFs has been to provide meaningful opportunity to the recreational angling public while minimally impacting ESA-listed Puget Sound Chinook salmon.

¹The regulations specific to winter mark-selective fisheries in Puget Sound Marine Catch Areas allowed for the retention of up to two legal-sized (≥ 22 inches [56 cm]) marked Chinook salmon per day and required the immediate release of all unmarked or sublegal Chinook. Additionally, anglers were: *i*) required to use single-point, barbless hooks while fishing for salmon, *ii*) held to a combined (all salmon species) two-fish daily limit, and *iii*) held to a handling rule that prevented them from bringing unmarked and/or sublegal Chinook aboard their vessels.

² For information regarding effort, harvest and impacts estimates related to these fisheries, see the references listed at the end of this report, or visit: <http://wdfw.wa.gov/publications/search.php?Cat=Fishing / Shellfishing&SubCat=Selective Fishing>.

Comprehensive Sampling and Monitoring Program

WDFW's Puget Sound Sampling Unit (PSSU) was tasked with implementing a comprehensive sampling and monitoring program in Areas 5, 6, 9, 10, 11, 12 and 13 to collect the data needed to evaluate each pilot Chinook MSF and its impact on unmarked salmon. Through state-tribal agreement (WDFW and NWIFC 2013a), we developed area-specific sampling plans consisting of several comprehensive and complementary sampling components, including dockside creel sampling, test fishing, on-water or aerial effort surveys, and angler-completed voluntary trip reports (VTRs). We tailored area-specific sampling plans so that we could reliably estimate the following critical parameters needed for evaluating MSFs:

- i) the mark rate of the targeted Chinook population
- ii) the total number of Chinook salmon harvested (by size [legal or sublegal] and mark-status [marked or unmarked] group)
- iii) the total number of Chinook salmon released (by size and mark-status group)
- iv) the coded-wire tag- (CWT) and/or DNA-based stock composition of marked and unmarked Chinook mortalities³
- v) the total mortality of marked and unmarked double index tag (DIT) CWT stocks

In addition, we acquired and analyzed relevant data characterizing other aspects of the pilot fisheries, including descriptors of fishing effort, fishing success (catch [landed Chinook] per unit effort), the length composition of encountered Chinook, and the overall intensity of our sampling efforts.

Reporting Efficiencies

In July 2010, technical staffs from the WDFW Puget Sound Sampling Unit, Northwest Indian Fisheries Commission (NWIFC), and Puget Sound Treaty Tribes met to discuss potential reporting efficiencies in WDFW's Chinook MSF post-season reports. NWIFC and tribal representatives had initiated the idea for such a meeting, considering that WDFW had been submitting a separate post-season report for each area and season (since 2003) to the co-managers, resulting in redundancies between individual reports, particularly in the Methods section. Also, over the years we kept adding sections to the selective fishery annual reports, in response to individual tribal co-manager requests, and sustained those additions in each future report, resulting in ever-lengthening post-season reports. From both the WDFW and tribal technical perspectives, we needed to prioritize the most essential reporting elements and achieve efficiencies to streamline the selective fishery reporting work load.

WDFW and tribal staffs worked to prioritize the most essential elements (tables, figures and appendices) needed in WDFW's annual post-season MSF reports in an effort to define reporting efficiencies. Based on these decisions (details available in a WDFW memo dated August 16, 2010 summarizing the July 2010 meeting), we began implementing reporting efficiencies starting with the winter 2009-10 Chinook MSF post-season report and continuing thereafter.

³ Though the necessary tissue samples have been collected, DNA-based estimates of stock composition are presently unavailable for Puget Sound/Strait of Juan de Fuca mark-selective fisheries. In the present report, methods for producing CWT-based (unexpanded) estimates of the stock composition of marked Chinook harvest are provided.

At the July 2010 meeting we also agreed that a key efficiency in the annual reporting process would be for WDFW staff to produce a centralized Methods Report. The Methods Report would be a stand-alone document that includes the details of each area's Chinook MSF study design (for both winter and summer fisheries), sampling procedures, data analysis methods, and all equations used to generate estimates and variances. Thus, we refer the reader to our Methods Report (WDFW 2012a) for detailed descriptions of the diverse study designs and protocols used to monitor and evaluate the Chinook MSFs in Areas 5, 6, 9, 10, 11, 12 and 13 during summer 2013.

In the following pages, we report the results generated through our monitoring activities during the summer 2013 Chinook MSFs. We report results based on our more efficient reporting format agreed-to between state and tribal technical representatives, in which we focus on presenting data tables and figures rather than interpretive text (unless needed to specify noteworthy in-season adjustments or other circumstances unique to the particular season). We present summer 2013 Chinook MSF results in separate chapters (1 through 7) by area, and within each chapter the data are presented in a series of tables and figures generally according to the following sequence: *i*) estimates of fishery characteristics obtained from the dockside creel survey data, including catch and effort total estimates, Chinook length-frequency data, and CWT recovery results; *ii*) results from our recreational test fishery (where applicable); *iii*) results from our VTR collection efforts; *iv*) total fishery Chinook encounters and impacts—estimated based on creel survey and test fishery or VTR data—which we compare with pre-season expectations (based on Fishery Regulation Assessment Model [FRAM] predictions); *v*) sample rate information based on dockside sampling of harvested Chinook; *vi*) total mortality estimates of marked and unmarked DIT CWT stocks by hatchery and brood year; and *vii*) historical Chinook encounters estimates for each area's summer mark-selective Chinook fishery.

RESULTS

1) Marine Area 5 Summer Mark-Selective Chinook Fishery

The Washington Department of Fish and Wildlife (WDFW) implemented an eleventh consecutive summer Chinook MSF in Marine Area 5 from July 1 through August 15, 2013. WDFW's Puget Sound Sampling Unit (PSSU) implemented an intensive monitoring program in Area 5 throughout the season in order to collect the data needed to estimate key parameters characterizing the fishery and its impacts on unmarked salmon. Sampling activities included dockside creel sampling and intensive efforts to distribute and collect voluntary trip reports (VTRs) from the angling public. During the summer 2013 mark-selective Chinook fishery in Area 5 we maintained our enhanced VTR program in an effort to improve the return rate of voluntary trip reports, which provide estimates of Chinook encounter rates by size class (legal or sublegal) and mark status (ad-marked or unmarked). An additional WDFW technician was hired to work exclusively on distributing and collecting VTRs from the angling public in Area 5. This technician, along with the dockside samplers, also educated anglers about the VTR program and salmon species identification in a focused effort to increase the sample size of VTR-based encounter data. **Table 1.1** summarizes the parameters estimated and the sampling activities associated with each parameter. Specific procedures used for collecting these data and estimating critical data parameters are presented in detail in our separate Methods Report (WDFW 2012a). In this section we present results from our monitoring activities during the Area 5 summer Chinook MSF.

Table 1.1 Sampling/estimation details on target parameters associated with the overall Area 5 summer mark-selective fishery monitoring program.

Activity	Focal Parameter(s)	Secondary Parameter(s)	Sample Unit(s)	Finest Estimation Time Step	Comments
Dockside Creel Sampling	Fishing effort (boat & angler trips); kept and released fish ¹	Catch rates (CPUE); length, age, and CWT composition of harvest ¹ ; collection of angler fishing methods.	Angler trip; kept fish; reported fish release	Two weeks	Creel estimates were produced for two-week estimation periods and stratified into “weekday” (Mon.-Thurs.) and “weekend” (Fri.-Sun.) day-type strata within weeks. For the weekday stratum we sampled $n=2$ days out of $N=8$ available weekdays per two-week period. For the weekend stratum we sampled $n=2$ days out of $N=3$ available weekend days per week.
On-the-water Surveys	Proportion of total angler effort that uses sample-frame sites (i.e., site “size measures”) versus out-of-frame sites.	Total on-water boat and angler counts at assumed peak effort time interval (instantaneous count); spatial distribution of recreational fishing boats in the area.	Boats and anglers	Month	Only 1 boat survey was conducted during the 2013 Area 5 summer Chinook MSF, as in-season observations suggested that sites and effort patterns did not change substantially in 2013 compared to past years. We incorporated data from this survey into recent three-year average site weights to compute catch and effort estimates.
Voluntary Trip Reports (VTRs)	Size (legal/sublegal) and mark-status (marked/unmarked) composition of encountered Chinook	Encounter data for non-Chinook species (e.g., coho) that the angler may record on the VTR form	Fish encounter	Season	We used VTR data to estimate the size/mark-status proportions (LM = 25%, LU = 22%, SM = 27%, SU = 26%; Table 1.5) needed to produce encounter and mortality estimates.
Overall Fishery Impacts Estimation	Total Chinook encounters and mortalities, by size/mark-status group	Ratios of encounters and mortalities per kept Chinook	N/A	Season	Estimated on a monthly time step but considered at the season-total level.
Coded-wire tag (CWT) Impacts Estimation	Marked/unmarked double-index tag (DIT) encounters and mortalities	N/A	N/A	Season	The temporal resolution of DIT impacts is constrained by the total number of tags recovered.

¹The length and CWT composition of landed catch was assessed on a season-wide basis for impact estimation.

Table 1.2 Estimates of total fishing effort and total salmon catch (harvest and releases) during the Area 5 Chinook MSF from July 1 - August 15, 2013. Values may not add exactly due to rounding error. AD = marked (adipose-clipped), UM = unmarked.

Month	Stat Week	Start Date	End Date	Est. Effort		Est. Retained Chinook		Est. Released Chinook		Total Est. Chinook Encounters
				Boats	Anglers	AD	UM	AD	UM	
July	27	1-Jul	7-Jul	1,712	4,311	2,018	29	2,230	3,823	8,099
	28	8-Jul	14-Jul	1,708	4,440	1,387	5	1,533	2,643	5,567
	29	15-Jul	21-Jul	1,276	3,192	1,141	15	1,261	2,164	4,581
	30	22-Jul	28-Jul	1,455	3,635	1,252	38	1,383	2,352	5,025
	31	29-Jul	4-Aug	1,663	4,219	1,194	43	1,320	2,237	4,793
August	32	5-Aug	11-Aug	1,362	3,435	893	29	987	1,675	3,583
	33	12-Aug	15-Aug	928	2,493	522	0	576	996	2,094
Area 5 Season Total:				10,104	25,725	8,405	159	9,290	15,890	33,743
Variance:				228,506	2,132,666	632,235	1,378	2,780,978	1,924,928	13,446,439
SE:				478	1,460	795	37	1,668	1,387	3,667
CV (%):				4.7%	5.7%	9.5%	23.4%	18.0%	8.7%	10.9%
95% CI:				9,167 - 11,041	22,863 - 28,588	6,847 - 9,964	86 - 231	6,021 - 12,558	13,170 - 18,609	26,556 - 40,930

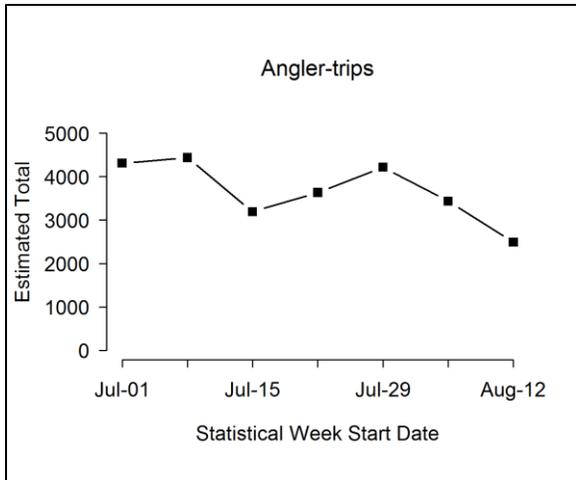


Figure 1.1 Temporal patterns in fishing effort during the Area 5 Chinook MSF from July 1 - August 15, 2013.

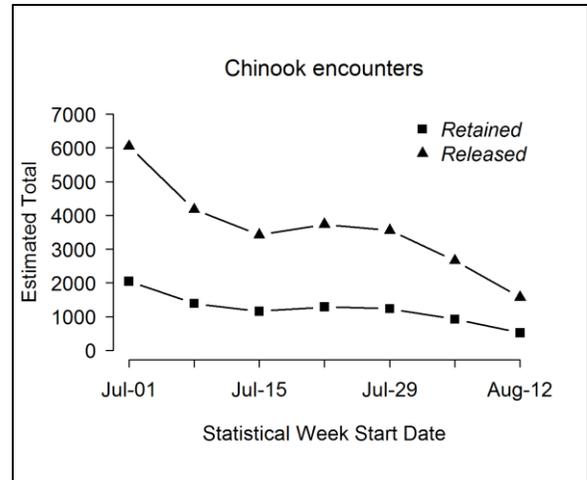


Figure 1.3 Temporal patterns in Chinook encounters (retained and released) during the Area 5 Chinook MSF from July 1 - August 15, 2013.

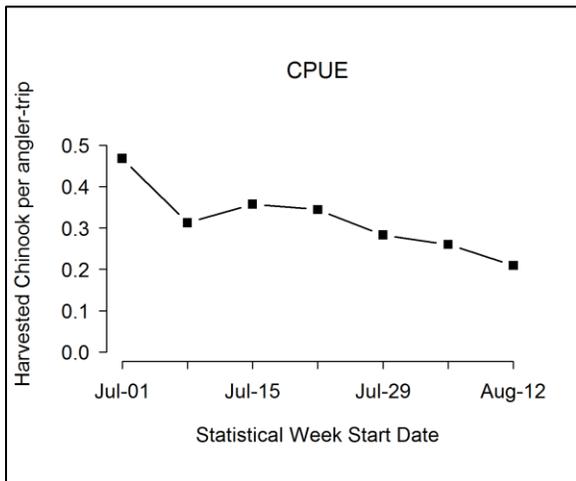


Figure 1.2 Temporal patterns in CPUE (landed Chinook per angler trip) during the Area 5 Chinook MSF from July 1 - August 15, 2013.

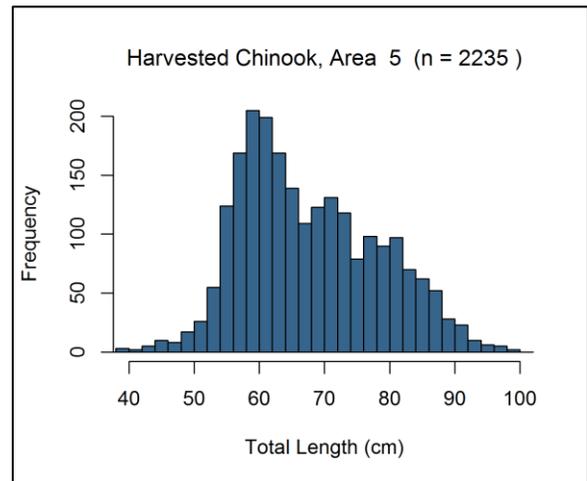


Figure 1.4 Length-frequency distributions of retained marked Chinook sampled in dockside angler interviews during the Area 5 Chinook MSF from July 1 - August 15, 2013.

Table 1.3 Summary of total length samples from retained Chinook salmon collected during dockside angler interviews in the Area 5 Chinook MSF from July 1 - August 15, 2013.

Mark Type	Number Sampled		
	Legal-size	Sublegal-size	Total
Marked	1,987	248	2,235
Unmarked	20	21	41
Total	2,007	269	2,276

Table 1.4 Summary of coded-wire tags recovered from Chinook salmon harvested during the Area 5 Chinook MSF from July 1 - August 15, 2013. The field “Number DITs” corresponds to the number of tags that belonged to double-index tag groups.

Release Domain	Release Region	Release Site	Rearing Location	CWTs Recovered	Number DITs	
British Columbia (28.7%)	Fraser River – Thompson River (26.9%)	Harrison R	H-Chehalis River H	25 (8.7%)	0	
		Shuswap R Low	H-Shuswap River, Middle,	5 (1.7%)	0	
		Chilliwack R	H-Chilliwack River H	47 (16.4%)	47	
	Georgia Strait (1.7%)	Cowichan R	H-Cowichan River H	4 (1.4%)	0	
		Big Qualicum R	H-Big Qualicum River H	1 (0.3%)	0	
Washington (40.6%)	Northern Washington (7.3%)	Samish R 03.0005	Samish Hatchery	1 (0.3%)	1	
		Friday Cr 03.0017	Samish Hatchery	10 (3.5%)	10	
		Nooksack R -NF 01.0120	Kendall Cr Hatchery	2 (0.7%)	2	
		East Sound Bay (SAN)	Glenwood Springs	8 (2.8%)	0	
	Northern Washington Coast (0.7%)	Sooes R 20.0015	Makah NFH on Sooes R	1 (0.3%)	0	
		Quinault Lk (Gray)	Quinault Lk Hatchery	1 (0.3%)	1	
	Strait of JDF (3.1%)	Hoko R 19.0148	Hoko Falls Hatchery	9 (3.1%)	0	
	Hood Canal (9.4%)	Purdy Cc 16.0005	George Adams Hatchery	13 (4.5%)	13	
		Finch Cr 16.0222	Hoodsport Hatchery	14 (4.9%)	0	
	Northern Puget Sound (3.1%)	Wallace R 07.0940	Wallace R Hatchery	7 (2.4%)	6	
		Whitehorse Springs	Stillaguamish Hatchery	2 (0.7%)	0	
	Skagit River (2.1%)	Cascade R 03.1411	Marblemount Hatchery	3 (1%)	2	
		Baker R 03.0435	Marblemount Hatchery	1 (0.3%)	0	
		Skagit R 03.0176	Marblemount Hatchery	2 (0.7%)	0	
	Mid Puget Sound (9.8%)	Gorst Cr 15.0216	Gorst Cr Rearing Pond	8 (2.8%)	0	
		Grovers Cr Hatchery	Grovers Cr Hatchery	4 (1.4%)	4	
		Clarks Creek Hatchery	Clarks Creek Hatchery	1 (0.3%)	0	
		Voight Cr TR 10.0428	Voights Cr Hatchery	5 (1.7%)	0	
		Icy Cr 09.0125	Icy Cr Hatchery	3 (1%)	0	
		Big Soos Cr 09.0072	Soos Creek Hatchery	7 (2.4%)	7	
	Southern Puget Sound (4.5%)	Chambers Cr 12.0007	Chambers Cr Hatchery	1 (0.3%)	0	
		Kalama Cr 11.0017	Kalama Cr Hatchery	3 (1%)	0	
		Clear Cr 11.0013C	Clear Creek Hatchery	9 (3.1%)	9	
	Willapa Bay (0.3%)	Naselle R 24.0543	Naselle Hatchery	1 (0.3%)	0	
	Columbia River (25.2%)	Upper Columbia R (above McNary Dam; excludes Snake River) (5.9%)	Similkameen R 490325	Similkameen Hatchery	3 (1%)	0
			Columbia R @ RM 369.9	Ringold Springs Hatchery	1 (0.3%)	0
			Columbia Near Wells	Wells Hatchery	3 (1%)	0
Chelan R 47.0052			Chelan Falls Hatchery	1 (0.3%)	0	
Col River @ Priest Rapids			Priest Rapids Hatchery	4 (1.4%)	4	
Entiat R 46.0042			Entiat NFH	1 (0.3%)	0	
Wenatchee R 45.0030			Dryden Pond	3 (1%)	0	
Methow R 48.0002			Carlton Acclimation Pond	1 (0.3%)	0	
Central Columbia River (Bonneville Dam to McNary Dam) (5.9%)		Ltl White Salmon @ NFH	Ltl White Salmon NFH	4 (1.4%)	0	
		Umatilla R	Bonneville Hatchery	5 (1.7%)	5	
		Spring Cr 29.0159	Spring Cr NFH	6 (2.1%)	6	
		Klickitat Hatchery (YKFP)	Klickitat Hatchery (YKFP)	2 (0.7%)	0	

Release Domain	Release Region	Release Site	Rearing Location	CWTs Recovered	Number DITs
Columbia River (25.2%)	Lower Columbia River (mouth to Bonneville Dam) (3.8%)	Fallert Cr 27.0017	Fallert Cr Hatchery	2 (0.7%)	0
		Big Cr (Lower Col R)	Big Cr Hatchery	4 (1.4%)	4
		Cowlitz R 26.0002	Cowlitz Salmon Hatchery	2 (0.7%)	0
		Kalama R 27.0002	Kalama Falls Hatchery	2 (0.7%)	0
		Tanner Cr (Boneville)	Bonneville Hatchery	1 (0.3%)	0
	Snake River (9.4%)	Lyons Ferry Rel.Site	Lyons Ferry Hatchery	4 (1.4%)	0
		Big Canyon Acclim Pond	Lyons Ferry Hatchery	2 (0.7%)	0
		Snake L.Mon-Ltl Goos	Lyons Ferry Hatchery	4 (1.4%)	0
		Luke's Gulch A F	NPT Hatchery	1 (0.3%)	0
		Snake @ Hells Canyon Dam	Oxbow Hatchery	1 (0.3%)	0
		Couse Cr 35.2147	Lyons Ferry Hatchery	2 (0.7%)	0
		Snake R @ Pitt. Landing	Lyons Ferry Hatchery	3 (1%)	0
		Captain Johns Pd	Lyons Ferry Hatchery	6 (2.1%)	0
		Clwtr @ Lapwai Creek	NPT Hatchery	2 (0.7%)	0
NPT Hatchery	NPT Hatchery	2 (0.7%)	0		
California (5.6%)	Klamath - Trinity R (0.3%)	Trinity R Hatchery	Trinity R Hatchery	1 (0.3%)	0
	Central California Coast (2.4%)	Tiburon Net Pens	Feather R Hatchery	1 (0.3%)	0
		Wickland Oil Net Pen	Feather R Hatchery	1 (0.3%)	0
		San Pablo Bay Net Pens	Feather R Hatchery	2 (0.7%)	0
		Mare Island Net Pen	Coleman NFH	1 (0.3%)	0
		Wickland Oil Net Pen	Nimbus Fish Hatchery	2 (0.7%)	0
	Sacramento River (2.1%)	American R @ Sunrise	Nimbus Fish Hatchery	1 (0.3%)	0
		Sac R @ Discovery Park	Nimbus Fish Hatchery	2 (0.7%)	0
		Feather Boyds Pump Ramp	Feather R Hatchery	1 (0.3%)	0
		Coleman NFH	Coleman NFH	2 (0.7%)	0
	San Joaquin R (0.7%)	San Joaq Shrm Isl Net Pen	Mok R Fish Ins	2 (0.7%)	0
Total				286	121

Table 1.5 Total Chinook encountered (retained and released) by private-boat anglers logging their trips on voluntary trip reports (VTRs) during the Area 5 Chinook MSF from July 1 - August 15, 2013, with estimates of legal-size and overall (legal and sublegal) mark rates. AD = marked (adipose-clipped), UM = unmarked. Variances associated with size/mark-status proportions and mark rates are provided in parentheses.

Data Source	Effort and Sample Size	Legal		Sublegal		Totals	Mark Rate	
		AD	UM	AD	UM		Overall	Legal
Private VTR	234 1-trip VTRs, 576 Angler Trips	266	225	282	272	1045	0.52	0.54
Test fishery size/mark-status composition:		0.25	0.22	0.27	0.26			
Variance:		(0.00018)	(0.00016)	(0.00019)	(0.00018)			

As no test fishery was conducted in the Area 5 summer mark-selective fishery, we focused our efforts on increasing the return rate of VTRs and thus, the sample size of fish encountered by recreational fishers. This year we received 233 VTRs, accounting for 572 angler trips during the 1.5 month fishery. We used these data to estimate the size/mark-status proportions needed to produce Chinook encounter and mortality estimates for the Area 5 summer Chinook MSF.

Table 1.6 Summary of season-wide fishery impact estimates for the Area 5 Chinook MSF from July 1 – August 15, 2013. Release mortality rate = 0.15 for legal fish and 0.20 for sublegal fish. Values may not add up perfectly due to rounding error. AD = marked (adipose-clipped), UM = unmarked.

Size/mark group	Encounters	Retained	Released	Release Mortality	Total Mortality	Var	SE	95% CI	CV (%)
Legal AD	8,589	7,473	1,117	167	7,640	538,321	734	6,202 – 9,078	10
Legal UM	7,265	77	7,188	1,078	1,156	18,610	136	888 – 1,423	12
Sublegal AD	9,106	933	8,173	1,635	2,567	58,973	243	2,091 – 3,043	9
Sublegal UM	8,783	81	8,702	1,740	1,822	45,270	213	1,405 – 2,239	12
Total	33,743	8,564	25,179	4,621	13,185	661,174	813	11,591 – 14,778	6

Table 1.7 Comparison of modeled (FRAM model run 1213) and estimated total Chinook encounters for the Area 5 Chinook MSF from July 1 – August 15, 2013. Values may not add up perfectly due to rounding error. AD = marked (adipose-clipped), UM = unmarked.

Data Source	Group	Total Encounters	Legal	Sublegal	Landed Only
FRAM Encounters	UM	4,473	3,368	1,105	34
	AD	9,999	5,589	4,410	4,862
	Total	14,472	8,957	5,515	4,896
	% Marked	69	62	80	99
Estimated (Creel) Encounters	UM	16,048	7,265	8,783	159
	AD	17,695	8,589	9,106	8,405
	Total	33,743	15,854	17,889	8,564
	% Marked	52	54	51	98

Table 1.8 Comparison of modeled (FRAM model run 1213) and estimated total Chinook mortalities for the Area 5 Chinook MSF from July 1 – August 15, 2013. Values may not add up perfectly due to rounding error. AD = marked (adipose-clipped), UM = unmarked.

Mortality Category	FRAM Chinook Mortalities			Estimated Chinook Mortalities		
	UM	AD	Total	UM	AD	Total
Total (Landed + Released)	756	6,096	6,852	2,977	10,207	13,185
Released Legal	501	352	853	1,078	167	1,246
Released Sublegal	221	882	1,103	1,740	1,635	3,375
Landed Only	34	4,862	4,896	159	8,405	8,564

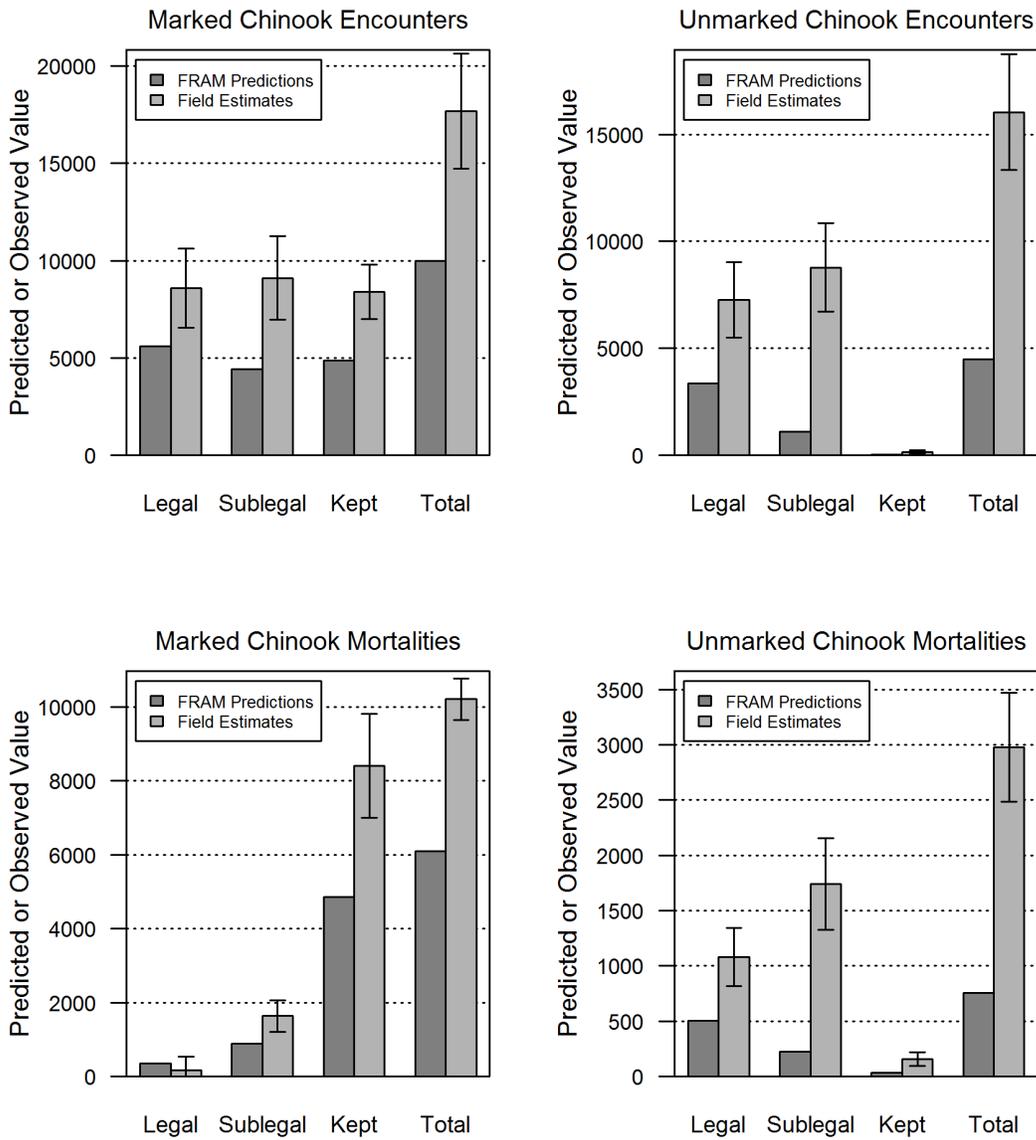


Figure 1.5 Comparison of modeled (using FRAM, model run 1213) and estimated total Chinook encounters and mortalities for the Area 5 Chinook MSF from July 1 - August 15, 2013. Error bars represent approximate 95% confidence intervals for field estimates.

Table 1.9 Summary of double-index tagged (DIT) Chinook kept by anglers, and estimated total mortality of unmarked DIT Chinook due to hook-and-release impacts resulting from the Area 5 Chinook MSF from July 1 - August, 2013. AD = marked (adipose-clipped), UM = unmarked.

Hatchery	Brood Year	DITs Obs'd	AD DIT Harvest		UM DIT Enc.	UM DIT Mortality		
			Est.	var(Est.)		Est.	var(Est.)	SE(Est.)
Big Creek Hatchery	2009	1	3.8	10.4	3.8	0.4	0.103	0.3
Big Creek Hatchery	2010	1	3.8	10.4	3.8	0.4	0.104	0.3
Big Creek Hatchery	2011	2	7.5	20.8	2.5	0.3	0.024	0.2
Bonneville Hatchery	2010	5	18.8	52.0	20.6	2.1	0.626	1.8
Clear Creek Hatchery	2009	7	22.6	62.4	26.4	6.0	11.024	5.2
Clear Creek Hatchery	2010	2	7.5	20.8	7.7	0.8	0.219	0.7
George Adams Hatchery	2009	3	11.3	31.2	11.3	1.1	0.313	1.0
George Adams Hatchery	2010	10	37.6	104.0	38.3	3.8	1.078	3.3
Grovers Creek Hatchery	2009	1	3.8	10.4	3.6	0.4	0.097	0.3
Grovers Creek Hatchery	2010	3	11.3	31.2	11.3	1.1	0.311	1.0
Chilliwack River Hatchery	2009	4	15.1	41.6	7.8	0.8	0.111	0.7
Chilliwack River Hatchery	2010	38	139.2	384.6	71.9	10.6	11.315	9.1
Chilliwack River Hatchery	2011	5	18.8	52.0	9.5	0.9	0.132	0.8
Kendall Creek Hatchery	2010	2	7.5	20.8	7.3	0.7	0.195	0.6
Marblemount Hatchery	2009	1	3.8	10.4	3.8	0.4	0.104	0.3
Marblemount Hatchery	2010	1	3.8	10.4	4.1	0.4	0.121	0.3
Priest Rapids Hatchery	2009	3	11.3	31.2	18.7	1.9	0.856	1.6
Priest Rapids Hatchery	2010	1	3.8	10.4	3.8	0.4	0.105	0.3
Quinault Lake Hatchery	2010	1	3.8	10.4	3.9	0.4	0.113	0.3
Samish Hatchery	2009	1	3.8	10.4	3.8	0.4	0.107	0.3
Samish Hatchery	2010	10	37.6	104.0	39.0	3.9	1.119	3.3
Soos Creek Hatchery	2009	5	18.8	52.0	19.7	2.0	0.571	1.7
Soos Creek Hatchery	2010	2	7.5	20.8	7.7	0.8	0.219	0.7
Spring Creek NFH	2010	2	7.5	20.8	7.5	0.8	0.207	0.6
Spring Creek NFH	2011	4	15.1	41.6	14.7	1.5	0.398	1.3
Wallace Hatchery	2009	4	15.1	41.6	15.0	1.5	0.413	1.3
Wallace Hatchery	2010	2	7.5	20.8	7.6	0.8	0.211	0.7
Total		121	447.8	1,237.1	375.1	44.3	30.196	37.9

Table 1.10 Monthly sample rates (Total retained Chinook sampled¹ / Estimated retained Chinook) in the Area 5 Chinook MSF from July 1 - August 15, 2013. AD = marked (adipose-clipped), UM = unmarked.

Time period			Estimated Retained Chinook			Number of Chinook sampled			Sample Rate
Month	Stat Weeks	Dates	AD	UM	Total	AD	UM	Total	
July	27-31	1 Jul - 4 Aug	6,991	129	7,120	1,968	37	2,005	28.2%
August	32-33	5 Aug - 15 Aug	1,414	29	1,444	267	4	271	18.8%
Season Total			8,405	159	8,564	2,235	41	2,276	26.6%

^{1/} Number of retained Chinook sampled includes all retained Chinook inspected for CWT's, from all sites sampled during the summer 2013 Area 5 Chinook MSF (creel estimates and fish sampled as part of baseline sampling).

Table 1.11 Fishery-total estimates of retained and released salmon (*other than Chinook*) for the Area 5 Chinook MSF from July 1 - August 15, 2013. Values may not add exactly due to rounding error. AD = marked (adipose-clipped), UM = unmarked.

Stat Week	Start Date	End Date	Retained Salmon				Released Salmon					
			Coho AD	Coho UM	Pink	Sockeye	Coho AD	Coho UM	Coho UK	Chum	Pink	Unk Salmon
27	1-Jul	7-Jul	927	73	687	0	133	1,467	444	0	298	504
28	8-Jul	14-Jul	1,197	81	1,821	0	203	2,272	316	0	970	280
29	15-Jul	21-Jul	469	12	716	0	49	596	196	0	314	253
30	22-Jul	28-Jul	473	10	1,141	0	56	692	143	3	596	648
31	29-Jul	4-Aug	412	8	2,223	0	29	394	32	0	524	892
32	5-Aug	11-Aug	344	12	1,807	6	29	484	32	0	390	464
33	12-Aug	15-Aug	757	0	2,783	7	11	823	104	0	495	379
Area 5 Season Total:			4,579	195	11,179	13	511	6,728	1,267	3	3,587	3,421
Variance:			292,654	3,969	2,687,163	20	22,063	763,718	92,154	4	416,527	296,338
Standard Error:			541	63	1,639	4	149	874	304	2	645	544
CV (%):			11.8%	32.3%	14.7%	33.1%	29.1%	13.0%	24.0%	76.6%	18.0%	15.9%
95% CI:			3,519 - 5,640	72 - 319	7,966 - 14,392	5 - 22	220 - 802	5,015 - 8,441	672 - 1,862	0 - 7	2,322 - 4,852	2,354 - 4,488

In-season observations suggested that sites and effort patterns did not change substantially in 2013 compared to past years. Therefore, we conducted only one boat survey during the 2013 Area 5 summer mark-selective Chinook fishery. Data from this survey were included with the average of the previous three years' site weights (same values that were used for the 2011 and 2012 Area 5 summer Chinook MSFs) to determine site selections and to compute catch and effort estimates. Sites in the summer 2013 sample frame remained the same and included: Olson's East Docks, Olson's West Docks, Olson's Ramp & Docks, Van Riper's North, Van Riper's South and Curley's Resort.

Table 1.12 Season-total estimates of Chinook encounters by size/mark-status and total estimates of angler effort, summarized for all seasons to date of the Area 5 summer Chinook MSF. Values may not add exactly due to rounding error.

Season Dates	Effort (Angler-trips)	Retained Chinook				Released Chinook				Total Encounters
		LM	LU	SM	SU	LM	LU	SM	SU	
Jul 5 - Aug 3, 2003	19,398	2,251	53	225	0	336	3,435	1,656	5,174	13,131
Jul 1 - Aug 10, 2004	25,174	2,706	0	194	0	404	4,017	1,167	2,462	10,950
Jul 1 - Aug 10, 2005	30,115	1,520	23	100	26	227	1,418	1,210	1,459	5,984
Jul 1 - Aug 14, 18-21, 2006	23,177	3,105	10	196	7	464	3,125	1,010	2,212	10,129
Jul 1 - Aug 9, 2007	18,830	2,969	23	280	94	444	2,509	1,371	1,118	8,808
Jul 1 - Aug 10, 2008	13,004	2,773	0	45	0	414	1,869	65	330	5,496
Jul 1 - Aug 6, 2009	23,662	4,843	78	1,115	362	724	6,210	9,823	14,309	37,463
Jul 1 - Aug 15, 2010	16,806	5,461	14	242	0	816	4,961	3,163	4,140	18,796
Jul 1 - Aug 15, 2011	24,848	4,259	70	276	22	636	9,275	1,593	5,319	21,450
Jul 1 - Aug 15, 2012	21,074	5,437	9	242	9	812	4,617	3,105	4,765	18,996
Jul 1 - Aug 15, 2013	25,725	7,473	77	933	81	1,117	7,188	8,173	8,702	33,743

2) Marine Area 6 Summer Mark-Selective Chinook Fishery

The Washington Department of Fish and Wildlife (WDFW) implemented an eleventh consecutive summer Chinook MSF in Marine Area 6 from July 1 through August 15 2013. WDFW's Puget Sound Sampling Unit (PSSU) implemented a comprehensive sampling program consisting of dockside angler interviews with catch sampling ("Baseline Sampling" approach; see WDFW 2012a for details) along with intensive efforts to distribute and collect voluntary trip reports (VTRs) from the angling public. We maintained our enhanced VTR program in an effort to improve the return rate of voluntary trip reports, which provide estimates of Chinook encounter rates by size class (legal or sublegal) and mark status (ad-marked or unmarked). An additional WDFW technician was hired to work exclusively on distributing and collecting VTRs from the angling public in Area 6. This technician, along with the dockside samplers, also educated anglers about the VTR program and salmon species identification in a focused effort to increase the sample size of VTR-based encounter data.

Unlike the other survey designs, Baseline Sampling does not provide a means for generating in-season or immediate post-season estimates of fishery total catch and effort. These estimates will be available approximately one year after the close of the fishery through the WDFW Catch Record Card (CRC) program. Once available, CRC-based catch estimates will be used to generate estimates of total Chinook encounters and mortalities by size and mark-status using the methods provided in WDFW & NWIFC (2013b). Thus, while these descriptors of MSF impacts are not presented in the present document, they will be available at a future time.

Table 2.1 summarizes the parameters estimated and the sampling activities associated with each parameter. Specific procedures used for collecting these data and estimating critical data parameters are presented in detail in our separate Methods Report (WDFW 2012a). In this section we present results from our monitoring activities during the Area 6 summer Chinook MSF from July 1 through August 15, 2013, including relative catch and effort patterns over the season based on the assumption that baseline-sampling observations of these parameters are good indicators of associated fishery-wide trends.

Table 2.1 Sampling/estimation details on target parameters associated with the overall Area 6 summer mark-selective fishery monitoring program.

Activity	Focal Parameter(s)	Secondary Parameter(s)	Sample Unit(s)	Finest Estimation Time Step	Comments
Dockside Angler Interviews (Baseline Sampling)	Observed (in-sample) fishing effort (boat & angler trips); kept and released fish.	Catch rates (CPUE); length, age, and CWT composition of harvest ¹ ; collection of angler fishing methods.	Angler trip; kept fish; reported fish release	Week	Observed catch per angler trip and species composition data obtained from baseline sampling will ultimately be combined with Catch Record Card (CRC) data to produce fishery-total estimates at a later time (approximately one year following the fishery).
Voluntary Trip Reports (VTRs)	Size (legal/sublegal) and mark-status composition (marked, unmarked) of encountered Chinook	Encounter data for non-Chinook species (e.g., coho) that the angler may record on the VTR form	Fish encounter	Season	When CRC-based retained Chinook estimates become available VTR data will be used in the estimation of total Chinook encounters by size/mark group (LM = 48%, LU = 15%, SM = 23%, SU = 14%; Table 2.5), along with associated impacts, using the methods described in WDFW & NWIFC (2013b).
Overall Fishery Impacts Estimation	Total Chinook encounters and mortalities, by size/mark-status group	Ratios of encounters and mortalities per kept Chinook	N/A	Season	Will be estimated at a later date using the CRC-based retained Chinook estimate, when it becomes available.
Coded-wire tag (CWT) Impacts Estimation	Marked/unmarked double-index tag (DIT) encounters and mortalities	N/A	N/A	Season	Will be estimated at a later date using the CRC-based retained Chinook estimate, when it becomes available. The temporal resolution of DIT impacts is constrained by the total number of tags recovered.

¹ The length and CWT composition of landed catch was assessed on a season-wide basis for impact estimation.

Table 2.2 Observations of fishing effort, salmon harvest, and reported salmon releases, by week, for the Area 6 Chinook MSF from July 1 - August 15, 2013. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates. AD = marked (adipose-clipped), UM = unmarked, UK = unknown mark status.

Month	Stat Week	Effort		Retained Fish					Released Fish								
		Boats	Anglers	Chinook		Coho		Pink	Chinook			Coho			Chum	Pink	Unknown Salmon
				AD	UM	AD	UM		AD	UM	UK	AD	UM	UK			
July	27	437	919	417	0	48	5	412	231	372	373	6	203	45	0	428	198
	28	337	704	342	2	83	5	694	130	293	253	25	192	17	1	623	76
	29	230	475	205	0	14	0	59	56	91	158	1	10	4	0	22	55
	30	264	558	302	0	19	1	206	151	100	123	0	20	2	0	88	35
	31	273	545	183	0	11	1	422	24	102	28	7	26	2	0	146	15
August	32	146	313	60	0	8	0	301	12	46	16	2	5	0	0	132	4
	33	90	169	32	1	13	1	147	6	33	3	4	6	0	0	44	4
Area 6 Season Total:		1,777	3,683	1,541	3	196	13	2,241	610	1,037	954	45	462	70	1	1,483	387

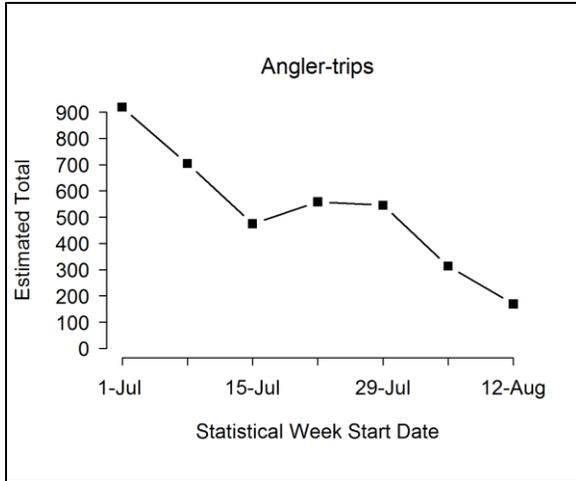


Figure 2.1 Temporal patterns in fishing effort during the Area 6 Chinook MSF from July 1 - August 15, 2013. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates.

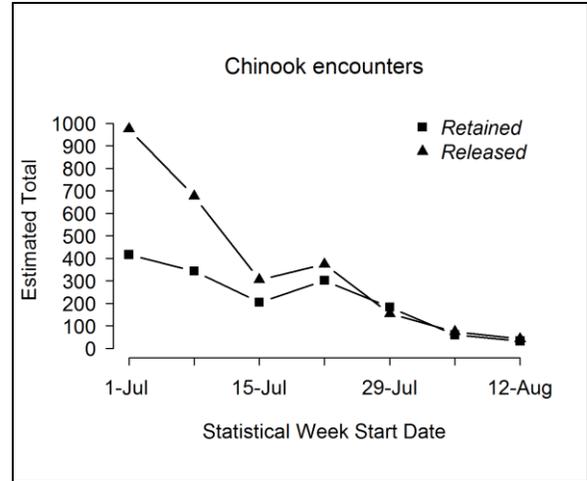


Figure 2.3 Temporal patterns in Chinook encounters (retained and released) during the Area 6 Chinook MSF from July 1 - August 15, 2013. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates.

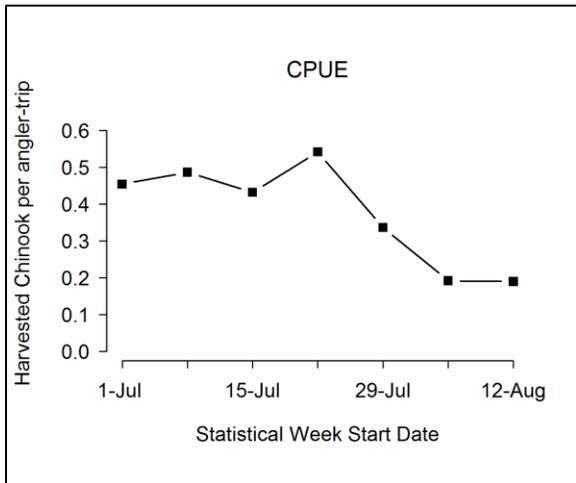


Figure 2.2 Temporal patterns in CPUE (landed Chinook per angler trip) during the Area 6 Chinook MSF from July 1 - August 15, 2013. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates.

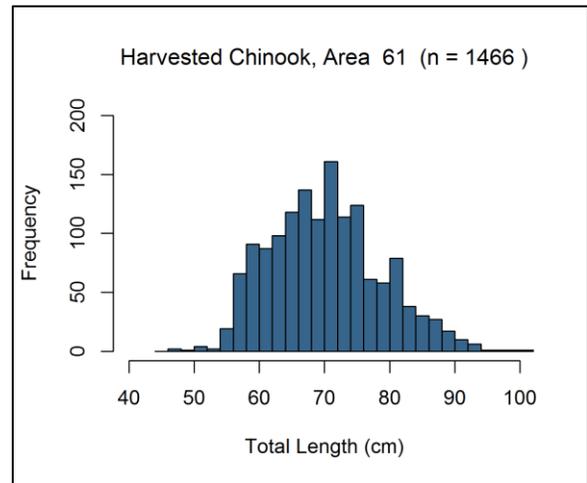


Figure 2.4 Length-frequency distributions of retained marked Chinook sampled in dockside angler interviews during the Area 6 Chinook MSF from July 1 - August 15, 2013.

Table 2.3 Summary of total length samples from retained Chinook salmon collected during dockside angler interviews in the Area 6 Chinook MSF from July 1 - August 15, 2013.

Mark Type	Number Sampled		
	Legal-size	Sublegal-size	Total
Marked	1,442	24	1,466
Unmarked	2	1	3
Total	1,444	25	1,469

Table 2.4 Summary of coded-wire tags recovered from Chinook salmon harvested during the Area 6 Chinook MSF from July 1 - August 15, 2013. The field “Number DITs” corresponds to the number of tags that belonged to double-index tag groups.

Release Domain	Release Region	Release Site	Rearing Location	CWTs Recovered	Number DITs
British Columbia (13.9%)	Fraser River – Thompson River (8.9%)	Shuswap R Low	Shuswap River, Middle,	2 (2.5%)	0
		Chilliwack R	Chilliwack River H	4 (5.1%)	4
		Harrison R	Chehalis River H	1 (1.3%)	0
	Georgia Strait (5.1%)	Cowichan R	Cowichan River H	4 (5.1%)	0
Washington (78.5%)	Northern Washington (11.4%)	Friday Cr 03.0017	Samish Hatchery	3 (3.8%)	3
		East Sound Bay (SAN)	Glenwood Springs	3 (3.8%)	0
		Samish R 03.0005	Samish Hatchery	3 (3.8%)	3
	Hood Canal (24.1%)	Purdy Cr 16.0005	George Adams Hatchery	5 (6.3%)	5
		Finch Cr 16.0222	Hoodsport Hatchery	14 (17.7%)	0
	Northern Puget Sound (6.3%)	Whitehorse Springs	Whitehorse Pond	1 (1.3%)	0
		Wallace R 07.0940	Wallace R Hatchery	3 (3.8%)	0
		Whitehorse Springs	Stillaguamish Hatchery	1 (1.3%)	0
	Skagit River (3.8%)	Cascade R 03.1411	Marblemount Hatchery	2 (2.5%)	0
		Skagit R 03.0176	Marblemount Hatchery	1 (1.3%)	0
	Mid Puget Sound (26.6%)	Big Soos Cr 09.0072	Soos Creek Hatchery	2 (2.5%)	2
		Gorst Cr 15.0216	Gorst Cr Rearing Pond	5 (6.3%)	0
		Grovers Cr Hatchery	Grovers Creek Hatchery	10 (12.7%)	10
		Icy Cr 09.0125	Icy Creek Hatchery	1 (1.3%)	0
		Voight Cr Tr 10.0428	Voights Creek Hatchery	3 (3.8%)	0
S Puget Sound (6.3%)	Clear Cr 11.0013C	Clear Creek Hatchery	5 (6.3%)	5	
Columbia River (7.6%)	U Columbia R (1.3%)	Chelan R 47.0052	Chelan Falls Hatchery	1 (1.3%)	0
	Central Col R (5.1%)	Ltl White Salmon @ NFH	Ltl White Salmon NFH	1 (1.3%)	0
		Spring Cr 29.0159	Spring Creek NFH	3 (3.8%)	3
	Lower Col R (1.3%)	Big Cr (Lower Col R)	Big Creek Hatchery	1 (1.3%)	1
Total				79	36

Table 2.5 Total Chinook encountered (retained and released) by private-boat anglers logging their trips on voluntary trip reports (VTRs) during the Area 6 Chinook MSF from July 1 - August 15, 2013, with estimates of legal-size and overall (legal and sublegal) mark rates. AD = marked (adipose-clipped), UM = unmarked. Variances associated with size/mark-status proportions and mark rates are provided in parentheses.

Data Source	Effort and Sample Size	Legal		Sublegal		Totals	Mark Rate	
		AD	UM	AD	UM		Overall	Legal
Private VTR	224 1-trip VTRs, 424 Angler Trips	311	97	147	92	647	0.71	0.76
Combined size/mark-status composition:		0.48	0.15	0.23	0.14			
Variance:		(0.00039)	(0.00020)	(0.00027)	(0.00019)			

Table 2.6 List of sites sampled with the number of sampling events (site-days) during the Area 6 Chinook MSF from July 1 - August 15, 2013.

Location	Site-Days Sampled per Month		Total Site-Days	% of Total
	July (1-31)	August (1-15)		
Freshwater Bay Ramp	7	2	9	16.4%
Ediz Hook Port Angeles Public Ramp	25	11	36	65.5%
Port Angeles West Ramp	7	3	10	18.2%
Grand Total	39	16	55	100%

3) Marine Area 9 Summer Mark-Selective Chinook Fishery

The Washington Department of Fish and Wildlife (WDFW) implemented a seventh consecutive summer Chinook MSF in Marine Area 9 from July 16 through August 4, 2013. Originally scheduled to close on August 31, 2013, the fishery was closed early based on a joint decision between WDFW and the tribes, due to in-season total Chinook encounters estimates exceeding preseason modeled expectations. WDFW's Puget Sound Sampling Unit (PSSU) implemented an intensive monitoring program in Area 9 throughout the season in order to collect the data needed to estimate key parameters characterizing the fishery and its impacts on unmarked salmon. Sampling activities included intensive dockside creel sampling, on-the-water effort surveys, test fishing and collection of voluntary trip reports (VTRs) from the angling public. **Table 3.1** summarizes the parameters estimated and the sampling activities associated with each parameter. Specific procedures used for collecting these data and estimating critical data parameters are presented in detail in our separate Methods Report (WDFW 2012a). In this section we present results from our monitoring activities during the Area 9 summer Chinook MSF from July 16 through August 4, 2013.

Table 3.1 Sampling/estimation details on target parameters associated with the overall Area 9 summer mark-selective fishery monitoring program.

Activity	Focal Parameter(s)	Secondary Parameter(s)	Sample Unit(s)	Finest Estimation Time Step	Comments
Dockside Creel Sampling	Fishing effort (boat & angler trips); kept and released fish	Catch rates (CPUE); length, age, and CWT composition of harvest ¹ ; collection of angler fishing methods.	Angler trip; kept fish; reported fish release	One week	Within weeks, estimates were produced by day-type strata (weekday/weekend). Each week we sampled every Friday, Saturday and Sunday, and we randomly selected $n=2$ out of $N=4$ weekdays (Monday-Thursday) for sampling.
On-the-water Surveys	Proportion of total angler effort that uses sample-frame sites (i.e., site “size measures”) versus out-of-frame sites.	Total on-water boat and angler counts at assumed peak effort time interval (instantaneous count); spatial distribution of recreational fishing boats in the area.	Boats and anglers	Month	A total of 3 boat surveys (1 weekday and 2 weekend) were conducted during the 20 day fishery.
Test Fishing	Size (legal/sublegal) and mark-status (marked/unmarked) composition of encountered Chinook	Chinook length, age, and DNA-based ² stock composition; species composition of non-Chinook encounters	Fish encounter	Season	Given sufficient sample size ($n=44$) of fish caught in the test fishery, we used the test fishery data only to estimate the size/mark-status proportions (LM = 61%, LU = 14%, SM = 20%, SU = 5%; Table 3.5) needed to produce encounter and mortality estimates.
Voluntary Trip Reports (VTRs)	Size (legal/sublegal) and mark-status (marked/unmarked) composition of encountered Chinook	Encounter data for non-Chinook species (e.g., coho) that the angler may record on the VTR form	Fish encounter	Season	The size/mark-status proportions of VTR data (LM = 61%, LU = 9%, SM = 23%, SU = 7%; Table 3.6) were very similar to those of the test fishery data. However, VTR data were not used in impact estimation due to the assumed higher data quality and sufficient sample sizes of the test fishery data.
Overall Fishery Impacts Estimation	Total Chinook encounters and mortalities, by size/mark-status group	Ratios of encounters and mortalities per kept Chinook	N/A	Season	Estimated on a monthly time step but considered at the season-total level.
Coded-wire tag (CWT) Impacts Estimation	Marked/unmarked double-index tag (DIT) encounters and mortalities	N/A	N/A	Season	The temporal resolution of DIT impacts is constrained by the total number of tags recovered.

¹ The length and CWT composition of landed catch was assessed on a season-wide basis for impact estimation.

² Though samples were collected, DNA-based estimates of stock composition are not yet available for this fishery.

Table 3.2 Estimates of total fishing effort and total salmon catch (harvest and releases) during the Area 9 Chinook MSF from July 16 - August 4, 2013. Values may not add exactly due to rounding error. AD = marked (adipose-clipped), UM = unmarked.

Month	Stat Week	Start Date	End Date	Estimated Effort		Est. Retained Chinook		Est. Released Chinook		Total Est. Chinook Encounters
				Boats	Anglers	AD	UM	AD	UM	
Jul - Aug	29	16-Jul	21-Jul	3,795	8,490	2,685	5	1,396	902	4,989
	30	22-Jul	28-Jul	3,028	6,579	1,043	0	542	352	1,938
	31	29-Jul	4-Aug	2,408	5,422	973	14	506	315	1,808
Private Fleet Estimates:				9,230	20,491	4,702	18	2,445	1,570	8,735
Charter Fleet:				2	10	4	0	2	1	7
Area 9 Season Total Estimates:				9,232	20,501	4,706	18	2,447	1,571	8,742
Variance:				453,072	2,359,720	426,983	30	2,191,764	330,307	2,593,204
Standard Error:				673	1,536	653	5	1,480	575	1,610
CV (%):				7.3%	7.5%	13.9%	29.9%	60.5%	36.6%	18.4%
95% CI:				7,913-10,551	17,490-23,512	3,425-5,987	8-29	0-5,348	445-2,698	5,586-11,898

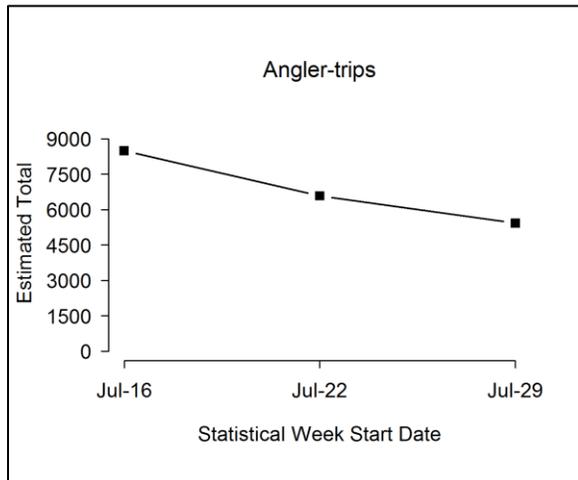


Figure 3.1 Temporal patterns in fishing effort during the Area 9 Chinook MSF from July 16 - August 4, 2013.

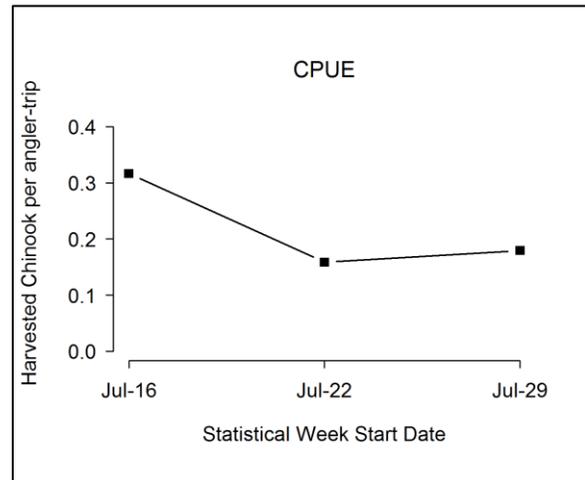


Figure 3.2 Temporal patterns in CPUE (landed Chinook per angler trip) during the Area 9 Chinook MSF from July 16 - August 4, 2013.

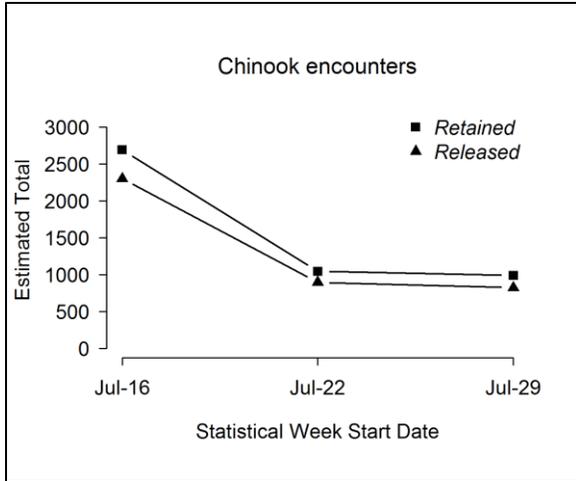


Figure 3.3 Temporal patterns in Chinook encounters (retained and released) during the Area 9 Chinook MSF from July 16 - August 4, 2013.

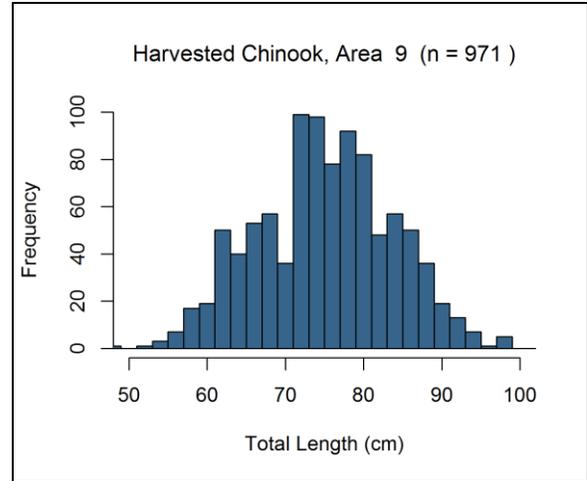


Figure 3.4 Length-frequency distribution of retained marked Chinook sampled in dockside angler interviews during the Area 9 Chinook MSF from July 16 - August 4, 2013.

Table 3.3 Summary of total length samples from retained Chinook salmon collected during dockside angler interviews in the Area 9 Chinook MSF from July 16 - August 4, 2013.

Mark Type	Number Sampled		
	Legal-size	Sublegal-size	Total
Marked	963	8	971
Unmarked	2	0	2
Total	965	8	973

Table 3.4 Summary of coded-wire tags recovered from Chinook salmon harvested during the Area 9 Chinook MSF from July 16 - August 4, 2013. The field “Number DITs” corresponds to the number of recovered CWTs that belonged to double-index tag groups.

Release Domain	Release Region	Release Site	Rearing Location	CWTs Recovered	Number DITs
British Columbia (12.9%)	Fraser River – Thompson River (9.7%)	R-Harrison R	H-Chehalis River H	1 (1.6%)	0
		R-Chilliwack R	H-Chilliwack River H	5 (8.1%)	5
	Georgia Strait (3.2%)	R-Cowichan R	H-Cowichan River H	2 (3.2%)	0
Washington (83.9%)	Northern Washington (6.5%)	Friday Cr 03.0017	Samish Hatchery	2 (3.2%)	2
		Samish R 03.0005	Samish Hatchery	1 (1.6%)	1
		East Sound Bay (SAN)	Glenwood Springs	1 (1.6%)	0
	Hood Canal (16.1%)	Purdy Cr 16.0005	George Adams Hatchery	3 (4.8%)	3
		Finch Cr 16.0222	Hoodsport Hatchery	7 (11.3%)	0
	N Puget Sound (6.5%)	Wallace R 07.0940	Wallace R Hatchery	4 (6.5%)	2
	Mid Puget Sound (41.9%)	Gorst Cr 15.0216	Gorst Cr Rearing Pond	11 (17.7%)	0
		Grovers Cr Hatchery	Grovers Cr Hatchery	8 (12.9%)	8
		Big Soos Cr 09.0072	Soos Creek Hatchery	2 (3.2%)	2
		Icy Cr 09.0125	Icy Cr Hatchery	2 (3.2%)	0
	Southern Puget Sound (12.9%)	Voight Cr Tr 10.0428	Voights Cr Hatchery	3 (4.8%)	0
		Clear Cr 11.0013C	Clear Creek Hatchery	7 (11.3%)	7
		Kalama Cr 11.0017	Kalama Cr Hatchery	1 (1.6%)	0
Columbia River (3.2%)	Central Col R (1.6%)	Spring Cr 29.0159	Spring Cr NFH	1 (1.6%)	1
	Lower Col R (1.6%)	Coweeman R 26.0003	NA	1 (1.6%)	0
Total				62	31

Table 3.5 Composition of test fishery Chinook encounters and associated mark-rate and size/mark-status proportion estimates for the Area 9 Chinook MSF from July 16 - August 4, 2013. AD = marked (adipose-clipped), UM = unmarked. Variances associated with size/mark-status proportions and mark rates are provided in parentheses.

Stat Week	Fishing Effort		Legal		Sublegal		Total
	Days	Hours Fished	AD	UM	AD	UM	
29	4	14.0	9	2	2	1	14
30	4	14.4	9	1	4	0	14
31	5	19.8	9	3	3	1	16
Total	13	48.2	27	6	9	2	44
Size/mark-status composition:			0.61 (0.0055)	0.14 (0.0027)	0.20 (0.0038)	0.05 (0.0010)	
Legal size mark rate:			0.82 (0.0046)				
Overall mark rate:			0.82 (0.0035)				

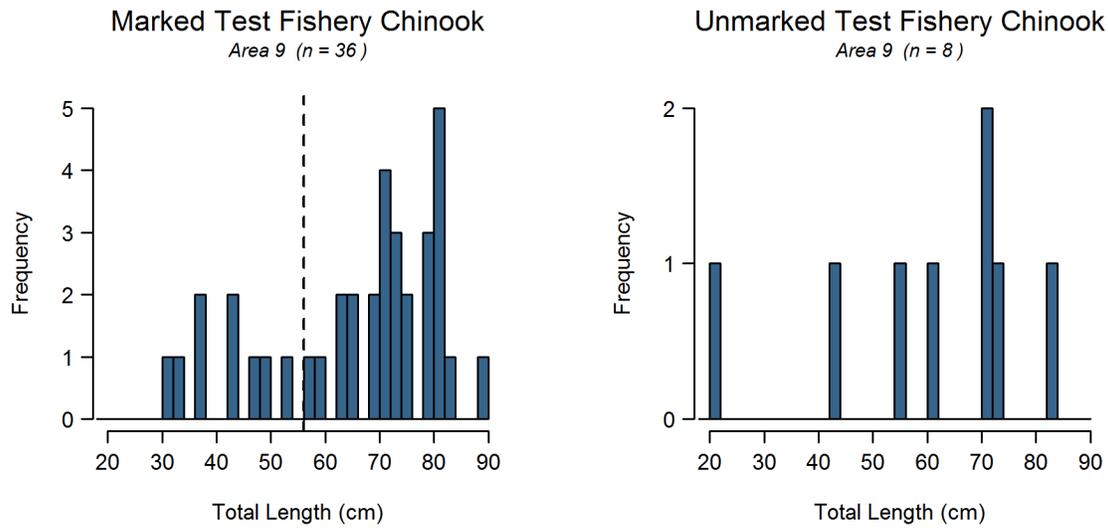


Figure 3.5 Length-frequency distributions of marked (left panel) and unmarked (right panel) Chinook encountered by test fishers during the Area 9 Chinook MSF from July 16 - August 4, 2012. The vertical dashed line in the left panel corresponds to the legal size limit (22 in or 56 cm).

Table 3.6 Total Chinook encountered (retained and released) by private-boat and charter boat anglers logging their trips on voluntary trip reports (VTRs), with estimates of legal-size and overall (legal and sublegal) mark rates during the Area 9 Chinook MSF from July 16 - August 4, 2013. AD = marked (adipose-clipped), UM = unmarked. Variances associated with size/mark-status proportions and mark rates are provided in parentheses.

Data Source	Effort and Sample Size	Legal		Sublegal		Totals	Mark Rate	
		AD	UM	AD	UM		Overall	Legal
Charter Boat VTR	2 1-trip VTRs, 10 Angler Trips	4	0	0	0	4	1.00	1.00
Private Boat VTR	17 1-trip VTRs, 44 Angler Trips	23	4	10	3	40	0.83	0.85
Pooled VTR	19 Days, 54 Angler Trips	27	4	10	3	44	0.84	0.87
Size/mark-status composition:		0.61	0.09	0.23	0.07			
Variance:		(0.00551)	(0.00192)	(0.00408)	(0.00148)			

Size and mark-status proportions were very similar between private boat VTR and test fishery data ($\chi^2=0.78$, $df=3$, $p\text{-value}=0.853$). However, based on sufficient sample size and assumed higher data quality, we used only test fishery data to estimate the size/mark-status proportions needed to produce Chinook encounter and mortality estimates for the Area 9 summer Chinook MSF.

Table 3.7 Summary of season-wide fishery impact estimates for the Area 9 Chinook MSF from July 16 - August 4, 2013. Release mortality rate = 0.15 for legal fish and 0.20 for sublegal fish. Values may not add up perfectly due to rounding error. AD = marked (adipose-clipped), UM = unmarked.

Size/mark group	Encounters	Retained	Released	Release Mortality	Total Mortality	Var	SE	95% CI	CV (%)
Legal AD	5,364	4,667	697	105	4,772	460,710	679	3,441 – 6,102	14
Legal UM	1,192	18	1,174	176	194	5,657	75	47 - 342	39
Sublegal AD	1,789	39	1,750	350	389	15,712	125	143 - 634	32
Sublegal UM	397	0	397	79	79	3,189	56	0 - 190	71
Total	8,742	4,724	4,017	710	5,434	485,267	697	4,069 – 6,799	13

Table 3.8 Comparison of modeled (FRAM model run 1213) and estimated total Chinook encounters for the Area 9 Chinook MSF from July 16 - August 4, 2013. Values may not add up perfectly due to rounding error. AD = marked (adipose-clipped) and UM = unmarked.

Data Source	Group	Total Encounters	Legal	Sublegal	Landed Only
FRAM Encounters	UM	1,780	870	910	17
	AD	11,068	5,658	5,410	4,923
	Total	12,848	6,528	6,320	4,940
	% Marked	86	87	86	100
Estimated (Creel) Encounters	UM	1,589	1,192	397	18
	AD	7,152	5,364	1,789	4,706
	Total	8,742	6,556	2,186	4,724
	% Marked	82	82	82	100

Table 3.9 Comparison of modeled (FRAM model run 1213) and estimated total Chinook mortalities for the Area 9 Chinook MSF from July 16 - August 4, 2013. Values may not add up perfectly due to rounding error. AD = marked (adipose-clipped) and UM = unmarked.

Mortality Category	FRAM Chinook Mortalities			Estimated Chinook Mortalities		
	UM	AD	Total	UM	AD	Total
Total (Landed + Released)	327	6,362	6,689	274	5,160	5,434
Released Legal	128	357	485	176	105	281
Released Sublegal	182	1,082	1,264	79	350	429
Landed Only	17	4,923	4,940	18	4,706	4,724

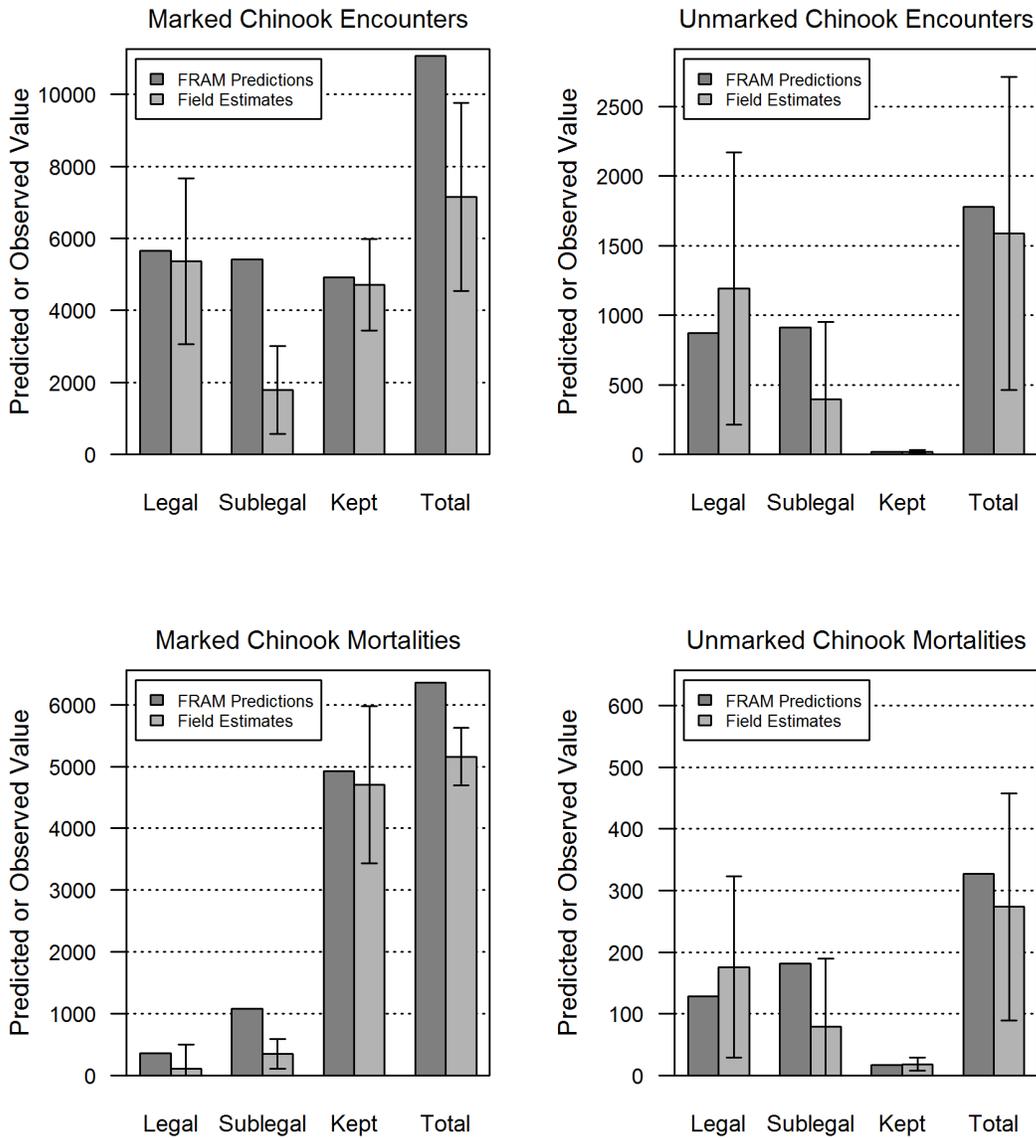


Figure 3.6 Comparison of modeled (using FRAM, model run 1213) and estimated total Chinook encounters and mortalities for the Area 9 Chinook MSF from July 16 - August 4, 2013. Error bars represent approximate 95% confidence intervals for field estimates.

Table 3.10 Summary of double-index tagged (DIT) Chinook kept by anglers, and estimated total mortality of unmarked DIT Chinook due to hook-and-release impacts resulting from the Area 9 Chinook MSF from July 16 - August 4, 2013. AD = marked (adipose-clipped), UM = unmarked.

Hatchery	Brood Year	DITs Obs'd	AD DIT Harvest		UM DIT Enc.	UM DIT Mortality		
			Est.	var(Est.)		Est.	var(Est.)	SE(Est.)
Clear Creek Hatchery	2009	3	14.6	56	14.6	1.5	0.565	1.3
Clear Creek Hatchery	2010	4	19.4	74.7	19.9	2	0.789	1.8
George Adams Hatchery	2009	1	4.9	18.7	4.9	0.5	0.187	0.4
George Adams Hatchery	2010	2	9.7	37.4	9.9	1	0.388	0.9
Grovers Creek Hatchery	2009	6	29.1	112.1	28.1	2.8	1.044	2.5
Grovers Creek Hatchery	2010	2	9.7	37.4	9.7	1	0.372	0.9
Chilliwack River Hatchery	2010	5	24.3	93.4	11.9	1.2	0.223	1.1
Samish Hatchery	2009	1	4.9	18.7	4.9	0.5	0.191	0.4
Samish Hatchery	2010	2	9.7	37.4	10.1	1	0.402	0.9
Soos Creek Hatchery	2009	1	4.9	18.7	5.1	0.5	0.205	0.5
Soos Creek Hatchery	2010	1	4.9	18.7	5	0.5	0.197	0.4
Spring Creek NFH	2010	1	4.9	18.7	4.8	0.5	0.186	0.4
Wallace Hatchery	2010	2	9.7	37.4	9.8	1	0.38	0.9
Total		31	150.4	579.1	138.6	13.9	5.129	12.3

Table 3.11 Monthly sample rates (Total retained Chinook sampled¹ / Estimated retained Chinook) in the Area 9 Chinook MSF from July 16 - August 4, 2013.

Time period			Estimated Retained Chinook			Number of Chinook sampled			Sample Rate
Month	Stat Weeks	Dates	AD	UM	Total	AD	UM	Total	
July	29-30	16 Jul - 28 Jul	3,729	5	3,733	731	0	731	19.6%
August	31	29 Jul - 4 Aug	973	14	987	240	2	242	24.5%
Season Total			4,702	18	4,720	971	2	973	20.6%

^{1/} Number of retained Chinook sampled includes all retained Chinook inspected for CWT's, from all sites sampled during the summer 2013 Area 9 Chinook MSF (creel estimates and the fish sampled as part of baseline sampling).

Table 3.12 Fishery-total estimates of retained and released salmon (*other than Chinook*) in the Area 9 Chinook MSF from July 16 - August 4, 2013. Values may not add exactly due to rounding error. AD = marked (adipose-clipped), UM = unmarked, UK = unknown mark-status.

Week	Start Date	End Date	Retained Salmon				Released Salmon							
			Coho AD	Coho UM	Pink	Chum	Coho AD	Coho UM	Coho UK	Pink	Chum	Sockeye	Cutthroat Trout	Unk Salmon
29	16-Jul	21-Jul	317	113	94	0	60	23	89	33	4	4	0	293
30	22-Jul	28-Jul	259	139	749	5	49	37	54	114	4	0	0	282
31	29-Jul	4-Aug	264	137	769	0	80	31	52	144	5	0	6	164
Area 9 Season Total:			839	389	1,612	5	189	92	195	291	13	4	6	739
Variance:			25,292	4,658	48,535	18	2,825	372	851	2,153	19	7	25	23,473
Standard Error:			159	68	220	4	53	19	29	46	4	3	5	153
CV (%):			18.9%	17.6%	13.7%	82.9%	28.1%	21.0%	15.0%	15.9%	34.2%	70.8%	84.9%	20.7%
95% CI:			528 - 1,151	255 - 522	1,180 - 2,044	0 - 13	85 - 293	54 - 130	137 - 252	200 - 382	4 - 21	0 - 9	0 - 16	438 - 1,039

Table 3.13 Summary of the total number of anglers intercepted in Area 9 during on-the-water surveys conducted from July 16 - August 4, 2013. Sites in bold represent those included in the dockside sample frame.

Site Name	Weekday Anglers	Season Total (unadjusted) Size Measure	Weekend Anglers	Season Total (unadjusted) Size Measure
Armeni Public Ramp	0	0.000	2	0.003
Bayside Marina/Drystack	2	0.011	4	0.006
Brownsville Marina/Dock/Ramp	0	0.000	5	0.008
Bush Point Ramp	0	0.000	7	0.011
Camano Island State Park Ramp	0	0.000	5	0.008
Coupsville Public Ramp	2	0.011	0	0.000
Dagmar's Landing, Forklift Launch	3	0.016	5	0.008
Driftwood Key Marina	3	0.016	9	0.014
Edmonds Boat Basin (Public Sling)	2	0.011	17	0.027
Edmonds Dry Storage	3	0.016	21	0.033
Edmonds Guest Dock	0	0.000	5	0.008
Edmonds Marina	0	0.000	14	0.022
Eglon Public Ramp	2	0.011	3	0.005
Elliot Bay Marine	3	0.016	0	0.000
Everett Marina	2	0.011	22	0.035
Everett Ramp	39	0.209	119	0.187
Everett Sling	1	0.005	8	0.013
Fort Casey Public Ramp/Keystone	31	0.166	88	0.139
Fort Flagler Ramps-Marrowstone Is	6	0.032	7	0.011
Fort Worden Ramp	9	0.048	23	0.036
Hadlock Public Ramp	0	0.000	8	0.013
Hat Island Marina	2	0.011	0	0.000
Kingston Marina	2	0.011	0	0.000
Kingston Public Ramp	3	0.016	28	0.044
Armeni Public Ramp	0	0.000	2	0.003
Lagoon PT Moorage	4	0.021	4	0.006
Langley Marina/Ramp	0	0.000	3	0.005
Mukilteo Ramp	12	0.064	48	0.076
Mutiny Bay Public Ramp	0	0.000	7	0.011
Mystery Bay Dock/Moorage	2	0.011	0	0.000
Point Hudson Marina	2	0.011	6	0.009
Port Hadlock Marina	2	0.011	3	0.005
Port Hadlock Ramp	2	0.011	0	0.000
Port Ludlow Marina/Beach Launch	0	0.000	4	0.006
Port Townsend Boat Haven (Docks)	0	0.000	10	0.016
Port Townsend Boat Haven Ramp	29	0.155	52	0.082
Possession Waterfront Beach Park	2	0.011	2	0.003
Private	4	0.021	49	0.077
Salmon Club Ramp	0	0.000	1	0.002
Salsbury County Park Ramp	9	0.048	27	0.043
Shilshole Marina	1	0.005	4	0.006
Shilshole Public Ramp	3	0.016	7	0.011
Skyline Marina/Sling (Flounder Bay)	0	0.000	3	0.005
Unknown	0	0.000	5	0.008
Area 9 Total Anglers	187	1.000	635	1.000

Table 3.14 Season-total estimates of Chinook encounters by size/mark-status and total estimates of angler effort, summarized for all seasons to date of the Area 9 summer Chinook MSF. Values may not add exactly due to rounding error.

Season Dates	Effort (Angler-trips)	Retained Chinook				Released Chinook				Total Encounters
		LM	LU	SM	SU	LM	LU	SM	SU	
Jul 16 - Jul 31, 2007	18,160	5,094	13	146	20	711	1,111	1,286	317	8,697
Jul 16 - Aug 15, 2008	20,399	4,035	3	10	0	597	1,608	3,212	3,826	13,290
Jul 16 - Aug 31, 2009	42,219	3,090	20	139	0	462	1,272	8,256	2,905	16,143
Jul 16 - Aug 31, 2010	31,200	5,282	33	10	6	740	2,125	750	249	9,194
Jul 16 - Aug 31, 2011	37,862	2,285	19	78	6	339	1,142	2,150	1,070	7,090
Jul 16 - Aug 19, 2012	24,886	6,972	12	101	2	1,039	2,351	5,168	4,721	20,366
Jul 16 - Aug 4, 2013	20,501	4,667	18	39	0	697	1,174	1,750	397	8,742

4) Marine Area 10 Summer Mark-Selective Chinook Fishery

The Washington Department of Fish and Wildlife (WDFW) implemented a seventh consecutive summer Chinook MSF in Marine Area 10 from July 16 through August 18, 2013. Originally scheduled to close on August 31, 2012, the fishery was closed early based on a joint decision between WDFW and the tribes, due to in-season total Chinook encounters estimates exceeding preseason modeled expectations. WDFW's Puget Sound Sampling Unit (PSSU) implemented an intensive monitoring program in Area 10 throughout the season in order to collect the data needed to estimate key parameters characterizing the fishery and its impacts on unmarked salmon. Sampling activities included intensive dockside creel sampling, on-the-water effort surveys, test fishing and collection of voluntary trip reports (VTRs) from the angling public. **Table 4.1** summarizes the parameters estimated and the sampling activities associated with each parameter. Specific procedures used for collecting these data and estimating critical data parameters are presented in detail in our separate Methods Report (WDFW 2012a). In this section we present results from our monitoring activities during the Area 10 summer Chinook MSF from July 16 through August 18, 2013.

Table 4.1 Sampling/estimation details on target parameters associated with the overall Area 10 summer mark-selective fishery monitoring program.

Activity	Focal Parameter(s)	Secondary Parameter(s)	Sample Unit(s)	Finest Estimation Time Step	Comments
Dockside Creel Sampling	Fishing effort (boat & angler trips); kept and released fish	Catch rates (CPUE); length, age, and CWT composition of harvest ¹ ; collection of angler fishing methods.	Angler trip; kept fish; reported fish release.	One week	Within weeks, estimates were produced by day-type strata (weekday/weekend). Each week we sampled every Friday, Saturday and Sunday, and we randomly selected $n=2$ out of $N=4$ weekdays (Monday-Thursday) for sampling.
On-the-water Surveys	Proportion of total angler effort that uses sample-frame sites (i.e., site “size measures”) versus out-of-frame sites.	Total on-water boat and angler counts at assumed peak effort time interval (instantaneous count); spatial distribution of recreational fishing boats in the area.	Boats and anglers	Month	A total of 6 boat surveys (2 weekday and 4 weekend) were conducted during the 1 month fishery.
Test Fishing	Size (legal/sublegal) and mark-status composition (marked, unmarked) of encountered Chinook	Chinook length, age, and DNA-based ² stock composition; species composition of non-Chinook encounters	Fish encounter	Season	Given sufficient sample size ($n=80$) of fish caught in the test fishery, we used the test fishery data only to estimate the size/mark-status proportions (LM = 49%, LU = 4%, SM = 28%, SU = 20%; Table 4.5) needed to produce encounter and mortality estimates.
Voluntary Trip Reports (VTRs)	Size (legal/sublegal) and mark-status composition (marked, unmarked) of encountered Chinook	Encounter data for non-Chinook species (e.g., coho) that the angler may record on the VTR form	Fish encounter	Season	The size/mark-status proportions of VTR data (LM = 61%, LU = 7%, SM = 21%, SU = 11%; Table 3.6) were similar to those of the test fishery data. However, VTR data were not used in impact estimation due to the assumed higher data quality and sufficient sample sizes of the test fishery data.
Overall Fishery Impacts Estimation	Total Chinook encounters and mortalities, by size/mark-status group	Ratios of encounters and mortalities per kept Chinook	N/A	Season	Estimated on a monthly time step but considered at the season-total level.
Coded-wire tag (CWT) Impacts Estimation	Marked/unmarked double-index tag (DIT) encounters and mortalities	N/A	N/A	Season	The temporal resolution of DIT impacts is constrained by the total number of tags recovered.

¹ The length and CWT composition of landed catch was assessed on a season-wide basis for impact estimation.² Though samples were collected, DNA-based estimates of stock composition are not yet available for this fishery.

Table 4.2 Estimates of total fishing effort and total salmon catch (harvest and releases) during the Area 10 Chinook MSF from July 16 - August 18, 2013. Values may not add exactly due to rounding error. AD = marked (adipose-clipped), UM = unmarked.

Month	Stat Week	Start Date	End Date	Estimated Effort		Est. Retained Chinook		Est. Released Chinook		Total Est. Chinook Encounters
				Boats	Anglers	AD	UM	AD	UM	
Jul	29	16-Jul	21-Jul	1,641	3,374	429	7	325	228	990
	30	22-Jul	28-Jul	2,266	4,570	512	4	388	276	1,182
	31	29-Jul	4-Aug	2,183	4,493	496	0	376	272	1,145
Aug	32	5-Aug	11-Aug	2,898	6,040	995	5	754	540	2,294
	33	12-Aug	18-Aug	4,267	8,782	1,060	7	803	574	2,443
Private Fleet Estimates:				13,256	27,259	3,493	23	2,648	1,890	8,053
Charter Fleet:				13	58	19	0	14	10	44
Area 10 Season Total Estimates:				13,269	27,317	3,512	23	2,662	1,900	8,097
Variance:				952,158	3,219,375	56,665	24	788,944	208,498	1,175,040
Standard Error:				976	1,794	238	5	888	457	1,084
CV (%):				7.4%	6.6%	6.8%	21.6%	33.4%	24.0%	13.4%
95% CI:				11,356-15,182	23,800-30,834	3,045-3,978	13-32	921-4,403	1,005-2,795	5,972-10,221

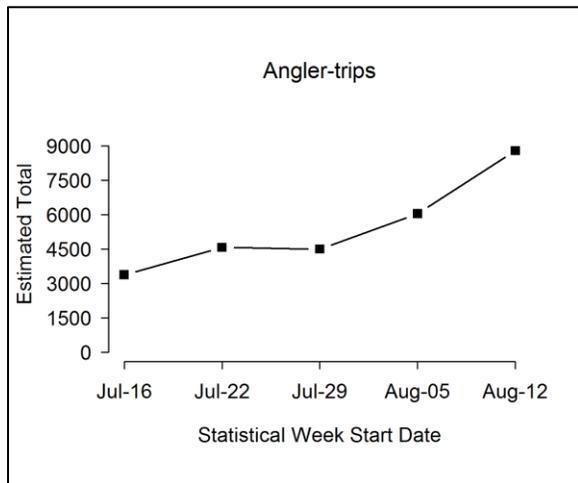


Figure 4.1 Temporal patterns in fishing effort during the Area 10 Chinook MSF from July 16 - August 18, 2013.

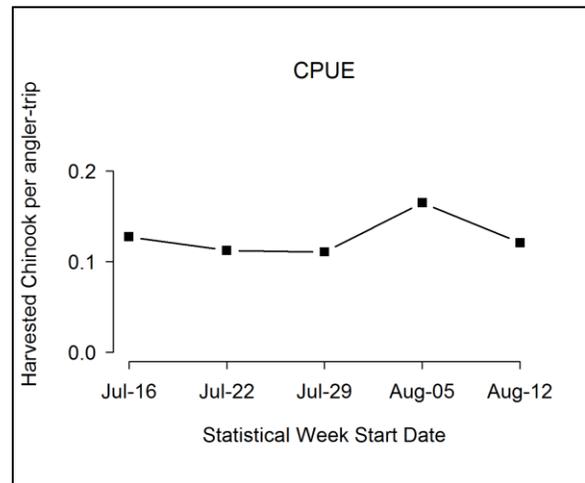


Figure 4.2 Temporal patterns in CPUE (landed Chinook per angler trip) during the Area 10 Chinook MSF from July 16 - August 18, 2013.

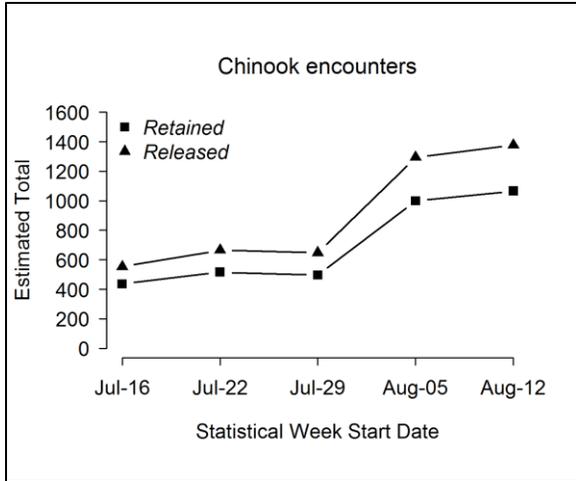


Figure 4.3 Temporal patterns in Chinook encounters (retained and released) during the Area 10 Chinook MSF from July 16 - August 18, 2013.

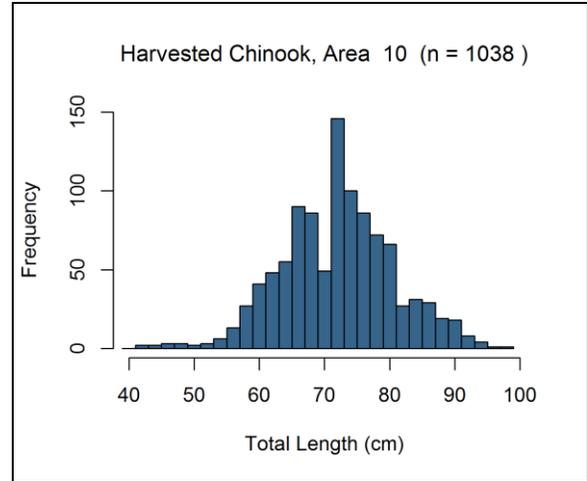


Figure 4.4 Length-frequency distribution of retained marked Chinook sampled in dockside angler interviews during the Area 10 Chinook MSF from July 16 - August 18, 2013.

Table 4.3 Summary of total length samples from retained Chinook salmon collected during dockside angler interviews in the Area 10 Chinook MSF from July 16 - August 18, 2013.

Mark Type	Number Sampled		
	Legal-size	Sublegal-size	Total
Marked	1,015	23	1,038
Unmarked	3	9	12
Total	1,018	32	1,050

Table 4.4 Summary of coded-wire tags recovered from Chinook salmon harvested during the Area 10 Chinook MSF from July 16 - August 18, 2013. The field “Number DITs” corresponds to the number of recovered CWTs that belonged to double-index tag

Release Domain	Release Region	Release Site	Rearing Location	CWTs Recovered	Number DITs
British Columbia (8.5%)	Fraser River – Thompson River (8.5%)	Shuswap River Low	Shuswap River, Middle	1 (1.4%)	0
		Chilliwack River	Chilliwack River Hatch	5 (7%)	5
Washington (91.5%)	N Washington (1.4%)	Boyd Creek 01.0490	Kendall Creek Hatchery	1 (1.4%)	1
	Hood Canal (14.1%)	Purdy Creek 16.0005	George Adams Hatch	4 (5.6%)	4
		Finch Creek 16.0222	Hoodsport Hatchery	6 (8.5%)	0
	Northern Puget Sound (2.8%)	Tulalip Creek 07.0001	Bernie Gobin Hatchery	1 (1.4%)	0
		Wallace River 07.0940	Wallace River Hatchery	1 (1.4%)	0
	Mid Puget Sound (49.3%)	Gorst Creek 15.0216	Gorst Cr Rearing Pond	5 (7%)	0
		Clarks Creek Hatchery	Clarks Creek Hatchery	1 (1.4%)	0
		Icy Creek 09.0125	Icy Creek Hatchery	5 (7%)	0
		Big Soos Creek 09.0072	Soos Creek Hatchery	4 (5.6%)	4
		Grovers Creek Hatchery	Grovers Creek Hatchery	13 (18.3%)	9
		Voight Creek Tr 10.0428	Voight Creek Hatchery	7 (9.9%)	0
	Southern Puget Sound (23.9%)	Minter Creek 15.0048	Minter Creek Hatchery	1 (1.4%)	0
		Clear Creek 11.0013C	Clear Creek Hatchery	12 (16.9%)	12
Kalama Creek 11.0017		Kalama Creek Hatchery	4 (5.6%)	0	
Total				71	35

Table 4.5 Composition of test fishery Chinook encounters and associated mark-rate and size/mark-status proportion estimates for the Area 10 Chinook MSF from July 16 - August 18, 2013. AD = marked (adipose-clipped), UM = unmarked. Variances associated with size/mark-status proportions and mark rates are provided in parentheses.

Stat Week	Fishing Effort		Legal		Sublegal		Total
	Days	Hours Fished	AD	UM	AD	UM	
29	3	18.6	4	0	2	1	7
30	3	16.5	3	0	4	2	9
31	2	11.2	5	0	0	0	5
32	5	53.2	9	1	8	6	24
33	5	48.2	18	2	8	7	35
Total	18	147.6	39	3	22	16	80
Size/mark-status composition:			0.49 (0.0032)	0.04 (0.0005)	0.28 (0.0025)	0.20 (0.0020)	
Legal size mark rate:			0.93 (0.0016)				
Overall mark rate:			0.76 (0.0023)				

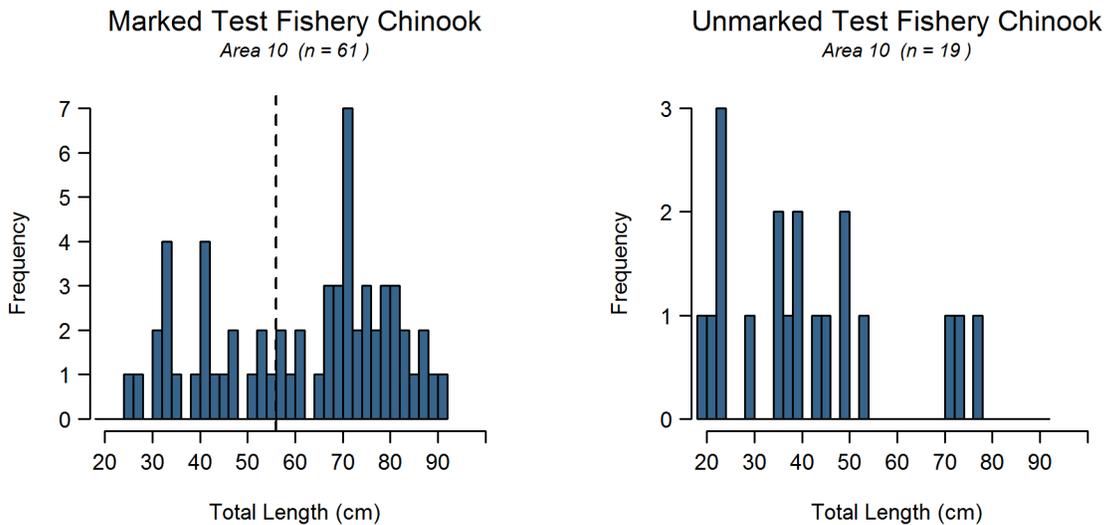


Figure 4.5 Length-frequency distributions of marked (left panel) and unmarked (right panel) Chinook encountered by test fishers during the Area 10 Chinook MSF from July 16 - August 18, 2013. The vertical dashed line in the left panel corresponds to the legal size limit (22 in or 56 cm).

Table 4.6 Total Chinook encountered (retained and released) by private-boat and charter boat anglers logging their trips on voluntary trip reports (VTRs) compared to test fishing encounter data, with estimates of legal-size and overall (legal and sublegal) mark rates during the Area 10 Chinook MSF from July 16 - August 18, 2013. AD = marked (adipose-clipped), UM = unmarked. Variances associated with size/mark-status proportions and mark rates are provided in parentheses.

Data Source	Effort and Sample Size	Legal		Sublegal		Totals	Mark Rate	
		AD	UM	AD	UM		Overall	Legal
Charter VTR	13 1-trip VTRs, 58 Angler Trips	19	1	2	2	24	0.88	0.95
Private VTR	70 1-trip VTRs, 132 Angler Trips	56	7	24	12	99	0.81	0.89
Pooled VTR	78 Days, 184 Angler Trips	75	8	26	14	123	0.82	0.90
Size/mark-status composition:		0.61	0.07	0.21	0.11			
Variance:		(0.00195)	(0.00050)	(0.00137)	(0.00083)			

Size and mark-status proportions were similar between private boat VTR and test fishery data ($\chi^2=3.57$, $df=3$, p -value=0.311). However, based on sufficient sample size and assumed higher data quality, we used only test fishery data to estimate the size/mark-status proportions needed to produce Chinook encounter and mortality estimates for the Area 10 summer Chinook MSF.

Table 4.7 Summary of season-wide fishery impact estimates for the Area 10 Chinook MSF from July 16 - August 18, 2013. Release mortality rate = 0.15 for legal fish and 0.20 for sublegal fish. Values may not add up perfectly due to rounding error. AD = marked (adipose-clipped), UM = unmarked.

Size/mark group	Encounters	Retained	Released	Release Mortality	Total Mortality	Var	SE	95% CI	CV (%)
Legal AD	3,947	3,434	512	77	3,511	66,424	258	3,006 – 4,016	7
Legal UM	304	6	298	45	50	702	26	0 - 102	53
Sublegal AD	2,227	77	2,149	430	507	10,248	101	309 - 706	20
Sublegal UM	1,620	17	1,603	321	337	7,047	84	173 - 502	25
Total	8,097	3,534	4,563	872	4,406	84,420	291	3,837 – 4,976	7

Table 4.8 Comparison of modeled (FRAM model run 1213) and estimated total Chinook encounters for the Area 10 Chinook MSF from July 16 - August 18, 2013. Values may not add up perfectly due to rounding error. AD = marked (adipose-clipped) and UM = unmarked.

Data Source	Group	Total Encounters	Legal	Sublegal	Landed Only
FRAM Encounters	UM	2,286	841	1,445	50
	AD	8,126	3,031	5,095	2,637
	Total	10,412	3,872	6,540	2,687
	% Marked	78	78	78	98
Estimated (Creel) Encounters	UM	1,924	304	1,620	23
	AD	6,173	3,947	2,227	3,512
	Total	8,097	4,251	3,846	3,534
	% Marked	76	93	58	99

Table 4.9 Comparison of modeled (FRAM model run 1213) and estimated total Chinook mortalities for the Area 10 Chinook MSF from July 16 - August 18, 2013. Values may not add up perfectly due to rounding error. AD = marked (adipose-clipped) and UM = unmarked.

Mortality Category	FRAM Chinook Mortalities			Estimated Chinook Mortalities		
	UM	AD	Total	UM	AD	Total
Total (Landed + Released)	460	3,847	4,307	388	4,019	4,406
Released Legal	121	191	312	45	77	122
Released Sublegal	289	1,019	1,308	321	430	750
Landed Only	50	2,637	2,687	23	3,512	3,534

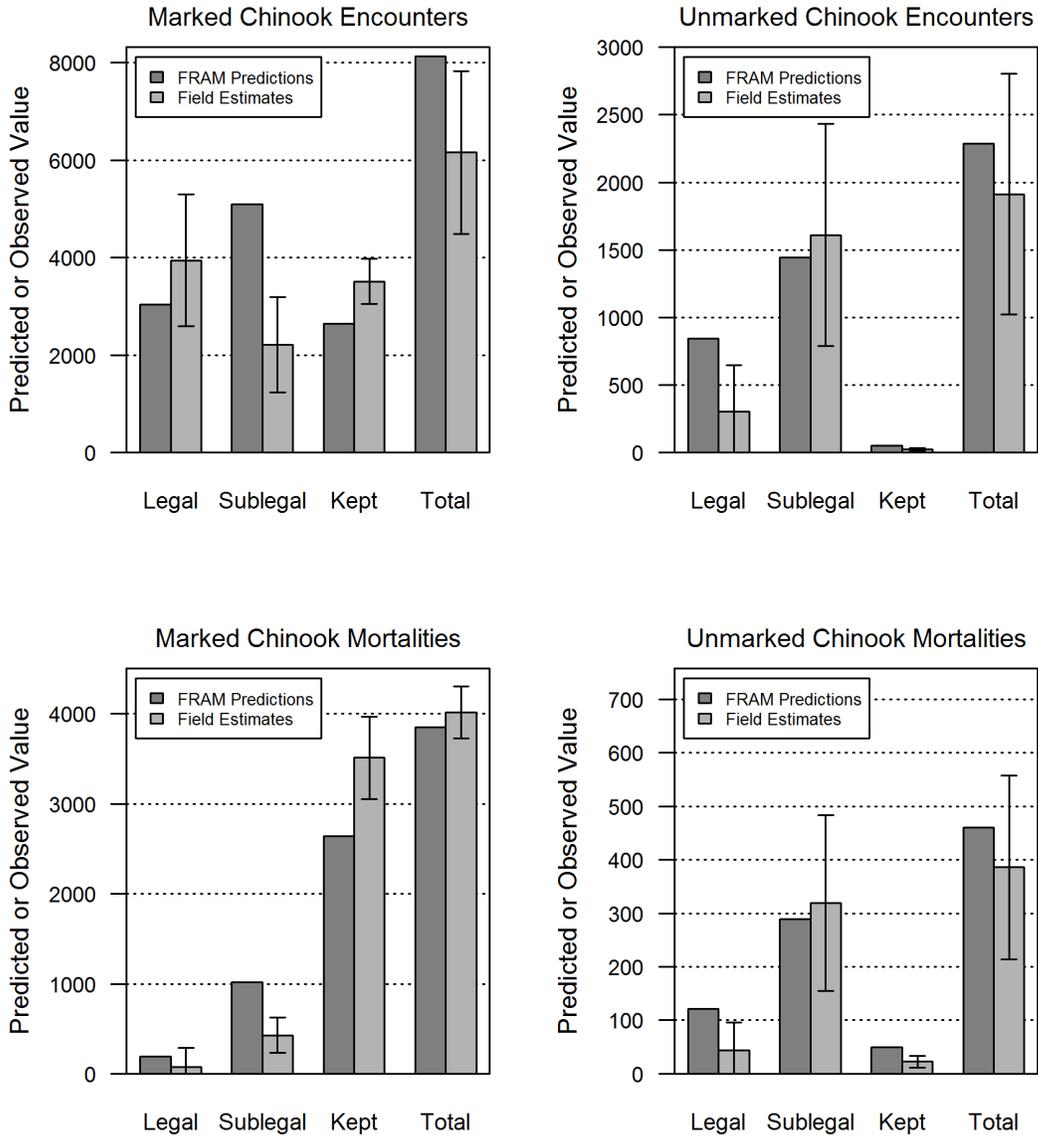


Figure 4.6 Comparison of modeled (using FRAM model run 1213) and estimated total Chinook encounters and mortalities for the Area 10 Chinook MSF from July 16 - August 18, 2013. Error bars represent approximate 95% confidence intervals for field estimates.

Table 4.10 Summary of double-index tagged (DIT) Chinook kept by anglers, and estimated total mortality of unmarked DIT Chinook due to hook-and-release impacts resulting from the Area 10 Chinook MSF from July 16 - August 18, 2013. AD = marked (adipose-clipped), UM = unmarked.

Hatchery	Brood Year	DITs Obs'd	AD DIT Harvest		UM DIT Enc.	UM DIT Mortality		
			Est.	var(Est.)		Est.	var(Est.)	SE(Est.)
Clear Creek Hatchery	2009	4	13.4	31.4	13.4	1.3	0.317	1.1
Clear Creek Hatchery	2010	8	26.8	62.9	27.5	2.8	0.664	2.3
George Adams Hatchery	2009	2	6.7	15.7	6.7	0.7	0.158	0.6
George Adams Hatchery	2010	2	6.7	15.7	6.8	0.7	0.163	0.6
Grovers Creek Hatchery	2009	5	16.7	39.3	16.2	1.6	0.366	1.4
Grovers Creek Hatchery	2010	4	13.4	31.4	13.4	1.3	0.313	1.1
Chilliwack River Hatchery	2010	5	16.7	39.3	8.2	0.8	0.094	0.7
Kendall Creek Hatchery	2011	1	3.3	7.9	3.4	0.3	0.081	0.3
Soos Creek Hatchery	2009	4	13.4	31.4	14.0	1.4	0.345	1.2
Total		35	117.2	275.1	109.6	11.0	2.501	9.2

Table 4.11 Monthly sample rates (Total retained Chinook sampled¹ / Estimated retained Chinook) in the Area 10 Chinook MSF from July 16 - August 18, 2013.

Time period			Estimated Retained Chinook			Number of Chinook sampled			Sample Rate
Month	Stat Weeks	Dates	AD	UM	Total	AD	UM	Total	
July	29-30	16 Jul - 28 Jul	942	11	953	317	5	322	33.8%
August	31-33	29 Jul - 18 Aug	2,551	11	2,562	721	7	728	28.4%
Season Total			3,493	23	3,515	1,038	12	1,050	29.9%

^{1/} Number of retained Chinook sampled includes all retained Chinook inspected for CWT's, from all sites sampled during the summer 2013 Area 10 Chinook MSF (creel estimates and the fish sampled as part of baseline sampling).

Table 4.12 Fishery-total estimates of retained and released salmon (*other than Chinook*) in the Area 10 Chinook MSF from July 16 - August 18, 2013. Values may not add exactly due to rounding error. AD = marked (adipose-clipped), UM = unmarked, UK = unknown mark-status.

Stat Week	Start Date	End Date	Retained Salmon					Released Salmon					
			Coho AD	Coho UM	Pink	Chum	Sockeye	Coho AD	Coho UM	Coho UK	Pink	Cutthroat Trout	Unk Salmon
29	16-Jul	21-Jul	222	182	42	0	2	28	28	93	33	0	418
30	22-Jul	28-Jul	338	325	712	2	0	40	27	114	122	0	163
31	29-Jul	4-Aug	487	208	579	0	0	63	32	126	172	0	207
32	5-Aug	11-Aug	225	203	480	0	0	63	43	89	156	6	452
33	12-Aug	18-Aug	706	163	1,243	0	0	57	40	51	115	7	152
Area 10 Season Total:			1,977	1,081	3,056	2	2	250	170	474	599	13	1,392
Variance:			41,371	8,755	110,224	1	1	2,532	1,676	3,979	3,345	59	28,738
Standard Error:			203	94	332	1	1	50	41	63	58	8	170
CV (%):			10.3%	8.7%	10.9%	44.6%	44.6%	20.1%	24.1%	13.3%	9.7%	57.5%	12.2%
95% CI:			1,578 - 2,376	897 - 1,264	2,406 - 3,707	0 - 4	0 - 4	152 - 349	90 - 250	350 - 597	485 - 712	0 - 28	1,060 - 1,725

Table 4.13 Summary of the total number of anglers intercepted in Area 10 during on-the-water surveys conducted from July 16 - August 18, 2013. Sites in bold represent those included in the dockside sample frame.

Site Name	Weekday Anglers	Season Total (unadjusted) Size Measure	Weekend Anglers	Season Total (unadjusted) Size Measure
Armeni Public Ramp	56	0.121	152	0.139
Bayside Marina/Drystack	0	0.000	2	0.002
Bremerton Pier	9	0.019	4	0.004
Brownsville Marina/Dock/Ramp	15	0.032	42	0.038
Commencement Bay Marina Services	0	0.000	2	0.002
Dagmar's Landing, Forklift Launch	0	0.000	6	0.005
Des Moines Marina (Moorage)	2	0.004	4	0.004
Des Moines Marina (Sling & moorage)	0	0.000	5	0.005
Des Moines Yacht Club	0	0.000	2	0.002
Eagle Harbor Waterfront Park	6	0.013	9	0.008
Edmonds Boat Basin (Public Sling)	21	0.045	58	0.053
Edmonds Dry Storage	36	0.078	51	0.047
Edmonds Guest Dock	10	0.022	27	0.025
Edmonds Marina	46	0.099	68	0.062
Elliott Bay Marine	6	0.013	29	0.027
Everett Marina	0	0.000	11	0.010
Everett Ramp	3	0.006	33	0.030
Evergreen Park Ramp	0	0.000	2	0.002
First Avenue South Public Ramp	2	0.004	8	0.007
Gig Harbor Marina	0	0.000	2	0.002
Harbor Island Marina	5	0.011	4	0.004
Kingston Marina	7	0.015	31	0.028
Kingston Public Ramp	28	0.060	78	0.071
Manchester Public Ramp	13	0.028	43	0.039
Mukilteo Ramp	6	0.013	7	0.006
Port Orchard Marina	0	0.000	4	0.004
Port Orchard Public Ramp	0	0.000	4	0.004
Portage Bay	2	0.004	0	0.000
Possession Waterfront Beach Park	1	0.002	3	0.003
Poulsbo Yacht Club	0	0.000	2	0.002
Private	13	0.028	24	0.022
Redondo Ramp	2	0.004	4	0.004
Shilshole Marina	69	0.149	81	0.074
Shilshole Public Ramp	93	0.200	287	0.262
Unknown	10	0.022	3	0.003
Winslow City Ramp	3	0.006	2	0.002
Area 10 Total Anglers	464	1.000	1094	1.000

Table 4.14 Season-total estimates of Chinook encounters by size/mark-status and total estimates of angler effort, summarized for all seasons to date of the Area 10 summer Chinook MSF. Values may not add exactly due to rounding error.

Season Dates	Effort (Angler-trips)	Retained Chinook				Released Chinook				Total Encounters
		LM	LU	SM	SU	LM	LU	SM	SU	
Jul 16 - Jul 28, 2007	8,374	1,469	30	70	8	209	497	3,101	723	6,107
Jul 16 - Aug 15, 2008	13,808	1,027	3	4	0	128	510	189	385	2,246
Jul 16 - Aug 31, 2009	23,179	1,505	22	116	0	220	82	2,488	1,017	5,450
Jul 16 - Aug 31, 2010	21,636	2,950	33	37	9	432	1,026	1,024	1,665	7,178
Jul 16 - Aug 31, 2011	27,753	2,548	14	94	14	372	1,872	964	694	6,573
Jul 16 - Aug 19, 2012	17,823	2,976	17	88	17	443	377	6,343	1,950	12,212
Jul 16 - Aug 18, 2013	27,317	3,434	6	77	17	512	298	2,149	1,603	8,097

5) Marine Area 11 Summer Mark-Selective Chinook Fishery

The Washington Department of Fish and Wildlife (WDFW) implemented a seventh consecutive summer Chinook MSF in Marine Area 11 from June 1 through September 30, 2013. WDFW's Puget Sound Sampling Unit (PSSU) implemented an intensive monitoring program in Area 11 throughout the season in order to collect the data needed to estimate key parameters characterizing the fishery and its impacts on unmarked salmon. Sampling activities included dockside creel sampling and collection of voluntary trip reports (VTRs) from the angling public. **Table 5.1** summarizes the parameters estimated and the sampling activities associated with each parameter. Specific procedures used for collecting these data and estimating critical data parameters are presented in detail in our separate Methods Report (WDFW 2012a). In this section we present results from our monitoring activities during the Area 11 summer Chinook MSF.

Table 5.1 Sampling/estimation details on target parameters associated with the overall Area 11 winter mark-selective fishery monitoring program.

Activity	Focal Parameter(s)	Secondary Parameter(s)	Sample Unit(s)	Finest Estimation Time Step	Comments
Dockside Creel Sampling	Fishing effort (boat & angler trips); kept and released fish	Catch rates (CPUE); length, age, and CWT composition of harvest ¹ ; collection of angler fishing methods.	Angler trip; kept fish; reported fish release	Two weeks	Creel estimates were produced for two-week estimation periods and stratified into “weekday” (Mon.-Thurs.) and “weekend” (Fri.-Sun.) day-type strata within weeks. For the weekday stratum, we sampled $n=2$ days out of $N=8$ available weekdays per two-week period. For the weekend stratum, we sampled $n=2$ days out of $N=3$ available weekend days per week.
On-the-water Surveys	Proportion of total angler effort that uses sample-frame sites (i.e., site “size measures”) versus out-of-frame sites.	Total on-water boat and angler counts at assumed peak effort time interval (instantaneous count); spatial distribution of recreational fishing boats in the area.	Boats and anglers	Month	A total of 8 boat surveys (8 weekend) were conducted during the four month fishery.
Voluntary Trip Reports (VTRs)	Size (legal/sublegal) and mark-status (marked/unmarked) composition of encountered Chinook	Encounter data for non-Chinook species (e.g., coho) that the angler may record on the VTR form	Fish encounter	Season	We used VTR data to estimate the size/mark-status proportions (LM = 52%, LU = 20%, SM = 19%, SU = 10%; Table 5.5) needed to produce encounter and mortality estimates.
Overall Fishery Impacts Estimation	Total Chinook encounters and mortalities, by size/mark-status group	Ratios of encounters and mortalities per kept Chinook	N/A	Season	Estimated on a monthly time step but considered at the season-total level.
Coded-wire tag (CWT) Impacts Estimation	Marked/unmarked double-index tag (DIT) encounters and mortalities	N/A	N/A	Season	The temporal resolution of DIT impacts is constrained by the total number of tags recovered.

¹ The length and CWT composition of landed catch was assessed on a season-wide basis for impact estimation.

Table 5.2 Estimates of total fishing effort and total salmon catch (harvest and releases) during the Area 11 Chinook MSF from June 1 - September 30, 2013. Values may not add exactly due to rounding error. AD = marked (adipose-clipped), UM = unmarked.

Month	Stat Week	Start Date	End Date	Est. Effort		Est. Retained Chinook		Est. Released Chinook		Est. Total Chinook Encounters
				Boats	Anglers	AD	UM	AD	UM	
Jun	22	1-Jun	2-Jun	619	1,093	174	0	93	111	379
	23	3-Jun	9-Jun	931	1,634	122	0	66	78	267
	24	10-Jun	16-Jun	1,074	2,054	137	9	73	79	298
	25	17-Jun	23-Jun	1,037	1,933	116	0	62	74	253
	26	24-Jun	30-Jun	1,101	2,020	106	0	57	68	231
Jul	27	1-Jul	7-Jul	2,341	4,410	214	7	115	130	466
	28	8-Jul	14-Jul	2,313	4,677	194	9	104	115	423
	29	15-Jul	21-Jul	1,268	2,688	127	0	68	82	278
	30	22-Jul	28-Jul	1,959	4,180	151	0	81	96	328
	31	29-Jul	4-Aug	3,828	8,111	313	0	168	200	681
Aug	32	5-Aug	11-Aug	3,723	7,468	610	0	328	391	1,329
	33	12-Aug	18-Aug	3,891	8,433	366	5	197	230	798
	34	19-Aug	25-Aug	3,228	6,975	332	5	178	208	722
	35	26-Aug	1-Sep	2,127	4,296	42	0	23	27	91
Sept	36	2-Sep	8-Sep	921	1,690	39	0	21	25	85
	37	9-Sep	15-Sep	776	1,522	39	0	21	25	86
	38	16-Sep	22-Sep	576	1,027	28	0	15	18	60
	39	23-Sep	29-Sep	155	281	0	0	0	0	0
	40	30-Sep	30-Sep	12	17	0	0	0	0	0
Area 11 Season Total:				31,879	64,509	3,111	35	1,671	1,958	6,774
Variance:				2,934,238	13,517,073	49,210	150	183,592	38,746	322,229
SE:				1,713	3,677	222	12	428	197	568
CV (%):				5.4%	5.7%	7.1%	35.0%	25.6%	10.1%	8.4%
95% CI:				28,522-35,237	57,303-71,715	2,676-3,545	11-59	831-2,510	1,572-2,344	5,662-7,887

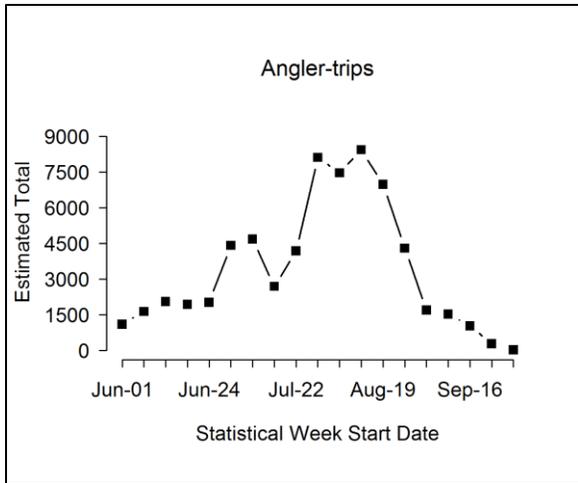


Figure 5.1 Temporal patterns in fishing effort during the Area 11 Chinook MSF from June 1 - September 30, 2013.

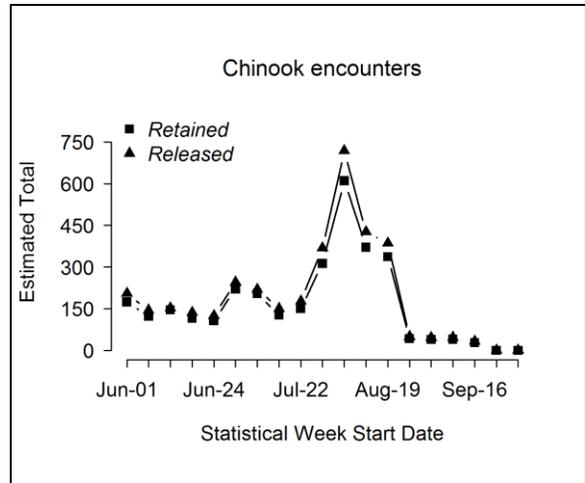


Figure 5.3 Temporal patterns in Chinook encounters (retained and released) during the Area 11 Chinook MSF from June 1 - September 30, 2013.

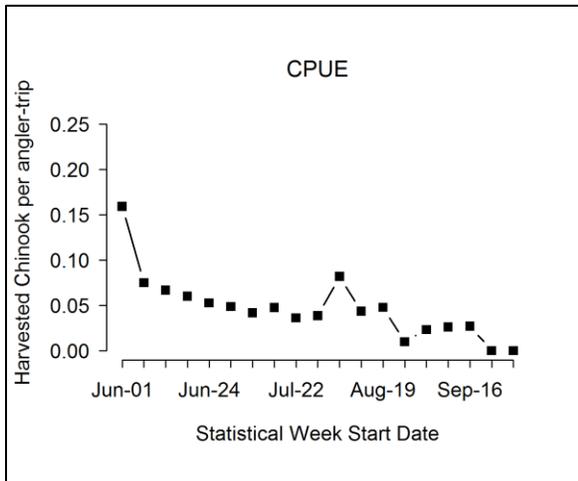


Figure 5.2 Temporal patterns in CPUE (landed Chinook per angler trip) during the Area 11 Chinook MSF from June 1 - September 30, 2013.

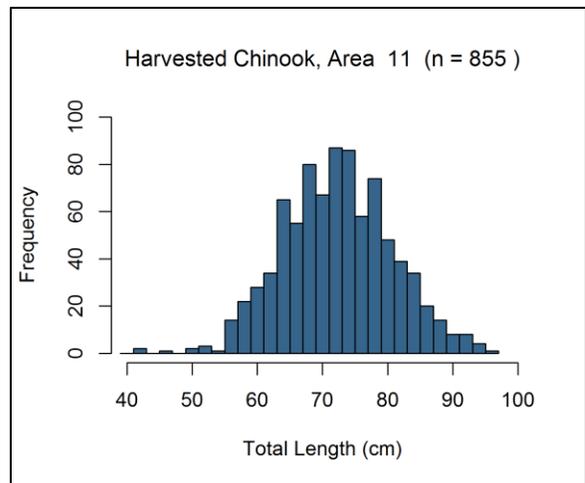


Figure 5.4 Length-frequency distributions of retained marked Chinook sampled in dockside angler interviews during the Area 11 Chinook MSF from June 1 - September 30, 2013.

Table 5.3 Summary of total length samples from retained Chinook salmon collected during dockside angler interviews in the Area 11 Chinook MSF from June 1 - September 30, 2013.

Mark Type	Number Sampled		
	Legal-size	Sublegal-size	Total
Marked	840	15	855
Unmarked	2	0	2
Total	842	15	857

Table 5.4 Summary of coded-wire tags recovered from Chinook salmon harvested during the Area 11 Chinook MSF from June 1 - September 30, 2013. The field “Number DITs” corresponds to the number of tags that belonged to double-index tag groups.

Release Domain	Release Region	Release Site	Rearing Location	CWTs Recovered	Number DITs
B. C. (12.2%)	Fraser River – Thompson River (12.2%)	Chilliwack River	Chilliwack River Hatch	6 (12.2%)	6
Washington (87.8%)	Hood Canal (26.5%)	Purdy Creek 16.0005	George Adams Hatch	2 (4.1%)	2
		Finch Creek 16.0222	Hoodsport Hatchery	11 (22.4%)	0
	Northern Puget Sound (8.2%)	Tulalip Creek 07.0001	Bernie Gobin Hatchery	1 (2%)	1
		Wallace River 07.0940	Wallace River Hatchery	2 (4.1%)	0
		Whitehorse Springs	Stillaguamish Hatchery	1 (2%)	0
	Skagit River (2%)	Cascade River 03.1411	Marblemount Hatchery	1 (2%)	1
	Mid Puget Sound (24.5%)	Gorst Creek 15.0216	Gorst Cr Rearing Pond	5 (10.2%)	0
		Voight Cr Tr 10.0428	Voights Creek Hatchery	1 (2%)	0
		Grovers Creek Hatch	Grovers Creek Hatchery	5 (10.2%)	5
		Icy Creek 09.0125	Icy Creek Hatchery	1 (2%)	0
	Southern Puget Sound (26.5%)	Kalama Creek 11.0017	Kalama Creek Hatchery	1 (2%)	0
		Chambers Cr 12.0007	Chambers Creek Hatch	1 (2%)	0
		Clear Creek 11.0013C	Clear Creek Hatchery	10 (20.4%)	10
		Minter Creek 15.0048	Minter Creek Hatchery	1 (2%)	0
Total				49	25

Table 5.5 Total Chinook encountered (retained and released) by private-boat anglers logging their trips on voluntary trip reports (VTRs) during the Area 11 Chinook MSF from June 1 - September 30, 2013, with estimates of legal-size and overall (legal and sublegal) mark rates. AD = marked (adipose-clipped), UM = unmarked. Variances associated with size/mark-status proportions and mark rates are provided in parentheses.

Data Source	Effort and Sample Size	Legal		Sublegal		Totals	Mark Rate	
		AD	UM	AD	UM		Overall	Legal
Private VTR	386 1-trip VTRs, 721 Angler Trips	252	95	91	48	486	0.71	0.73
Size/mark-status composition:		0.52	0.20	0.19	0.10			
Variance:		(0.00051)	(0.00032)	(0.00031)	(0.00018)			

Table 5.6 Summary of season-wide fishery impact estimates for the Area 11 Chinook MSF from June 1 - September 30, 2013. Release mortality rate = 0.15 for legal fish and 0.20 for sublegal fish. Values may not add up perfectly due to rounding error. AD = marked (adipose-clipped), UM = unmarked.

Size/mark group	Encounters	Retained	Released	Release Mortality	Total Mortality	Var	SE	95% CI	CV (%)
Legal AD	3,513	3,056	457	68	3,125	51,243	226	2681 - 3568	7
Legal UM	1,324	35	1,289	193	228	763	28	174 - 283	12
Sublegal AD	1,268	55	1,214	243	297	1,242	35	228 - 366	12
Sublegal UM	669	0	669	134	134	460	21	92 - 176	16
Total	6,774	3,146	3,629	638	3,784	53,709	232	3330 - 4238	6

Table 5.7 Comparison of modeled (FRAM model run 1213) and estimated total Chinook encounters for the Area 11 Chinook MSF from June 1 - September 30, 2013. Values may not add up perfectly due to rounding error. AD = marked (adipose-clipped), UM = unmarked.

Data Source	Group	Total Encounters	Legal	Sublegal	Landed Only
FRAM Encounters	UM	1,608	893	715	27
	AD	10,222	7,082	3,140	6,160
	Total	11,830	7,975	3,855	6,187
	% Marked	86	89	82	100
Estimated (Creel) Encounters	UM	1,993	1,324	669	35
	AD	4,781	3,513	1,268	3,111
	Total	6,774	4,837	1,938	3,146
	% Marked	71	73	66	99

Table 5.8 Comparison of modeled (FRAM model run 1213) and estimated total Chinook mortalities for the Area 11 Chinook MSF from June 1 - September 30, 2013. Values may not add up perfectly due to rounding error. AD = marked (adipose-clipped), UM = unmarked.

Mortality Category	FRAM Chinook Mortalities			Estimated Chinook Mortalities		
	UM	AD	Total	UM	AD	Total
Total (Landed + Released)	301	7,234	7,535	362	3,422	3,784
Released Legal	131	446	577	193	68	262
Released Sublegal	143	628	771	134	243	377
Landed Only	27	6,160	6,187	35	3,111	3,146

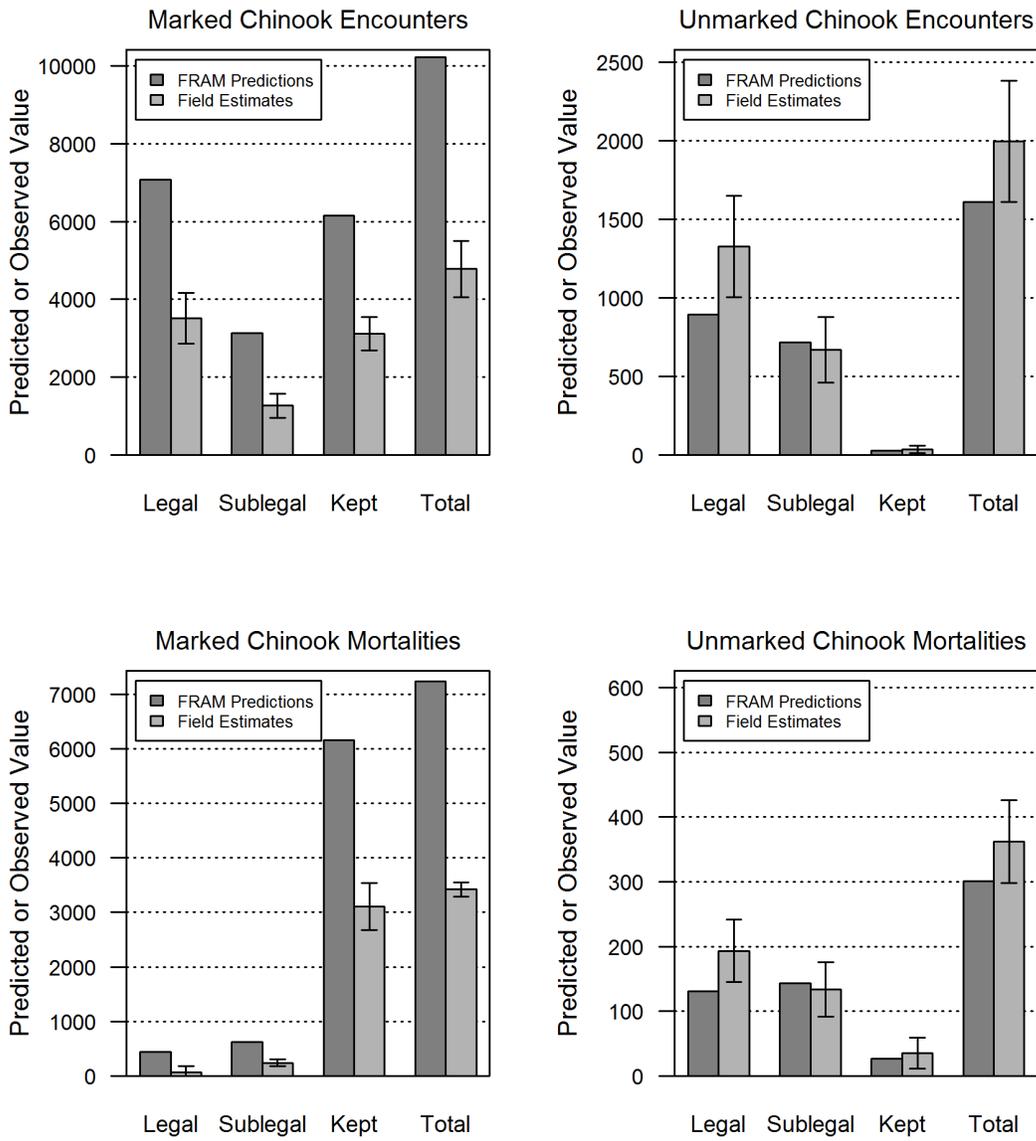


Figure 5.5 Comparison of modeled (FRAM model run 1213) and estimated total Chinook encounters and mortalities for the Area 11 Chinook MSF from June 1 - September 30, 2013. Error bars represent approximate 95% confidence intervals for field estimates.

Table 5.9 Summary of double-index tagged (DIT) Chinook kept by anglers, and estimated total mortality of unmarked DIT Chinook due to hook-and-release impacts resulting from the Area 11 Chinook MSF from June 1 - September 30, 2013. AD = marked (adipose-clipped), UM = unmarked.

Hatchery	Brood Year	DITs Obs'd	AD DIT Harvest		UM DIT Enc.	UM DIT Mortality		
			Est.	var(Est.)		Est.	var(Est.)	SE(Est.)
Bernie Gobin Hatchery	2010	1	3.7	9.8	3.7	0.4	0.098	0.3
Clear Creek Hatchery	2009	4	11.0	29.4	14.7	4.8	10.103	4.1
Clear Creek Hatchery	2010	6	22.0	58.8	22.6	2.3	0.621	1.9
George Adams Hatchery	2010	2	7.3	19.6	7.5	0.7	0.203	0.6
Grovers Creek Hatchery	2009	3	11.0	29.4	10.6	1.1	0.274	0.9
Grovers Creek Hatchery	2010	2	7.3	19.6	7.3	0.7	0.195	0.6
Chilliwack River Hatchery	2010	5	18.4	49.0	9.0	0.9	0.117	0.8
Chilliwack River Hatchery	2011	1	3.7	9.8	1.9	0.2	0.025	0.2
Marblemount Hatchery	2010	1	3.7	9.8	4.0	0.4	0.114	0.3
Total		25	88.1	235.4	81.3	11.4	11.751	9.7

Table 5.10 Monthly sample rates (Total retained Chinook sampled¹ / Estimated retained Chinook) in the Area 11 Chinook MSF from June 1 - September 30, 2013. AD = marked (adipose-clipped), UM = unmarked.

Time period			Estimated Retained Chinook			Number of Chinook sampled			Sample Rate
Month	Stat Weeks	Dates	AD	UM	Total	AD	UM	Total	
June	22-26	1 Jun - 30 Jun	655	9	664	218	1	219	33.0%
July	27-31	1 Jul - 4 Aug	999	16	1,016	272	0	272	26.8%
August	32-35	5 Aug - 1 Sep	1,350	10	1,360	348	1	349	25.7%
September	36-40	2 Sep - 30 Sep	106	0	106	17	0	17	16.0%
Season Total			3,111	35	3,146	855	2	857	27.2%

^{1/} Number of retained Chinook sampled includes all retained Chinook inspected for CWT's, from all sites sampled during the summer 2013 Area 11 Chinook MSF (creel estimates and the fish sampled as part of baseline sampling).

Table 5.11 Fishery-total estimates of retained and released salmon (other than Chinook) for the Area 11 Chinook MSF from June 1 - September 30, 2013. AD = marked (adipose-clipped), UM = unmarked, UK = unknown mark-status. Values may not add exactly due to rounding error.

Stat Week	Start Date	End Date	Retained Salmon				Released Salmon						
			Coho AD	Coho UM	Pink	Cutthroat Trout	Coho AD	Coho UM	Coho UK	Pink	Chum	Cutthroat Trout	Unknown Salmon
22	1-Jun	2-Jun	0	0	0	0	0	0	0	0	0	4	0
23	3-Jun	9-Jun	4	0	0	0	0	0	0	0	0	0	0
24	10-Jun	16-Jun	13	0	0	0	0	0	0	0	0	0	0
25	17-Jun	23-Jun	9	0	0	0	0	0	0	0	0	0	0
26	24-Jun	30-Jun	9	0	0	0	0	0	0	6	0	0	0
27	1-Jul	7-Jul	0	3	0	0	12	4	21	4	0	0	19
28	8-Jul	14-Jul	4	5	0	0	16	0	26	0	0	0	26
29	15-Jul	21-Jul	24	15	7	0	0	5	0	11	0	3	0
30	22-Jul	28-Jul	31	70	401	0	13	20	6	73	0	4	31
31	29-Jul	4-Aug	44	0	2,524	15	11	6	10	743	0	18	33
32	5-Aug	11-Aug	44	20	1,645	11	5	0	10	462	0	8	42
33	12-Aug	18-Aug	95	43	2,814	0	0	10	8	1,468	5	3	76
34	19-Aug	25-Aug	113	34	1,718	0	0	10	8	1,140	0	19	73
35	26-Aug	1-Sep	116	26	1,212	0	0	9	25	395	0	0	33
36	2-Sep	8-Sep	58	4	334	0	0	0	4	161	0	0	108
37	9-Sep	15-Sep	53	15	122	0	3	3	12	27	0	0	66
38	16-Sep	22-Sep	67	15	86	0	0	7	16	16	0	0	22
39	23-Sep	29-Sep	28	0	0	0	0	0	30	0	0	0	50
40	30-Sep	30-Sep	0	0	0	0	0	0	3	0	0	0	0
Area 11 Season Total:			713	250	10,862	26	60	75	179	4,506	5	61	579
Variance:			19,693	4,835	1,371,142	462	951	481	2,402	524,026	12	501	24,874
Standard Error:			140	70	1,171	22	31	22	49	724	3	22	158
CV (%):			19.7%	27.8%	10.8%	83.3%	51.3%	29.1%	27.3%	16.1%	77.2%	37.0%	27.2%
95% CI:			438 - 988	114 - 387	8,567 - 13,157	0 - 68	0 - 121	32 - 118	83 - 275	3,087 - 5,925	0 - 11	17 - 104	270 - 888

Table 5.12 Summary of the total number of anglers intercepted in Area 11 during on-the-water surveys conducted from June 1 – September 30, 2013. Sites in bold represent those included in the dockside sample frame.

Site Name	Weekend Anglers	Season Total (unadjusted) Size Measure
Armeni Public Ramp	47	0.028
Breakwater Marina (Warters)	43	0.026
Bremerton Marina	13	0.008
Browns Point Ramp	48	0.029
Brownsville Marina/Dock/Ramp	11	0.007
Chambers Bay Boat Owners' Assoc	2	0.001
Cromwell Beach	3	0.002
Crows Nest Marina	5	0.003
Day Island Marina	10	0.006
Des Moines Marina (Moorage)	147	0.088
Dockton Ramp, Vashon Is	13	0.008
Eagle Harbor Waterfront Park	2	0.001
Elliott Bay Marine	11	0.007
Foss Harbor Marina	25	0.015
Fox Island Ramp	5	0.003
Gig Harbor Kayak	2	0.001
Gig Harbor Marina	17	0.010
Gig Harbor Ramp	111	0.067
Longbranch Public Ramp	3	0.002
Luhr Beach Ramp	3	0.002
Manchester Public Ramp	24	0.014
Narrows Marina/Ramp	59	0.035
Olalla Public Ramp	11	0.007
Point Defiance Boathouse	118	0.071
Point Defiance Public Ramp	513	0.308
Port Orchard Marina	16	0.010
Port Orchard Public Ramp	3	0.002
Private	78	0.047
Redondo Ramp	233	0.140
Shilshole Public Ramp	3	0.002
Solo Point Ramp	4	0.002
Steilacoom Public Ramp	1	0.001
Tacoma Outboard Association	21	0.013
Tiderunner Marina	2	0.001
Tyee Marina/Ramp	40	0.024
Unknown	2	0.001
West Shore Marina	3	0.002
Wollochet Bay Public Ramp	8	0.005
Zittles Marina	8	0.005
Area 11 Total Anglers	1668	1.000

Table 5.13 Season-total estimates of Chinook encounters by size/mark-status and total estimates of angler effort, summarized for all seasons to date of the Area 11 summer Chinook MSF. Values may not add exactly due to rounding error.

Season Dates	Effort (Angler-trips)	Retained Chinook				Released Chinook				Total Encounters
		LM	LU	SM	SU	LM	LU	SM	SU	
Jun 1 - Sept 30, 2007	78,958	10,192	74	354	21	1,511	3,015	8,033	2,357	25,558
Jun 1 - Sept 30, 2008	65,728	7,277	18	100	5	1,087	1,999	1,969	248	12,703
Jun 1 - Sept 30, 2009	80,157	3,149	20	117	17	470	1,269	3,820	3,302	12,164
Jun 1 - Sept 30, 2010	54,594	3,883	64	27	0	580	1,105	900	405	6,965
Jun 1 - Sept 30, 2011	69,919	2,559	9	77	12	382	2,120	1,932	1,579	8,670
Jun 1 - Sept 30, 2012	56,065	4,894	57	72	14	731	2,665	2,649	1,157	12,240
Jun 1 - Sept 30, 2013	64,509	3,056	35	55	0	457	1,289	1,214	669	6,774

6) Marine Area 12 Summer Mark-Selective Chinook Fishery

The Washington Department of Fish and Wildlife (WDFW) implemented a second consecutive summer Chinook MSF in Marine Area 12 from July 1 through September 30, 2013. WDFW's Puget Sound Sampling Unit (PSSU) implemented a "Baseline Sampling" program (see WDFW 2012a for details) consisting of dockside angler interviews with catch sampling along with efforts to distribute and collect voluntary trip reports (VTRs) from the angling public.

Unlike the other survey designs, Baseline Sampling does not provide a means for generating in-season or immediate post-season estimates of fishery total catch and effort. These estimates will be available approximately one year after the close of the fishery through the WDFW Catch Record Card (CRC) program. Once available, CRC-based catch estimates will be used to generate estimates of total Chinook encounters and mortalities by size and mark-status using the methods provided in WDFW & NWIFC (2013b). Thus, while these descriptors of MSF impacts are not presented in the present document, they will be available at a future time.

Table 6.1 summarizes the parameters estimated and the sampling activities associated with each parameter. Specific procedures used for collecting these data and estimating critical data parameters are presented in detail in our separate Methods Report (WDFW 2012a). In this section we present results from our monitoring activities during the Area 12 summer Chinook MSF from July 1 through September 30, 2013, including relative catch and effort patterns over the three-month season based on the assumption that baseline-sampling observations of these parameters are good indicators of associated fishery-wide trends.

Table 6.1 Sampling/estimation details on target parameters associated with the overall Area 12 mark-selective fishery monitoring program.

Activity	Focal Parameter(s)	Secondary Parameter(s)	Sample Unit(s)	Finest Estimation Time Step	Comments
Dockside Angler Interviews (Baseline Sampling)	Observed (in-sample) fishing effort (boat & angler trips); kept and released fish.	Catch rates (CPUE); length, age, and CWT composition of harvest ¹ ; collection of angler fishing methods.	Angler trip; kept fish; reported fish release	Week	Observed catch per angler trip and species composition data obtained from baseline sampling will ultimately be combined with Catch Record Card (CRC) data to produce fishery-total estimates at a later time (approximately one year following the fishery).
Voluntary Trip Reports (VTRs)	Size (legal/sublegal) and mark-status composition (marked, unmarked) of encountered Chinook	Encounter data for non-Chinook species (e.g., coho) that the angler may record on the VTR form	Fish encounter	Season	No VTRs were returned for the Area 12 summer Chinook MSF. When CRC-based retained Chinook estimates become available, estimates of total Chinook encounters by size/mark group, along with associated impacts, will be estimated using the M1 approach, as outlined in WDFW & NWIFC (2013b).
Overall Fishery Impacts Estimation	Total Chinook encounters and mortalities, by size/mark-status group	Ratios of encounters and mortalities per kept Chinook	N/A	Season	Will be estimated at a later date using the CRC-based retained Chinook estimate, when it becomes available.
Coded-wire tag (CWT) Impacts Estimation	Marked/unmarked double-index tag (DIT) encounters and mortalities	N/A	N/A	Season	Will be estimated at a later date using the CRC-based retained Chinook estimate, when it becomes available. The temporal resolution of DIT impacts is constrained by the total number of tags recovered.

¹ The length and CWT composition of landed catch was assessed on a season-wide basis for impact estimation.

Table 6.2 Observations of fishing effort, salmon harvest, and reported salmon releases, by week, for the Area 12 Chinook MSF from July 1 - September 30, 2013. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates. AD = marked (adipose-clipped), UM = unmarked, UK = unknown mark status.

Month	Stat Week	Effort		Retained Fish					Released Fish						
		Boats	Anglers	Chinook		Coho		Pink	Chinook			Pink	Cutthroat Trout	Trout General	Unidentified Salmon
				AD	UM	AD	UM		AD	UM	UK				
Jul	27	9	14	0	0	0	0	0	0	0	0	0	0	0	0
	28	18	31	0	0	0	0	2	0	0	0	0	0	0	0
	29	17	39	6	0	0	0	0	0	3	0	0	0	0	0
	30	66	85	30	0	0	0	6	0	22	0	4	0	1	0
	31	64	105	7	0	0	0	1	0	2	1	0	0	0	0
Aug	32	21	49	0	0	0	0	1	0	1	0	0	0	0	0
	33	27	52	4	0	4	0	1	0	1	0	2	1	0	0
	34	22	46	1	0	0	0	0	2	0	0	0	0	0	0
	35	29	57	1	0	0	0	0	0	0	2	0	0	0	2
Sept	36	5	7	0	0	0	0	0	0	0	0	0	1	0	0
	37	9	19	1	0	0	2	0	0	0	0	0	1	0	0
	38	8	11	0	0	0	0	0	0	0	0	0	0	0	0
	39	2	3	0	0	0	0	0	0	0	0	0	0	0	0
	40	7	7	0	0	0	0	0	0	0	0	0	0	0	0
Area 12 Season Total:		304	525	50	0	4	2	11	2	29	3	6	3	1	2

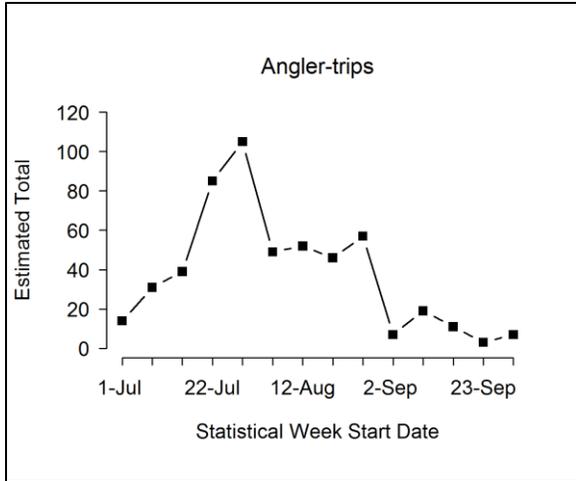


Figure 6.1 Temporal patterns in fishing effort during the Area 12 Chinook MSF from July 1 - September 30, 2013. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates.

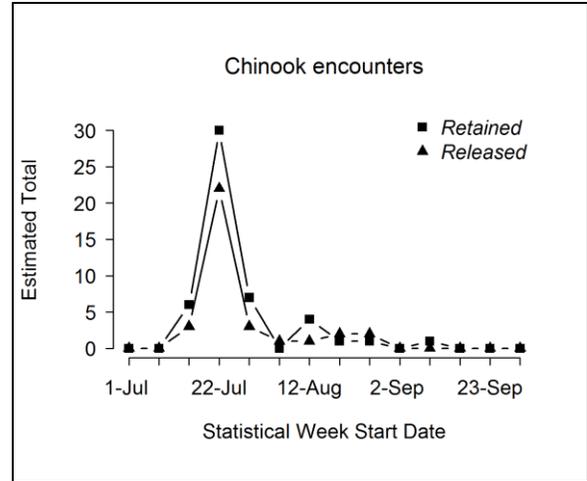


Figure 6.3 Temporal patterns in Chinook encounters (retained and released) during the Area Chinook MSF from July 1 - September 30, 2013. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates.

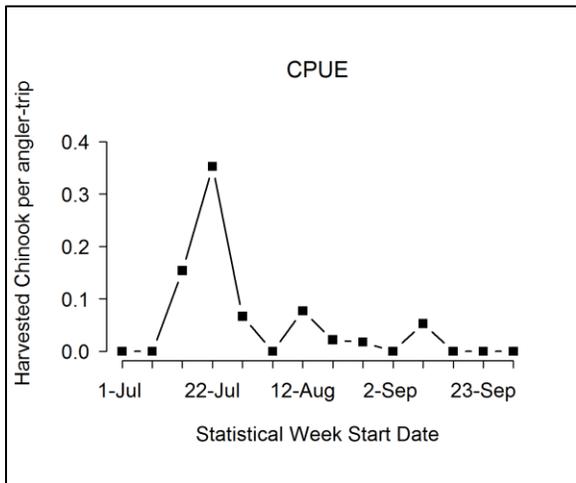


Figure 6.2 Temporal patterns in CPUE (landed Chinook per angler trip) during the Area 12 Chinook MSF from July 1 - September 30, 2013. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates.

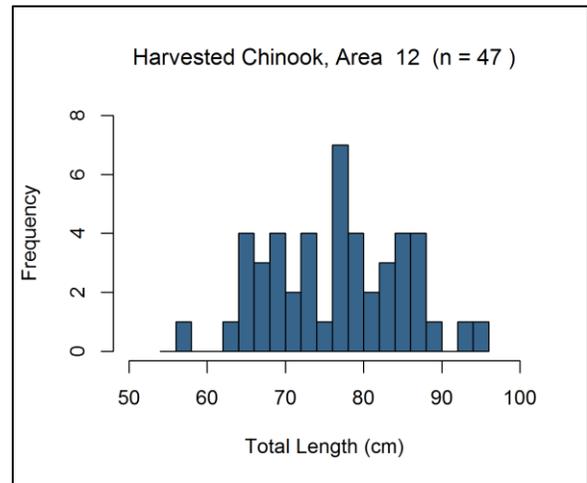


Figure 6.4 Length-frequency distributions of retained marked Chinook sampled in dockside angler interviews during the Area 12 Chinook MSF from July 1 - September 30, 2013.

Table 6.3 Summary of total length samples from retained Chinook salmon collected during dockside angler interviews in the Area 12 Chinook MSF from July 1 - September 30, 2013.

Mark Type	Number Sampled		
	Legal-size	Sublegal-size	Total
Marked	47	0	47
Unmarked	0	0	0
Total	47	0	47

Table 6.4 Summary of coded-wire tags recovered from Chinook salmon harvested during the Area 12 Chinook MSF from July 1 - September 30, 2013. The field “Number DITs” corresponds to the number of tags that belonged to double-index tag groups.

Release Domain	Release Region	Release Site	Rearing Location	CWTs Recovered	Number DITs
Washington (100%)	Hood Canal (100%)	Finch Creek 16.0222	Hoodsport Hatchery	2 (50%)	0
		Purdy Creek 16.0005	George Adams Hatchery	2 (50%)	2
Total				4	2

Table 6.5 List of sites sampled with the number of sampling events (site-days) during the Area 12 Chinook MSF from July 1 - September 30, 2013.

Location	Number of Site-Days Sampled per Month			Total Site-Days	% of Total
	Jul	Aug	Sept		
Hood Canal Public Ramp (Tacoma Light)	13	15	4	32	49%
Hoodsport Marina	1	0	0	1	2%
Misery Point Ramp	0	1	8	9	14%
Everett Ramp	0	1	0	1	2%
Pleasant Harbor Boat Ramp	0	1	1	2	3%
Point Whitney Ramp	0	2	0	2	3%
Salsbury County Park Ramp	0	1	1	2	3%
Summertide Resort	0	0	1	1	2%
Twanoh State Park	1	1	0	2	3%
Union Ramp	1	1	3	5	8%
Hood Canal Marina (Union)	1	0	0	1	2%
Hoodsport Shore	1	0	0	1	2%
Big Beef Beach	0	0	3	3	5%
Skokomish Tide Flats	2	1	0	3	5%
Grand Total	20	24	21	65	100%

7) Marine Area 13 Summer Mark-Selective Chinook Fishery

The Washington Department of Fish and Wildlife (WDFW) implemented a seventh consecutive summer Chinook MSF in Marine Area 13 from May 1 through September 30, 2013. WDFW's Puget Sound Sampling Unit (PSSU) implemented a "Baseline Sampling" program (see WDFW 2012a for details) consisting of dockside angler interviews with catch sampling along with efforts to distribute and collect voluntary trip reports (VTRs) from the angling public.

Unlike the other survey designs, Baseline Sampling does not provide a means for generating in-season or immediate post-season estimates of fishery total catch and effort. These estimates will be available approximately one year after the close of the fishery through the WDFW Catch Record Card (CRC) program. Once available, CRC-based catch estimates will be used to generate estimates of total Chinook encounters and mortalities by size and mark-status using the methods provided in WDFW & NWIFC (2013b). Thus, while these descriptors of MSF impacts are not presented in the present document, they will be available at a future time.

Table 7.1 summarizes the parameters estimated and the sampling activities associated with each parameter. Specific procedures used for collecting these data and estimating critical data parameters are presented in detail in our separate Methods Report (WDFW 2012a). In this section we present results from our monitoring activities during the Area 13 summer Chinook MSF from May 1 through September 30, 2013, including relative catch and effort patterns over the three-month season based on the assumption that baseline-sampling observations of these parameters are good indicators of associated fishery-wide trends.

Table 7.1 Sampling/estimation details on target parameters associated with the overall Area 13 mark-selective fishery monitoring program.

Activity	Focal Parameter(s)	Secondary Parameter(s)	Sample Unit(s)	Finest Estimation Time Step	Comments
Dockside Angler Interviews (Baseline Sampling)	Observed (in-sample) fishing effort (boat & angler trips); kept and released fish.	Catch rates (CPUE); length, age, and CWT composition of harvest ¹ ; collection of angler fishing methods.	Angler trip; kept fish; reported fish release	Week	Observed catch per angler trip and species composition data obtained from baseline sampling will ultimately be combined with Catch Record Card (CRC) data to produce fishery-total estimates at a later time (approximately one year following the fishery).
Voluntary Trip Reports (VTRs)	Size (legal/sublegal) and mark-status composition (marked, unmarked) of encountered Chinook	Encounter data for non-Chinook species (e.g., coho) that the angler may record on the VTR form	Fish encounter	Season	When CRC-based retained Chinook estimates become available VTR data may be used in the estimation of total Chinook encounters by size/mark group (LM = 80%, LU = 17%, SM = 3%, SU = 0%; Table 7.5), along with associated impacts, using the methods described in WDFW & NWIFC (2013b).
Overall Fishery Impacts Estimation	Total Chinook encounters and mortalities, by size/mark-status group	Ratios of encounters and mortalities per kept Chinook	N/A	Season	Will be estimated at a later date using the CRC-based retained Chinook estimate, when it becomes available.
Coded-wire tag (CWT) Impacts Estimation	Marked/unmarked double-index tag (DIT) encounters and mortalities	N/A	N/A	Season	Will be estimated at a later date using the CRC-based retained Chinook estimate, when it becomes available. The temporal resolution of DIT impacts is constrained by the total number of tags recovered.

¹ The length and CWT composition of landed catch was assessed on a season-wide basis for impact estimation.

Table 7.2 Observations of fishing effort, salmon harvest, and reported salmon releases, by week, for the Area 13 Chinook MSF from May 1 - September 30, 2013. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates. AD = marked (adipose-clipped), UM = unmarked, UK = unknown mark status.

Month	Stat Week	Effort		Retained Fish				Released Fish										
		Boats	Anglers	Chinook		Coho AD	Pink	Chinook			Coho			Pink	Steelhead	Cutthroat	Trout General	Unknown Salmon
				AD	UM			AD	UM	UK	AD	UM	UK					
May	18	24	51	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	19	30	56	6	0	0	0	0	8	1	0	0	1	0	0	30	0	0
	20	24	53	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	21	5	12	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	22	17	31	2	0	0	0	0	2	1	0	0	0	0	0	0	0	0
Jun	23	13	30	8	0	0	0	4	3	0	0	0	0	0	0	0	0	1
	24	16	31	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0
	25	26	52	8	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	26	38	74	1	0	0	0	0	0	2	0	0	0	0	0	5	15	0
Jul	27	41	76	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	28	56	105	0	0	0	0	0	0	2	0	0	0	0	0	5	0	0
	29	48	102	1	0	0	0	4	0	2	0	0	0	0	0	0	0	0
	30	51	98	2	0	1	0	0	1	3	0	0	0	0	0	15	0	0
	31	68	126	1	0	0	5	2	0	5	0	0	2	0	0	1	0	1
Aug	32	104	194	26	0	1	0	0	4	4	0	2	1	0	0	1	0	0
	33	186	383	97	1	0	7	6	4	7	0	0	0	0	0	0	0	3
	34	179	342	74	0	1	0	3	7	2	2	0	0	4	0	3	0	2
	35	177	318	37	0	1	12	2	1	1	0	1	0	2	0	2	0	1
Sept	36	57	109	1	0	2	1	0	1	0	0	0	0	0	0	9	0	0
	37	48	74	0	0	0	1	0	0	0	0	0	0	3	0	0	0	0
	38	31	45	0	0	0	2	0	0	0	0	0	0	0	1	2	0	0
	39	11	16	0	0	0	0	0	0	1	0	0	0	0	0	5	0	0
	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Area 13 Total:		1250	2378	269	2	6	28	21	31	31	2	3	4	9	1	86	16	9

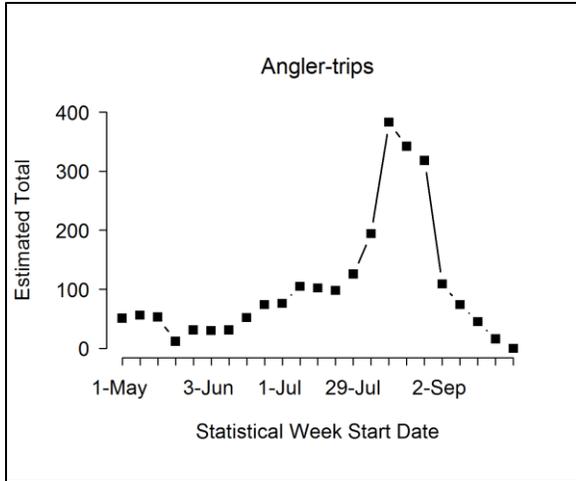


Figure 7.1 Temporal patterns in fishing effort during the Area 13 Chinook MSF from May 1 - September 30, 2013. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates.

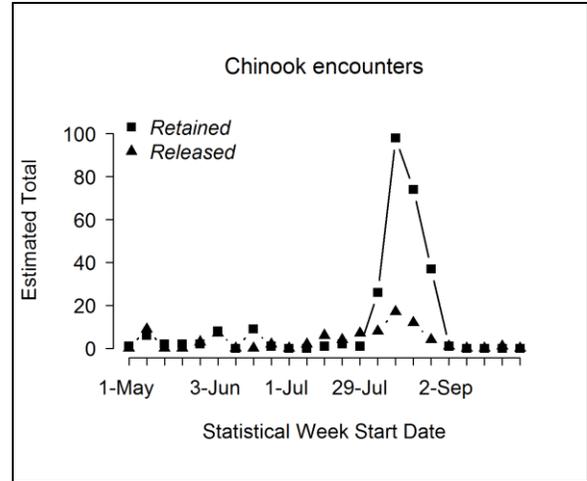


Figure 7.3 Temporal patterns in Chinook encounters (retained and released) during the Area 13 Chinook MSF from May 1 - September 30, 2013. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates.

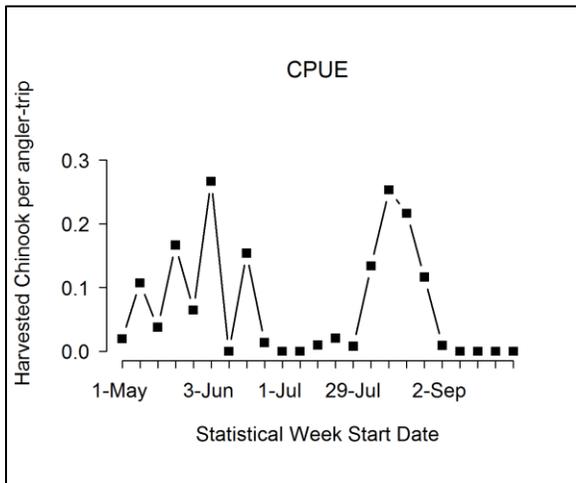


Figure 7.2 Temporal patterns in CPUE (landed Chinook per angler trip) during the Area 13 Chinook MSF from May 1 - September 30, 2013. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates.

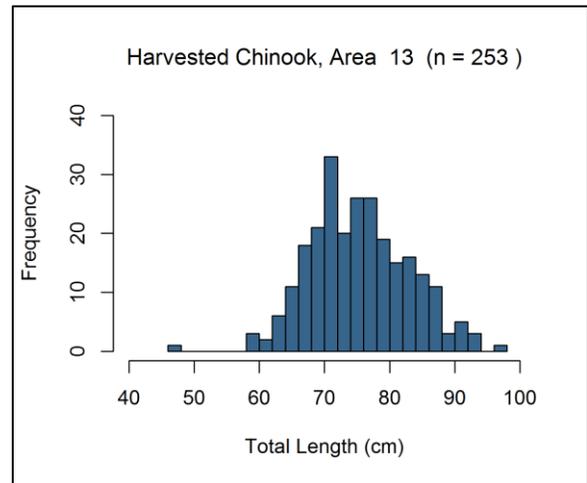


Figure 7.4 Length-frequency distributions of retained marked Chinook sampled in dockside angler interviews during the Area Chinook MSF from May 1 - September 30, 2013.

Table 7.3 Summary of total length samples from retained Chinook salmon collected during dockside angler interviews in the Area 13 Chinook MSF from May 1 - September 30, 2013.

Mark Type	Number Sampled		
	Legal-size	Sublegal-size	Total
Marked	252	1	253
Unmarked	1	0	1
Total	253	1	254

Table 7.4 Summary of coded-wire tags recovered from Chinook salmon harvested during the Area 13 Chinook MSF from May 1 - September 30, 2013. The field “Number DITs” corresponds to the number of tags that belonged to double-index tag groups.

Release Domain	Release Region	Release Site	Rearing Location	CWTs Recovered	Number DITs
Washington (100%)	Southern Puget Sound (100%)	Clear Creek 11.0013C	Clear Creek Hatchery	2 (50%)	2
		Minter Creek 15.0048	Minter Creek Hatchery	2 (50%)	0
Total				4	2

Table 7.5 Total Chinook encountered (retained and released) by private-boat anglers logging their trips on voluntary trip reports (VTRs) during the Area 13 Chinook MSF from May 1 - September 30, 2013, with estimates of legal-size and overall (legal and sublegal) mark rates. AD = marked (adipose-clipped), UM = unmarked. Variances associated with size/mark-status proportions and mark rates are provided in parentheses.

Data Source	Effort and Sample Size	Legal		Sublegal		Totals	Mark Rate	
		AD	UM	AD	UM		Overall	Legal
Private VTR	28 1-trip VTRs, 50 Angler Trips	28	6	1	0	35	0.83	0.82
Size/mark-status composition:		0.80	0.17	0.03	0.00			
Variance:		(0.00471)	(0.00418)	(0.00082)	(0.00000)			

Table 7.6 List of sites sampled with the number of sampling events (site-days) during the Area 13 Chinook MSF from May 1 - September 30, 2013.

Location	Number of Site-Days Sampled per Month					Total Site-Days	% of Total
	May	Jun	Jul	Aug	Sept		
Allyn Public Ramp	0	0	0	1	0	1	0.3%
Arcadia Ramp	0	1	0	0	0	1	0.3%
Boston Harbor Ramp/Marina	3	1	6	26	12	48	16.5%
Fox Island Public Ramp	0	0	1	0	0	1	0.3%
Gig Harbor Ramp	1	2	2	1	0	6	2.1%
Grapeview Public Ramp	0	0	0	0	1	1	0.3%
Hartstene Is. Ramp	0	1	1	5	9	16	5.5%
Longbranch Public Ramp	0	0	0	2	0	2	0.7%
Luhr Beach Ramp	1	8	11	9	7	36	12.4%
Narrows Marina (Boathouse; Ramp; Rental)	11	10	8	12	8	49	16.8%
East Bay Marina/Ramp (Oly. Isle)	0	1	0	1	0	2	0.7%
Point Defiance Boathouse	1	4	4	0	1	10	3.4%
Point Defiance Public Ramp	13	2	4	2	4	25	8.6%
Solo Point (Tatsolo Pt-Ft Lewis) Rm	0	1	8	9	8	26	8.9%
Steilacoom Public Ramp	1	0	2	2	4	9	3.1%
Vaughn Public Ramp	0	1	0	0	0	1	0.3%
Wollochet Bay Public Ramp	0	2	0	0	0	2	0.7%
Zittels Marina	5	13	10	9	4	41	14.1%
Narrows Properties Park	0	1	1	6	2	10	3.4%
Dupont Shore	0	0	0	2	2	4	1.4%
Grand Total	36	48	58	87	62	291	100%

ACKNOWLEDGEMENTS

This review of the 2013 summer Chinook MSFs in Areas 5, 6, 9, 10, 11, 12 and 13 is the result of the dedicated efforts of several individuals. First, we thank the WDFW Puget Sound Sampling Unit (PSSU) field supervisors and their staff, who successfully implemented comprehensive sampling programs during the summer 2013 Chinook MSFs. The PSSU field staff have conducted the dockside creel surveys, test fishery sampling, on-the-water effort surveys, aerial surveys, voluntary trip report program, angler education, as well as compiled, error-checked, and delivered high-quality monitoring data to enable mark-selective fishery evaluations. In particular, from Central Sound, we thank Slim Simpson (Central Sound Sampling Supervisor), Jeff McKee, Kathy Young-Berg, Sue Kraemer, Pete Sergeeff, Courtney Adkins, April Bosley, Martha Dunham, Geoff Lowery, Eric Lambert, Kendra Baird, Joel Teitge, Area 10 test fishers Joe Short and Ben Nelson, and Area 9 test fishers Christopher Frazier and Toby Black. From the Strait of Juan de Fuca/Peninsula area, we thank Larry Bennett (Peninsula Sampling Supervisor), Connie Warren, Jessica Newberg, Ryan Ollerman, Raese Reeves, Joseph Enyeart, Joseph Boucher, Loren Baker, Eli Owens, Lorena McGovern, and Alan Brown. From North Sound, we thank Steve Axtell (North Sampling Supervisor) and Marcus Thompson, Jim Repoz and Dean Toba. From South Sound as well as Hood Canal and the Kitsap Peninsula, we thank Dan O'Brien (South Sound Supervisor), Justin Terry, John Moore, Scott Walker, Cara Crowley, Mary Raymond, Bryan Blazer, Jesse Jones, Katrina Outland, Robert Green, Shannon Hagen, Tom Matthews, Paul Lorenz, Kristina Bonsell, Karen Shields, John Rohr and Maria Garcia-Rojas.

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Finally, we extend a special thanks to Robert Conrad of Northwest Indian Fisheries Commission (NWIFC) for his dedicated efforts and expertise in working with us to develop and refine mark-selective fishery estimation methods and reports. We also thank NWIFC biometrician Marianna Alexandersdottir for her helpful reviews and valuable guidance regarding sampling design and estimation methods, reporting efficiencies, and new opportunities to plan a collaborative online database that will better enable information sharing. Additionally, we thank tribal technical representatives, particularly Kit Rawson (Tulalip Tribe) and Bob Hayman (Skagit River System Cooperative), for their helpful contributions during our state-tribal collaborative efforts to develop the new, more efficient annual reporting format for selective fisheries.

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APPENDICES

Appendix A.1 Size measures by sample date, for sites sampled during dockside creel surveys in the Area 5 Chinook MSF from July 1 through August 15, 2013.

Sample Date	Week	Location #1	Site Size	Location #2	Site Size
7/1/2013	27	Olsons West Docks	0.0858	Olsons Ramp	0.3008
7/5/2013	27	Curleys Resort	0.0868	Olsons Ramp	0.3662
7/6/2013	27	Curleys Resort	0.0868	Olsons East Docks	0.1801
7/11/2013	28	Olsons Ramp	0.3008	Van Riper's South	0.2368
7/13/2013	28	Olsons East Docks	0.1801	Olsons Ramp	0.3662
7/14/2013	28	Olsons East Docks	0.1801	Van Riper's South	0.1937
7/16/2013	29	Olsons Ramp	0.3008	Van Riper's North	0.1193
7/19/2013	29	Olsons Ramp	0.3662	Van Riper's South	0.1937
7/21/2013	29	Olsons East Docks	0.1801	Olsons West Docks	0.1165
7/22/2013	30	Olsons East Docks	0.1794	Olsons Ramp	0.3008
7/26/2013	30	Olsons West Docks	0.1165	Van Riper's South	0.1937
7/27/2013	30	Curleys Resort	0.0868	Olsons Ramp	0.3662
7/30/2013	31	Olsons East Docks	0.1794	Van Riper's South	0.2368
8/3/2013	31	Olsons West Docks	0.1435	Van Riper's North	0.1276
8/4/2013	31	Olsons East Docks	0.0944	Olsons Ramp	0.4036
8/6/2013	32	Curleys Resort	0.098	Van Riper's North	0.1657
8/9/2013	32	Olsons West Docks	0.1435	Olsons Ramp	0.4036
8/11/2013	32	Olsons Ramp	0.4036	Van Riper's South	0.1773
8/15/2013	33	Olsons Ramp	0.3039	Van Riper's South	0.1629

Appendix A.2 Size measures by sample date, for sites sampled during dockside creel surveys in the Area 9 Chinook MSF from July 16 through August 4, 2013.

Sample Date	Week	Location #1	Site Size	Location #2	Site Size
7/16/2013	29	Norton Street (Everett) Ramp	0.3333	Port Townsend Boat Haven Ramp	0.2479
7/17/2013	29	Norton Street (Everett) Ramp	0.3333	Port Townsend Boat Haven Ramp	0.2479
7/19/2013	29	Norton Street (Everett) Ramp	0.2588	Port Townsend Boat Haven Ramp	0.2118
7/20/2013	29	Norton Street (Everett) Ramp	0.2588	Port Townsend Boat Haven Ramp	0.2118
7/21/2013	29	Norton Street (Everett) Ramp	0.2588	Kingston Public Ramp	0.0412
7/22/2013	30	Mukiteo State Park Public Ramp	0.1026	Port Townsend Boat Haven Ramp	0.2479
7/25/2013	30	Norton Street (Everett) Ramp	0.3333	Port Townsend Boat Haven Ramp	0.2479
7/26/2013	30	Fort Casey Public Ramp	0.2941	Norton Street (Everett) Ramp	0.2588
7/27/2013	30	Norton Street (Everett) Ramp	0.2588	Port Townsend Boat Haven Ramp	0.2118
7/28/2013	30	Norton Street (Everett) Ramp	0.2588	Port Townsend Boat Haven Ramp	0.2118
7/30/2013	31	Norton Street (Everett) Ramp	0.3333	Port Townsend Boat Haven Ramp	0.2479
7/31/2013	31	Norton Street (Everett) Ramp	0.3333	Port Townsend Boat Haven Ramp	0.2479
8/2/2013	31	Norton Street (Everett) Ramp	0.4032	Port Townsend Boat Haven Ramp	0.086
8/3/2013	31	Fort Casey Public Ramp	0.2043	Norton Street (Everett) Ramp	0.4032
8/4/2013	31	Norton Street (Everett) Ramp	0.4032	Kingston Public Ramp	0.1129

Appendix A.3 Size measures by sample date, for sites sampled during dockside creel surveys in the Area 10 Chinook MSF from July 16 through August 18, 2013.

Sample Date	Week	Location #1	Site Size	Location #2	Site Size
7/16/2013	29	Shilshole Public Ramp	0.4891	Kingston Public Ramp	0.1839
7/17/2013	29	Armeni Public Ramp	0.1556	Manchester Public Ramp	0.0978
7/19/2013	29	Manchester Public Ramp	0.0576	Shilshole Public Ramp	0.4856
7/20/2013	29	Armeni Public Ramp	0.2122	Shilshole Public Ramp	0.4856
7/21/2013	29	Armeni Public Ramp	0.2122	Shilshole Public Ramp	0.4856
7/22/2013	30	Armeni Public Ramp	0.1556	Shilshole Public Ramp	0.4891
7/25/2013	30	Armeni Public Ramp	0.1556	Brownsville Marina/Dock/Ramp	0.0736
7/26/2013	30	Manchester Public Ramp	0.0576	Shilshole Public Ramp	0.4856
7/27/2013	30	Armeni Public Ramp	0.2122	Shilshole Public Ramp	0.4856
7/28/2013	30	Armeni Public Ramp	0.2122	Shilshole Public Ramp	0.4856
7/30/2013	31	Armeni Public Ramp	0.1556	Manchester Public Ramp	0.0978
7/31/2013	31	Shilshole Public Ramp	0.4891	Kingston Public Ramp	0.1839
8/2/2013	31	Armeni Public Ramp	0.287	Shilshole Public Ramp	0.4691
8/3/2013	31	Armeni Public Ramp	0.287	Shilshole Public Ramp	0.4691
8/4/2013	31	Armeni Public Ramp	0.287	Kingston Public Ramp	0.1173
8/6/2013	32	Armeni Public Ramp	0.3197	Shilshole Public Ramp	0.3852
8/7/2013	32	Armeni Public Ramp	0.3197	Shilshole Public Ramp	0.3852
8/9/2013	32	Armeni Public Ramp	0.287	Shilshole Public Ramp	0.4691
8/10/2013	32	Brownsville Marina/Dock/Ramp	0.0432	Shilshole Public Ramp	0.4691
8/11/2013	32	Armeni Public Ramp	0.287	Shilshole Public Ramp	0.4691
8/12/2013	33	Shilshole Public Ramp	0.3852	Kingston Public Ramp	0.1066
8/15/2013	33	Shilshole Public Ramp	0.3852	Kingston Public Ramp	0.1066
8/16/2013	33	Armeni Public Ramp	0.287	Shilshole Public Ramp	0.4691
8/17/2013	33	Armeni Public Ramp	0.287	Shilshole Public Ramp	0.4691
8/18/2013	33	Armeni Public Ramp	0.287	Shilshole Public Ramp	0.4691

Appendix A.4 Size measures by sample date, for sites sampled during dockside creel surveys in the Area 11 Chinook MSF from June 1 through September 30, 2013.

Sample Date	Week	Location #1	Site Size	Location #2	Site Size
6/1/2013	22	Point Defiance Boathouse	0.1583	Point Defiance Public Ramp	0.4708
6/2/2013	22	Point Defiance Boathouse	0.1583	Point Defiance Public Ramp	0.4708
6/4/2013	23	Point Defiance Boathouse	0.2108	Point Defiance Public Ramp	0.4113
6/7/2013	23	Point Defiance Boathouse	0.1583	Point Defiance Public Ramp	0.4708
6/9/2013	23	Gig Harbor Ramp	0.1104	Point Defiance Public Ramp	0.4708
6/10/2013	24	Gig Harbor Ramp	0.1826	Point Defiance Public Ramp	0.4113
6/14/2013	24	Narrows Marina	0.0663	Point Defiance Public Ramp	0.4708
6/16/2013	24	Point Defiance Public Ramp	0.4708	Redondo Ramp	0.1084
6/17/2013	25	Gig Harbor Ramp	0.1826	Point Defiance Public Ramp	0.4113
6/22/2013	25	Point Defiance Public Ramp	0.4708	Redondo Ramp	0.1084
6/23/2013	25	Point Defiance Boathouse	0.1583	Point Defiance Public Ramp	0.4708
6/27/2013	26	Armeni Public Ramp	0.0731	Point Defiance Public Ramp	0.4113
6/28/2013	26	Point Defiance Boathouse	0.1583	Point Defiance Public Ramp	0.4708
6/29/2013	26	Point Defiance Public Ramp	0.4708	Redondo Ramp	0.1084
7/1/2013	27	Point Defiance Public Ramp	0.5134	Redondo Ramp	0.1254
7/5/2013	27	Point Defiance Boathouse	0.139	Point Defiance Public Ramp	0.4404
7/6/2013	27	Point Defiance Boathouse	0.139	Point Defiance Public Ramp	0.4404
7/11/2013	28	Armeni Public Ramp	0.0795	Point Defiance Public Ramp	0.5134
7/13/2013	28	Gig Harbor Ramp	0.0771	Point Defiance Public Ramp	0.4404
7/14/2013	28	Point Defiance Public Ramp	0.4404	Redondo Ramp	0.2394
7/16/2013	29	Point Defiance Public Ramp	0.5134	Redondo Ramp	0.1254
7/19/2013	29	Point Defiance Public Ramp	0.4404	Redondo Ramp	0.2394
7/21/2013	29	Armeni Public Ramp	0.0544	Point Defiance Public Ramp	0.4404
7/22/2013	30	Gig Harbor Ramp	0.1032	Point Defiance Public Ramp	0.5134
7/26/2013	30	Gig Harbor Ramp	0.0771	Point Defiance Public Ramp	0.4404
7/27/2013	30	Point Defiance Public Ramp	0.4404	Redondo Ramp	0.2394
7/30/2013	31	Point Defiance Public Ramp	0.5134	Redondo Ramp	0.1254
8/3/2013	31	Gig Harbor Ramp	0.077	Redondo Ramp	0.2421
8/4/2013	31	Point Defiance Boathouse	0.0988	Point Defiance Public Ramp	0.4943
8/6/2013	32	Point Defiance Public Ramp	0.4091	Redondo Ramp	0.1975
8/9/2013	32	Point Defiance Boathouse	0.0988	Point Defiance Public Ramp	0.4943
8/11/2013	32	Point Defiance Boathouse	0.0988	Point Defiance Public Ramp	0.4943
8/15/2013	33	Gig Harbor Ramp	0.1134	Point Defiance Public Ramp	0.4091
8/17/2013	33	Point Defiance Public Ramp	0.4943	Redondo Ramp	0.2421
8/18/2013	33	Point Defiance Boathouse	0.0988	Point Defiance Public Ramp	0.4943

Sample Date	Week	Location #1	Site Size	Location #2	Site Size
8/22/2013	34	Point Defiance Public Ramp	0.4091	Redondo Ramp	0.1975
8/23/2013	34	Point Defiance Public Ramp	0.4943	Redondo Ramp	0.2421
8/25/2013	34	Point Defiance Boathouse	0.0988	Point Defiance Public Ramp	0.4943
8/29/2013	35	Point Defiance Boathouse	0.1423	Point Defiance Public Ramp	0.4091
8/30/2013	35	Point Defiance Public Ramp	0.4943	Redondo Ramp	0.2421
9/1/2013	35	Point Defiance Boathouse	0.0825	Point Defiance Public Ramp	0.4388
9/5/2013	36	Gig Harbor Ramp	0.1129	Point Defiance Public Ramp	0.318
9/6/2013	36	Point Defiance Public Ramp	0.4388	Redondo Ramp	0.3138
9/8/2013	36	Point Defiance Boathouse	0.0825	Point Defiance Public Ramp	0.4388
9/10/2013	37	Point Defiance Public Ramp	0.318	Redondo Ramp	0.2764
9/14/2013	37	Point Defiance Public Ramp	0.4388	Redondo Ramp	0.3138
9/15/2013	37	Point Defiance Boathouse	0.0825	Point Defiance Public Ramp	0.4388
9/16/2013	38	Point Defiance Boathouse	0.2378	Point Defiance Public Ramp	0.318
9/20/2013	38	Point Defiance Public Ramp	0.4388	Redondo Ramp	0.3138
9/21/2013	38	Gig Harbor Ramp	0.1129	Point Defiance Public Ramp	0.4388
9/24/2013	39	Point Defiance Public Ramp	0.318	Redondo Ramp	0.2764
9/28/2013	39	Gig Harbor Ramp	0.1129	Point Defiance Public Ramp	0.4388
9/29/2013	39	Point Defiance Boathouse	0.0825	Point Defiance Public Ramp	0.4388

Appendix B.1 Coded-wire tag (CWT) recoveries in the summer Area 5 Chinook MSF from July 1 - August 15, 2013.

Area	Recovery Date	Tag Code	Brood Year	Release Site	Rearing Hatchery	Release Agency	DIT Codes	FL (cm)	Label	Recovery Mark
5	7/1/2013	635997	2010	COUSE CR 35.2147	LYONS FERRY H	WDFW		67	87201	AD
5	7/2/2013	181584	2010	R-Chilliwack R	H-Chilliwack River H	CDFO	181679,181592,181588,181590	63	71935	AD
5	7/2/2013	210973	2010	GORST CR 15.0216	GORST CR REARING PND	SUQ		56	87106	AD
5	7/2/2013	635366	2009	PURDY CR 16.0005	GEORGE ADAMS H	WDFW	635367	68	87184	AD
5	7/4/2013	634392	2007	SIMILKAMEEN R 490325	SIMILKAMEEN H	WDFW		89	71951	AD
5	7/5/2013	635292	2009	WALLACE R 07.0940	WALLACE R H	WDFW	635293	56	71936	AD
5	7/5/2013	182068	2011	R-Chilliwack R	H-Chilliwack River H	CDFO	182467,181982,182385,180279	41	71937	AD
5	7/5/2013	220321	2010	CAPTAIN JOHNS PD	LYONS FERRY H	NEZP		53	74503	AD
5	7/5/2013	100153	2010	Snake @ Hells Canyon Dam	OXBOW H	IDFG		66	74504	AD
5	7/5/2013	182385	2011	R-Chilliwack R	H-Chilliwack River H	CDFO	182467,181982,182068,180279	47	74505	AD
5	7/5/2013	210962	2010	QUINAULT LK (GRAY)	QUINAULT LK H	QDNR	210961	67	74506	AD
5	7/5/2013	635697	2010	FRIDAY CR 03.0017	SAMISH H	WDFW	635698	56	74507	AD
5	7/5/2013	181592	2010	R-Chilliwack R	H-Chilliwack River H	CDFO	181679,181584,181588,181590	68	87108	AD
5	7/5/2013	635375	2009	COLUMBIA NEAR WELLS	WELLS H	WDFW		80	87110	AD
5	7/5/2013	635573	2009	CASCADE R 03.1411	MARBLEMOUNT H	WDFW	635574	62	87111	AD
5	7/5/2013	635273	2010	COWLITZ R 26.0002	COWLITZ SALMON H	WDFW		55	87187	AD
5	7/5/2013	181471	2010	R-Harrison R	H-Chehalis River H	CDFO		66	87188	AD
5	7/6/2013	181679	2010	R-Chilliwack R	H-Chilliwack River H	CDFO	181584,181592,181588,181590	71	71939	UM
5	7/6/2013	220321	2010	CAPTAIN JOHNS PD	LYONS FERRY H	NEZP		54	71942	AD
5	7/6/2013	210973	2010	GORST CR 15.0216	GORST CR REARING PND	SUQ		58	71945	AD
5	7/6/2013	68752	2010	San Pablo Bay Net Pens	FEATHER R H	CDFW		64	71946	AD
5	7/6/2013	54590	2010	Ltl White Salmon @ NFH	Ltl White Sslmon NFH	FWS		81	71954	AD
5	7/6/2013	55365	2010	SPRING CR 29.0159	SPRING CR NFH	FWS	055398	66	71955	AD
5	7/6/2013	181473	2010	R-Harrison R	H-Chehalis River H	CDFO		61	71956	AD
5	7/6/2013	181590	2010	R-Chilliwack R	H-Chilliwack River H	CDFO	181679,181584,181592,181588	70	74510	AD
5	7/6/2013	635297	2009	BIG SOOS CR 09.0072	SOOS CREEK H	WDFW	635298	60	74511	AD
5	7/6/2013	181592	2010	R-Chilliwack R	H-Chilliwack River H	CDFO	181679,181584,181588,181590	58	74512	AD
5	7/6/2013	181470	2010	R-Harrison R	H-Chehalis River H	CDFO		60	74513	AD
5	7/6/2013	220321	2010	CAPTAIN JOHNS PD	LYONS FERRY H	NEZP		54	74514	AD
5	7/6/2013	636069	2010	EAST SOUND BAY (SAN)	GLENWOOD SPRINGS	COOP		52	74516	AD
5	7/6/2013	635594	2010	KALAMA R 27.0002	KALAMA FALLS H	WDFW		67	74801	AD
5	7/6/2013	181471	2010	R-Harrison R	H-Chehalis River H	CDFO		63	74850	AD
5	7/6/2013	54590	2010	Ltl White Salmon @ NFH	Ltl White Sslmon NFH	FWS		78	87112	AD
5	7/6/2013	90566	2011	BIG CR (LWR COL R)	BIG CR H	ODFW	090583,090582,090567	45	87113	AD
5	7/7/2013	635589	2010	ICY CR 09.0125	ICY CR H	WDFW		51	71948	AD
5	7/7/2013	181473	2010	R-Harrison R	H-Chehalis River H	CDFO		69	71949	AD
5	7/7/2013	181470	2010	R-Harrison R	H-Chehalis River H	CDFO		63	71950	AD
5	7/7/2013	210905	2009	CLEAR CR 11.0013C	CLEAR CREEK H	NISQ	635096	60	71958	AD

Area	Recovery Date	Tag Code	Brood Year	Release Site	Rearing Hatchery	Release Agency	DIT Codes	FL (cm)	Label	Recovery Mark
5	7/7/2013	635774	2010	CHELAN R 47.0052	CHELAN FALLS H	WDFW		55	74517	AD
5	7/7/2013	181473	2010	R-Harrison R	H-Chehalis River H	CDFO		60	74518	AD
5	7/7/2013	68750	2010	San Pablo Bay Net Pens	FEATHER R H	CDFW		66	74519	AD
5	7/7/2013	220321	2010	CAPTAIN JOHNS PD	LYONS FERRY H	NEZP		52	74520	AD
5	7/7/2013	635292	2009	WALLACE R 07.0940	WALLACE R H	WDFW	635293	59	74521	AD
5	7/7/2013	181590	2010	R-Chilliwack R	H-Chilliwack River H	CDFO	181679,181584,181592,181588	62	74802	AD
5	7/7/2013	181471	2010	R-Harrison R	H-Chehalis River H	CDFO		60	74849	AD
5	7/7/2013	181592	2010	R-Chilliwack R	H-Chilliwack River H	CDFO	181679,181584,181588,181590	55	87102	AD
5	7/7/2013	635291	2009	FINCH CR 16.0222	HOODSPORT H	WDFW		76	87104	AD
5	7/7/2013	635768	2010	PURDY CR 16.0005	GEORGE ADAMS H	WDFW	635767	56	87122	AD
5	7/7/2013	90492	2010	UMATILLA R	BONNEVILLE H	ODFW	090493,090491,090489,090490	50	87123	AD
5	7/7/2013	181584	2010	R-Chilliwack R	H-Chilliwack River H	CDFO	181679,181592,181588,181590	64	87124	AD
5	7/7/2013	636069	2010	EAST SOUND BAY (SAN)	GLENWOOD SPRINGS	COOP		57	87125	AD
5	7/7/2013	68771	2010	WICKLAND OIL NET PEN	NIMBUS FISH H	CDFW		56	87128	AD
5	7/10/2013	635372	2009	METHOW R 48.0002	CARLTON ACCLIM POND	WDFW		55	71566	AD
5	7/10/2013	181470	2010	R-Harrison R	H-Chehalis River H	CDFO		61	71962	AD
5	7/10/2013	51267	2010	ENTIAT R 46.0042	ENTIAT NFH	FWS		56	71963	AD
5	7/10/2013	90492	2010	UMATILLA R	BONNEVILLE H	ODFW	090493,090491,090489,090490	60	71964	AD
5	7/10/2013	181590	2010	R-Chilliwack R	H-Chilliwack River H	CDFO	181679,181584,181592,181588	68	71965	AD
5	7/10/2013	55405	2010	SPRING CR 29.0159	SPRING CR NFH	FWS	055406	57	71967	AD
5	7/10/2013	210831	2008	BAKER R 03.0435	MARBLEMOUNT H	WDFW		73	74525	AD
5	7/10/2013	635297	2009	BIG SOOS CR 09.0072	SOOS CREEK H	WDFW	635298	67	74526	AD
5	7/10/2013	181592	2010	R-Chilliwack R	H-Chilliwack River H	CDFO	181679,181584,181588,181590	55	74528	AD
5	7/10/2013	635285	2009	SAMISH R 03.0005	SAMISH H	WDFW	635284	64	74803	AD
5	7/10/2013	636069	2010	EAST SOUND BAY (SAN)	GLENWOOD SPRINGS	COOP		55	74804	AD
5	7/10/2013	55233	2011	Ltl White Salmon @ NFH	Ltl White Sslmon NFH	FWS		44	74806	AD
5	7/10/2013	210908	2009	SKAGIT R 03.0176	MARBLEMOUNT H	WDFW		79	87189	AD
5	7/10/2013	635297	2009	BIG SOOS CR 09.0072	SOOS CREEK H	WDFW	635298	60	87191	AD
5	7/10/2013	635579	2009	SIMILKAMEEN R 490325	SIMILKAMEEN H	WDFW		70	87192	AD
5	7/10/2013	210912	2009	GROVERS CR H	GROVERS CR H	SUQ	635089	75	87195	AD
5	7/10/2013	220204	2010	CLWTR @ LAPWAI CRK	NPT H	NEZP		65	87196	AD
5	7/10/2013	635979	2010	KLICKITAT H (YKFP)	KLICKITAT H (YKFP)	YAKA		54	87199	AD
5	7/11/2013	181470	2010	R-Harrison R	H-Chehalis River H	CDFO		65	71572	AD
5	7/11/2013	90437	2010	BIG CR (LWR COL R)	BIG CR H	ODFW	090366	76	71970	AD
5	7/11/2013	635288	2009	VOIGHT CR TR 10.0428	VOIGHTS CR H	WDFW		61	74524	AD
5	7/11/2013	210957	2010	CLEAR CR 11.0013C	CLEAR CREEK H	NISQ	635692	65	74531	AD
5	7/11/2013	181590	2010	R-Chilliwack R	H-Chilliwack River H	CDFO	181679,181584,181592,181588	59	74532	AD
5	7/11/2013	635283	2010	FINCH CR 16.0222	HOODSPORT H	WDFW		61	74533	AD
5	7/11/2013	68756	2010	San Joaq Shrm Isl Net Pen	MOK R FISH INS	CDFW		85	74534	AD
5	7/11/2013	636069	2010	EAST SOUND BAY (SAN)	GLENWOOD SPRINGS	COOP		69	74536	AD

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5	7/11/2013	635366	2009	PURDY CR 16.0005	GEORGE ADAMS H	WDFW	635367	68	74537	AD
5	7/11/2013	635291	2009	FINCH CR 16.0222	HOODSPORT H	WDFW		53	74538	AD
5	7/11/2013	186310	2010	R-Cowichan R	H-Cowichan River H	CDFO		57	74539	AD
5	7/11/2013	90492	2010	UMATILLA R	BONNEVILLE H	ODFW	090493,090491,090489,090490	51	74540	AD
5	7/11/2013	635273	2010	COWLITZ R 26.0002	COWLITZ SALMON H	WDFW		58	74541	AD
5	7/11/2013	210963	2010	GROVERS CR H	GROVERS CR H	SUQ	635695	63	74846	AD
5	7/11/2013	635683	2010	NOOKSACK R -NF 01.0120	KENDALL CR H	WDFW	635682	54	74848	AD
5	7/11/2013	635776	2010	WENATCHEE R 45.0030	DRYDEN POND	WDFW		50	87131	AD
5	7/11/2013	635768	2010	PURDY CR 16.0005	GEORGE ADAMS H	WDFW	635767	67	87194	AD
5	7/11/2013	68771	2010	WICKLAND OIL NET PEN	NIMBUS FISH H	CDFW		60	87204	AD
5	7/12/2013	635283	2010	FINCH CR 16.0222	HOODSPORT H	WDFW		59	45431	AD
5	7/12/2013	635292	2009	WALLACE R 07.0940	WALLACE R H	WDFW	635293	65	61827	AD
5	7/12/2013	60390	2011	Feather Boyds Pump Ramp	FEATHER R H	CDFW		51	61828	AD
5	7/12/2013	181397	2010	R-Cowichan R	H-Cowichan River H	CDFO		54	71575	AD
5	7/12/2013	635280	2009	COLUMBIA NEAR WELLS	WELLS H	WDFW		68	71973	AD
5	7/12/2013	220209	2010	NPT H	NPT H	NEZP		61	74546	AD
5	7/12/2013	90492	2010	UMATILLA R	BONNEVILLE H	ODFW	090493,090491,090489,090490	51	74548	AD
5	7/12/2013	635697	2010	FRIDAY CR 03.0017	SAMISH H	WDFW	635698	56	74840	AD
5	7/12/2013	181473	2010	R-Harrison R	H-Chehalis River H	CDFO		64	74842	AD
5	7/12/2013	635697	2010	FRIDAY CR 03.0017	SAMISH H	WDFW	635698	77	87139	AD
5	7/12/2013	635564	2009	SNAKE L.MON-LTL GOOS	LYONS FERRY H	WDFW		70	87142	AD
5	7/12/2013	210905	2009	CLEAR CR 11.0013C	CLEAR CREEK H	NISQ	635096	58	87145	AD
5	7/12/2013	181584	2010	R-Chilliwack R	H-Chilliwack River H	CDFO	181679,181592,181588,181590	66	87205	AD
5	7/13/2013	55260	2011	Ltl White Salmon @ NFH	Ltl White Sslmon NFH	FWS		56	71645	AD
5	7/13/2013	635297	2009	BIG SOOS CR 09.0072	SOOS CREEK H	WDFW	635298	58	71975	AD
5	7/13/2013	68768	2010	Sac R @ Discovery Park	NIMBUS FISH H	CDFW		69	74702	AD
5	7/13/2013	636080	2010	LYONS FERRY REL.SITE	LYONS FERRY H	WDFW		46	74705	AD
5	7/13/2013	90488	2010	COL R @ RM 369.9	RINGOLD SPRINGS H	WDFW		52	74851	AD
5	7/13/2013	636080	2010	LYONS FERRY REL.SITE	LYONS FERRY H	WDFW		54	74852	AD
5	7/13/2013	635693	2010	BIG SOOS CR 09.0072	SOOS CREEK H	WDFW	635696	54	74856	AD
5	7/13/2013	220209	2010	NPT H	NPT H	NEZP		64	87136	AD
5	7/13/2013	68837	2009	TRINITY R H	TRINITY R H	HVT		74	87141	AD
5	7/13/2013	635693	2010	BIG SOOS CR 09.0072	SOOS CREEK H	WDFW	635696	49	87144	AD
5	7/13/2013	181584	2010	R-Chilliwack R	H-Chilliwack River H	CDFO	181679,181592,181588,181590	68	87206	AD
5	7/14/2013	181590	2010	R-Chilliwack R	H-Chilliwack River H	CDFO	181679,181584,181592,181588	58	71980	AD
5	7/14/2013	181590	2010	R-Chilliwack R	H-Chilliwack River H	CDFO	181679,181584,181592,181588	62	71981	AD
5	7/14/2013	181590	2010	R-Chilliwack R	H-Chilliwack River H	CDFO	181679,181584,181592,181588	58	71983	AD
5	7/14/2013	210959	2010	HOKO R 19.0148	HOKO FALLS H	MAKA		63	71984	AD
5	7/14/2013	635768	2010	PURDY CR 16.0005	GEORGE ADAMS H	WDFW	635767	68	74751	AD
5	7/14/2013	210862	2009	CLARKS CRK H	CLARKS CRK H	PUYA		82	74754	AD

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5	7/14/2013	635282	2010	WALLACE R 07.0940	WALLACE R H	WDFW	635679	57	87138	AD
5	7/14/2013	181472	2010	R-Harrison R	H-Chehalis River H	CDFO		54	87146	AD
5	7/14/2013	635998	2010	SNAKE L.MON-LTL GOOS	LYONS FERRY H	WDFW		54	87149	AD
5	7/16/2013	635297	2009	BIG SOOS CR 09.0072	SOOS CREEK H	WDFW	635298	77	71985	AD
5	7/16/2013	210928	2009	KALAMA CR 11.0017	KALAMA CR H	NISQ		62	74608	AD
5	7/16/2013	636069	2010	EAST SOUND BAY (SAN)	GLENWOOD SPRINGS	COOP		50	87209	AD
5	7/16/2013	181584	2010	R-Chilliwack R	H-Chilliwack River H	CDFO	181679,181592,181588,181590	72	87210	AD
5	7/16/2013	181470	2010	R-Harrison R	H-Chehalis River H	CDFO		52	87212	AD
5	7/18/2013	55399	2011	SPRING CR 29.0159	SPRING CR NFH	FWS	055404,055527,055528	46	71646	AD
5	7/18/2013	181592	2010	R-Chilliwack R	H-Chilliwack River H	CDFO	181679,181584,181588,181590	73	71647	AD
5	7/18/2013	55446	2011	COLEMAN NFH	COLEMAN NFH	FWS		49	71986	AD
5	7/18/2013	210905	2009	CLEAR CR 11.0013C	CLEAR CREEK H	NISQ	635096	63	74757	AD
5	7/18/2013	90323	2009	BIG CR (LWR COL R)	BIG CR H	ODFW	090148	84	74758	AD
5	7/18/2013	210916	2009	GORST CR 15.0216	GORST CR REARING PND	SUQ		76	74759	AD
5	7/18/2013	210957	2010	CLEAR CR 11.0013C	CLEAR CREEK H	NISQ	635692	52	74792	AD
5	7/18/2013	635979	2010	KLICKITAT H (YKFP)	KLICKITAT H (YKFP)	YAKA		61	74810	AD
5	7/18/2013	68769	2010	AMERICAN R @ SUNRISE	NIMBUS FISH H	CDFW		72	74843	AD
5	7/18/2013	634781	2008	FINCH CR 16.0222	HOODSPORT H	WDFW		69	87148	AD
5	7/18/2013	635697	2010	FRIDAY CR 03.0017	SAMISH H	WDFW	635698	54	87214	AD
5	7/18/2013	210905	2009	CLEAR CR 11.0013C	CLEAR CREEK H	NISQ	635096	67	87215	AD
5	7/18/2013	181585	2010	R-Shuswap R Low	H-Shuswap River, Middle,	CDFO		70	87216	AD
5	7/18/2013	90567	2011	BIG CR (LWR COL R)	BIG CR H	ODFW	090583,090582,090566	42	87498	AD
5	7/19/2013	68762	2010	San Joaq Shrm Isl Net Pen	MOK R FISH INS	CDFW		63	61829	AD
5	7/19/2013	181592	2010	R-Chilliwack R	H-Chilliwack River H	CDFO	181679,181584,181588,181590	69	61830	AD
5	7/19/2013	181588	2010	R-Chilliwack R	H-Chilliwack River H	CDFO	181679,181584,181592,181590	57	71648	AD
5	7/19/2013	635593	2010	FINCH CR 16.0222	HOODSPORT H	WDFW		59	71988	AD
5	7/19/2013	181592	2010	R-Chilliwack R	H-Chilliwack River H	CDFO	181679,181584,181588,181590	60	71989	AD
5	7/19/2013	181590	2010	R-Chilliwack R	H-Chilliwack River H	CDFO	181679,181584,181592,181588	61	74610	AD
5	7/19/2013	635589	2010	ICY CR 09.0125	ICY CR H	WDFW		49	74611	AD
5	7/19/2013	635291	2009	FINCH CR 16.0222	HOODSPORT H	WDFW		71	74612	AD
5	7/19/2013	210958	2010	WHITEHORSE SPRINGS	STILLAGUAMISH H	STIL		60	74762	AD
5	7/19/2013	635697	2010	FRIDAY CR 03.0017	SAMISH H	WDFW	635698	54	74793	AD
5	7/19/2013	635283	2010	FINCH CR 16.0222	HOODSPORT H	WDFW		72	74795	AD
5	7/19/2013	635593	2010	FINCH CR 16.0222	HOODSPORT H	WDFW		52	74797	AD
5	7/20/2013	635769	2010	CASCADE R 03.1411	MARBLEMOUNT H	WDFW		53	71649	AD
5	7/20/2013	181385	2010	R-Shuswap R Low	H-Shuswap River, Middle,	CDFO		74	71650	AD
5	7/20/2013	210963	2010	GROVERS CR H	GROVERS CR H	SUQ	635695	61	71714	AD
5	7/20/2013	181471	2010	R-Harrison R	H-Chehalis River H	CDFO		59	74763	AD
5	7/20/2013	635770	2010	COLUMBIA NEAR WELLS	WELLS H	WDFW		54	74771	AD
5	7/20/2013	635366	2009	PURDY CR 16.0005	GEORGE ADAMS H	WDFW	635367	72	74791	AD

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5	7/20/2013	635768	2010	PURDY CR 16.0005	GEORGE ADAMS H	WDFW	635767	52	74796	AD
5	7/20/2013	210964	2010	SKAGIT R 03.0176	MARBLEMOUNT H	WDFW		56	74798	AD
5	7/20/2013	181470	2010	R-Harrison R	H-Chehalis River H	CDFO		76	74799	AD
5	7/20/2013	635593	2010	FINCH CR 16.0222	HOODSPORT H	WDFW		53	74811	AD
5	7/20/2013	181473	2010	R-Harrison R	H-Chehalis River H	CDFO		61	74837	AD
5	7/20/2013	181590	2010	R-Chilliwack R	H-Chilliwack River H	CDFO	181679,181584,181592,181588	64	74838	AD
5	7/20/2013	68751	2010	WICKLAND OIL NET PEN	FEATHER R H	CDFW		57	74860	AD
5	7/20/2013	220317	2009	Big Canyon Accl Pond	LYONS FERRY H	NEZP		59	74864	AD
5	7/20/2013	635697	2010	FRIDAY CR 03.0017	SAMISH H	WDFW	635698	53	87217	AD
5	7/20/2013	181982	2011	R-Chilliwack R	H-Chilliwack River H	CDFO	182467,182068,182385,180279	47	87218	AD
5	7/21/2013	635288	2009	VOIGHT CR TR 10.0428	VOIGHTS CR H	WDFW		73	71715	AD
5	7/21/2013	181470	2010	R-Harrison R	H-Chehalis River H	CDFO		61	71990	AD
5	7/21/2013	90486	2010	TANNER CR (BNVILLE)	BONNEVILLE H	ODFW		65	74764	AD
5	7/21/2013	635697	2010	FRIDAY CR 03.0017	SAMISH H	WDFW	635698	56	74836	AD
5	7/22/2013	635288	2009	VOIGHT CR TR 10.0428	VOIGHTS CR H	WDFW		62	71991	AD
5	7/22/2013	181471	2010	R-Harrison R	H-Chehalis River H	CDFO		58	74613	AD
5	7/22/2013	55399	2011	SPRING CR 29.0159	SPRING CR NFH	FWS	055404,055527,055528	48	74862	AD
5	7/24/2013	181395	2010	R-Cowichan R	H-Cowichan River H	CDFO		66	74835	AD
5	7/25/2013	635564	2009	SNAKE L.MON-LTL GOOS	LYONS FERRY H	WDFW		61	71716	AD
5	7/25/2013	635469	2009	EAST SOUND BAY (SAN)	GLENWOOD SPRINGS	COOP		61	74832	AD
5	7/25/2013	220321	2010	CAPTAIN JOHNS PD	LYONS FERRY H	NEZP		55	74951	AD
5	7/25/2013	181584	2010	R-Chilliwack R	H-Chilliwack River H	CDFO	181679,181592,181588,181590	63	74952	AD
5	7/25/2013	635997	2010	COUSE CR 35.2147	LYONS FERRY H	WDFW		62	74953	AD
5	7/26/2013	635292	2009	WALLACE R 07.0940	WALLACE R H	WDFW	635293	63	74604	AD
5	7/26/2013	635288	2009	VOIGHT CR TR 10.0428	VOIGHTS CR H	WDFW		72	74833	AD
5	7/26/2013	635593	2010	FINCH CR 16.0222	HOODSPORT H	WDFW		53	74834	AD
5	7/26/2013	636080	2010	LYONS FERRY REL.SITE	LYONS FERRY H	WDFW		53	87116	AD
5	7/27/2013	55479	2011	SOOES R 20.0015	Makah NFH on Sooes R	FWS		44	71717	AD
5	7/27/2013	180896	2009	R-Chilliwack R	H-Chilliwack River H	CDFO	180895,180898	66	71718	AD
5	7/27/2013	210915	2009	GORST CR 15.0216	GORST CR REARING PND	SUQ		78	74765	AD
5	7/27/2013	635768	2010	PURDY CR 16.0005	GEORGE ADAMS H	WDFW	635767	60	74766	AD
5	7/27/2013	635768	2010	PURDY CR 16.0005	GEORGE ADAMS H	WDFW	635767	55	74767	AD
5	7/27/2013	181473	2010	R-Harrison R	H-Chehalis River H	CDFO		59	87222	AD
5	7/27/2013	635970	2010	COL R @ PRIEST RAPIDS	PRIEST RAPIDS H	WDFW	635699,635764,635766,635973,635974	57	87223	AD
5	7/28/2013	635768	2010	PURDY CR 16.0005	GEORGE ADAMS H	WDFW	635767	57	71720	AD
5	7/28/2013	210905	2009	CLEAR CR 11.0013C	CLEAR CREEK H	NISQ	635096	76	74707	AD
5	7/28/2013	181588	2010	R-Chilliwack R	H-Chilliwack River H	CDFO	181679,181584,181592,181590	78	74708	AD
5	7/28/2013	181471	2010	R-Harrison R	H-Chehalis River H	CDFO		59	74709	AD
5	7/28/2013	210963	2010	GROVERS CR H	GROVERS CR H	SUQ	635695	69	74710	AD
5	7/28/2013	55527	2011	SPRING CR 29.0159	SPRING CR NFH	FWS	055399,055404,055528	57	74712	AD

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5	7/28/2013	635966	2010	FALLERT CR 27.0017	FALLERT CR H	WDFW		52	74713	AD
5	7/28/2013	181584	2010	R-Chilliwack R	H-Chilliwack River H	CDFO	181679,181592,181588,181590	59	74827	AD
5	7/28/2013	210973	2010	GORST CR 15.0216	GORST CR REARING PND	SUQ		62	74829	AD
5	7/28/2013	181584	2010	R-Chilliwack R	H-Chilliwack River H	CDFO	181679,181592,181588,181590	80	74954	AD
5	7/28/2013	210928	2009	KALAMA CR 11.0017	KALAMA CR H	NISQ		76	74959	AD
5	7/28/2013	220322	2010	SNAKE R@PITT. LNDG	LYONS FERRY H	NEZP		57	87224	AD
5	7/28/2013	210972	2010	GORST CR 15.0216	GORST CR REARING PND	SUQ		51	87225	AD
5	7/28/2013	635966	2010	FALLERT CR 27.0017	FALLERT CR H	WDFW		52	87227	AD
5	7/28/2013	635288	2009	VOIGHT CR TR 10.0428	VOIGHTS CR H	WDFW		62	87228	AD
5	7/30/2013	181588	2010	R-Chilliwack R	H-Chilliwack River H	CDFO	181679,181584,181592,181590	59	44591	AD
5	7/30/2013	181470	2010	R-Harrison R	H-Chehalis River H	CDFO		63	44592	AD
5	7/30/2013	210928	2009	KALAMA CR 11.0017	KALAMA CR H	NISQ		78	71721	AD
5	7/30/2013	220323	2010	Big Canyon Accl Pond	LYONS FERRY H	NEZP		50	74715	AD
5	7/30/2013	635899	2010	CASCADE R 03.1411	MARBLEMOUNT H	WDFW	636085	52	74716	AD
5	7/30/2013	181584	2010	R-Chilliwack R	H-Chilliwack River H	CDFO	181679,181592,181588,181590	64	74717	AD
5	7/30/2013	55396	2010	COLEMAN NFH	COLEMAN NFH	FWS		60	74718	AD
5	7/30/2013	635768	2010	PURDY CR 16.0005	GEORGE ADAMS H	WDFW	635767	53	74894	AD
5	7/30/2013	635685	2010	WENATCHEE R 45.0030	DRYDEN POND	WDFW		55	74895	AD
5	7/30/2013	635683	2010	NOOKSACK R -NF 01.0120	KENDALL CR H	WDFW	635682	62	74899	AD
5	7/30/2013	635590	2010	WALLACE R 07.0940	WALLACE R H	WDFW		55	74900	AD
5	7/30/2013	635291	2009	FINCH CR 16.0222	HOODSPORT H	WDFW		82	87229	AD
5	7/30/2013	210915	2009	GORST CR 15.0216	GORST CR REARING PND	SUQ		74	87230	AD
5	7/31/2013	181590	2010	R-Chilliwack R	H-Chilliwack River H	CDFO	181679,181584,181592,181588	59	74901	AD
5	7/31/2013	181590	2010	R-Chilliwack R	H-Chilliwack River H	CDFO	181679,181584,181592,181588	60	74902	AD
5	8/1/2013	210958	2010	WHITEHORSE SPRINGS	STILLAGUAMISH H	STIL		56	44593	AD
5	8/1/2013	635697	2010	FRIDAY CR 03.0017	SAMISH H	WDFW	635698	58	44594	AD
5	8/1/2013	636069	2010	EAST SOUND BAY (SAN)	GLENWOOD SPRINGS	COOP		57	44595	AD
5	8/1/2013	181592	2010	R-Chilliwack R	H-Chilliwack River H	CDFO	181679,181584,181588,181590	71	44596	AD
5	8/1/2013	55527	2011	SPRING CR 29.0159	SPRING CR NFH	FWS	055399,055404,055528	55	44597	AD
5	8/1/2013	68702	2010	TIBURON NET PENS	FEATHER R H	CDFW		60	74719	AD
5	8/1/2013	181471	2010	R-Harrison R	H-Chehalis River H	CDFO		60	74720	AD
5	8/1/2013	636069	2010	EAST SOUND BAY (SAN)	GLENWOOD SPRINGS	COOP		60	74725	AD
5	8/1/2013	635697	2010	FRIDAY CR 03.0017	SAMISH H	WDFW	635698	63	74871	AD
5	8/1/2013	635768	2010	PURDY CR 16.0005	GEORGE ADAMS H	WDFW	635767	53	74872	AD
5	8/1/2013	210959	2010	HOKO R 19.0148	HOKO FALLS H	MAKA		71	74874	AD
5	8/1/2013	635097	2008	WENATCHEE R 45.0030	DRYDEN POND	WDFW		60	74930	AD
5	8/2/2013	181470	2010	R-Harrison R	H-Chehalis River H	CDFO		66	74721	AD
5	8/2/2013	635589	2010	ICY CR 09.0125	ICY CR H	WDFW		60	74722	AD
5	8/2/2013	635291	2009	FINCH CR 16.0222	HOODSPORT H	WDFW		72	74723	AD
5	8/2/2013	181590	2010	R-Chilliwack R	H-Chilliwack River H	CDFO	181679,181584,181592,181588	62	74724	AD

Area	Recovery Date	Tag Code	Brood Year	Release Site	Rearing Hatchery	Release Agency	DIT Codes	FL (cm)	Label	Recovery Mark
5	8/2/2013	182385	2011	R-Chilliwack R	H-Chilliwack River H	CDFO	182467,181982,182068,180279	42	74726	AD
5	8/2/2013	181197	2010	R-Shuswap R Low	H-Shuswap River, Middle,	CDFO		63	74773	AD
5	8/2/2013	635768	2010	PURDY CR 16.0005	GEORGE ADAMS H	WDFW	635767	66	74866	AD
5	8/2/2013	181584	2010	R-Chilliwack R	H-Chilliwack River H	CDFO	181679,181592,181588,181590	59	74893	AD
5	8/2/2013	635485	2009	COL R @ PRIEST RAPIDS	PRIEST RAPIDS H	WDFW	635290,635294,635484,635486,635487,635489,635488	83	74903	AD
5	8/2/2013	180896	2009	R-Chilliwack R	H-Chilliwack River H	CDFO	180895,180898	72	87231	AD
5	8/3/2013	181471	2010	R-Harrison R	H-Chehalis River H	CDFO		56	74781	AD
5	8/3/2013	181590	2010	R-Chilliwack R	H-Chilliwack River H	CDFO	181679,181584,181592,181588	67	74905	AD
5	8/4/2013	210959	2010	HOKO R 19.0148	HOKO FALLS H	MAKA		75	74727	AD
5	8/4/2013	181385	2010	R-Shuswap R Low	H-Shuswap River, Middle,	CDFO		68	74869	AD
5	8/4/2013	635291	2009	FINCH CR 16.0222	HOODSPORT H	WDFW		75	74870	AD
5	8/4/2013	635697	2010	FRIDAY CR 03.0017	SAMISH H	WDFW	635698	62	87232	AD
5	8/4/2013	612748	2009	LUKE'S GULCH A F	NPT H	NEZP		82	87233	AD
5	8/6/2013	220204	2010	CLWTR @ LAPWAI CRK	NPT H	NEZP		76	74728	AD
5	8/6/2013	220316	2009	SNAKE R@PITT. LNDG	LYONS FERRY H	NEZP		70	74907	AD
5	8/8/2013	210959	2010	HOKO R 19.0148	HOKO FALLS H	MAKA		63	74908	AD
5	8/8/2013	220324	2011	SNAKE R@PITT. LNDG	LYONS FERRY H	NEZP		42	74909	AD
5	8/8/2013	635564	2009	SNAKE L.MON-LTL GOOS	LYONS FERRY H	WDFW		76	87234	AD
5	8/9/2013	210907	2009	HOKO R 19.0148	HOKO FALLS H	MAKA		84	74867	AD
5	8/9/2013	210959	2010	HOKO R 19.0148	HOKO FALLS H	MAKA		69	74868	AD
5	8/9/2013	635488	2009	COL R @ PRIEST RAPIDS	PRIEST RAPIDS H	WDFW	635290,635294,635484,635485,635486,635487,635489	76	87254	AD
5	8/10/2013	68768	2010	Sac R @ Discovery Park	NIMBUS FISH H	CDFW		69	74790	AD
5	8/10/2013	210959	2010	HOKO R 19.0148	HOKO FALLS H	MAKA		81	74911	AD
5	8/10/2013	636080	2010	LYONS FERRY REL.SITE	LYONS FERRY H	WDFW		50	74958	AD
5	8/10/2013	210905	2009	CLEAR CR 11.0013C	CLEAR CREEK H	NISQ	635096	71	87236	UNK
5	8/11/2013	210959	2010	HOKO R 19.0148	HOKO FALLS H	MAKA		67	74654	AD
5	8/11/2013	210905	2009	CLEAR CR 11.0013C	CLEAR CREEK H	NISQ	635096	79	74655	AD
5	8/11/2013	55371	2010	MARE ISLAND NET PEN	COLEMAN NFH	FWS		63	74657	AD
5	8/11/2013	181590	2010	R-Chilliwack R	H-Chilliwack River H	CDFO	181679,181584,181592,181588	61	74658	AD
5	8/11/2013	181767	2010	R-Big Qualicum R	H-Big Qualicum River H	CDFO		52	74659	AD
5	8/11/2013	635282	2010	WALLACE R 07.0940	WALLACE R H	WDFW	635679	54	74663	AD
5	8/11/2013	180898	2009	R-Chilliwack R	H-Chilliwack River H	CDFO	180895,180896	85	74664	AD
5	8/11/2013	210959	2010	HOKO R 19.0148	HOKO FALLS H	MAKA		68	74775	AD
5	8/11/2013	90492	2010	UMATILLA R	BONNEVILLE H	ODFW	090493,090491,090489,090490	62	87237	AD
5	8/14/2013	220321	2010	CAPTAIN JOHNS PD	LYONS FERRY H	NEZP		57	71992	AD
5	8/14/2013	635196	2009	KALAMA R 27.0002	KALAMA FALLS H	WDFW		85	74665	AD
5	8/14/2013	635267	2009	NASELLE R 24.0543	NASELLE H	WDFW		74	74666	AD
5	8/14/2013	180279	2011	R-Chilliwack R	H-Chilliwack River H	CDFO	182467,181982,182068,182385	47	74778	AD
5	8/14/2013	185729	2011	R-Cowichan R	H-Cowichan River H	CDFO		52	74779	AD

Area	Recovery Date	Tag Code	Brood Year	Release Site	Rearing Hatchery	Release Agency	DIT Codes	FL (cm)	Label	Recovery Mark
5	8/14/2013	180896	2009	R-Chilliwack R	H-Chilliwack River H	CDFO	180895,180898	96	74780	AD
5	8/14/2013	181584	2010	R-Chilliwack R	H-Chilliwack River H	CDFO	181679,181592,181588,181590	77	74785	AD
5	8/14/2013	635484	2009	COL R @ PRIEST RAPIDS	PRIEST RAPIDS H	WDFW	635290,635294,635485,635486,635487,635489,635488	68	74957	AD
5	8/14/2013	210915	2009	GORST CR 15.0216	GORST CR REARING PND	SUQ		73	87238	AD
5	8/14/2013	634875	2008	SIMILKAMEEN R 490325	SIMILKAMEEN H	WDFW		73	87239	AD
5	8/15/2013	181584	2010	R-Chilliwack R	H-Chilliwack River H	CDFO	181679,181592,181588,181590	79	71996	AD
5	8/15/2013	635086	2009	CHAMBERS CR 12.0007	CHAMBERS CR H	WDFW		74	74670	AD
5	8/15/2013	181471	2010	R-Harrison R	H-Chehalis River H	CDFO		76	74914	AD
5	8/15/2013	181585	2010	R-Shuswap R Low	H-Shuswap River, Middle,	CDFO		69	87253	AD

Appendix B.2 Coded-wire tag (CWT) recoveries in the summer Area 6 Chinook MSF from July 1 - August 15, 2013.

Area	Recovery Date	Tag Code	Brood Year	Release Site	Rearing Hatchery	Release Agency	DIT Codes	FL (cm)	Label	Recovery Mark
6	7/1/2013	635369	2009	CASCADE R 03.1411	MARBLEMOUNT H	WDFW		68	71875	AD
6	7/2/2013	54590	2010	Ltl White Salmon @ NFH	Ltl White Salmon NFH	FWS		71	71824	AD
6	7/3/2013	210963	2010	GROVERS CR H	GROVERS CR H	SUQ	635695	65	71825	AD
6	7/3/2013	55405	2010	SPRING CR 29.0159	SPRING CR NFH	FWS	055406	78	71829	AD
6	7/5/2013	635291	2009	FINCH CR 16.0222	HOODSPORT H	WDFW		72	70167	AD
6	7/5/2013	210912	2009	GROVERS CR H	GROVERS CR H	SUQ	635089	68	71876	AD
6	7/6/2013	181398	2010	R-Cowichan R	H-Cowichan River H	CDFO		64	70168	AD
6	7/6/2013	635285	2009	SAMISH R 03.0005	SAMISH H	WDFW	635284	62	70169	AD
6	7/6/2013	181590	2010	Chilliwack R	Chilliwack River H	CDFO	181679,181584,181592,181588	60	70180	AD
6	7/6/2013	181470	2010	Harrison R	Chehalis River H	CDFO		57	70181	AD
6	7/6/2013	181386	2010	Shuswap R Low	Shuswap River, Middle,	CDFO		72	70182	AD
6	7/6/2013	636069	2010	EAST SOUND BAY (SAN)	GLENWOOD SPRINGS	COOP		53	70183	AD
6	7/6/2013	635291	2009	FINCH CR 16.0222	HOODSPORT H	WDFW		90	70184	AD
6	7/6/2013	635768	2010	PURDY CR 16.0005	GEORGE ADAMS H	WDFW	635767	61	70328	AD
6	7/7/2013	210964	2010	SKAGIT R 03.0176	MARBLEMOUNT H	WDFW		50	70185	AD
6	7/7/2013	210905	2009	CLEAR CR 11.0013C	CLEAR CREEK H	NISQ	635096	65	71878	AD
6	7/9/2013	635291	2009	FINCH CR 16.0222	HOODSPORT H	WDFW		63	70188	AD
6	7/11/2013	636099	2011	FRIDAY CR 03.0017	SAMISH H	WDFW	636098	55	71879	AD
6	7/12/2013	635768	2010	PURDY CR 16.0005	GEORGE ADAMS H	WDFW	635767	52	70189	AD
6	7/12/2013	635593	2010	FINCH CR 16.0222	HOODSPORT H	WDFW		67	70190	AD
6	7/12/2013	635366	2009	PURDY CR 16.0005	GEORGE ADAMS H	WDFW	635367	83	70191	AD
6	7/12/2013	635283	2010	FINCH CR 16.0222	HOODSPORT H	WDFW		69	70192	AD
6	7/12/2013	210957	2010	CLEAR CR 11.0013C	CLEAR CREEK H	NISQ	635692	48	70329	AD
6	7/12/2013	210912	2009	GROVERS CR H	GROVERS CR H	SUQ	635089	67	70331	AD
6	7/12/2013	210916	2009	GORST CR 15.0216	GORST CR REARING PND	SUQ		71	70332	AD

Area	Recovery Date	Tag Code	Brood Year	Release Site	Rearing Hatchery	Release Agency	DIT Codes	FL (cm)	Label	Recovery Mark
6	7/12/2013	635291	2009	FINCH CR 16.0222	HOODSPORT H	WDFW		74	70333	AD
6	7/12/2013	635774	2010	CHELAN R 47.0052	CHELAN FALLS H	WDFW		55	71830	AD
6	7/12/2013	181385	2010	Shuswap R Low	Shuswap River, Middle,	CDFO		69	71831	AD
6	7/13/2013	55405	2010	SPRING CR 29.0159	SPRING CR NFH	FWS	055406	81	70334	AD
6	7/13/2013	635285	2009	SAMISH R 03.0005	SAMISH H	WDFW	635284	66	70335	AD
6	7/13/2013	55228	2009	SPRING CR 29.0159	SPRING CR NFH	FWS	055229	80	70337	AD
6	7/13/2013	210963	2010	GROVERS CR H	GROVERS CR H	SUQ	635695	59	71866	AD
6	7/13/2013	181584	2010	Chilliwack R	Chilliwack River H	CDFO	181679,181592,181588,181590	72	71880	AD
6	7/14/2013	635593	2010	FINCH CR 16.0222	HOODSPORT H	WDFW		59	65939	AD
6	7/14/2013	635366	2009	PURDY CR 16.0005	GEORGE ADAMS H	WDFW	635367	65	70338	AD
6	7/14/2013	210963	2010	GROVERS CR H	GROVERS CR H	SUQ	635695	55	70339	AD
6	7/14/2013	210915	2009	GORST CR 15.0216	GORST CR REARING PND	SUQ		74	70340	AD
6	7/18/2013	636069	2010	EAST SOUND BAY (SAN)	GLENWOOD SPRINGS	COOP		58	71856	AD
6	7/18/2013	635768	2010	PURDY CR 16.0005	GEORGE ADAMS H	WDFW	635767	64	71857	AD
6	7/18/2013	635593	2010	FINCH CR 16.0222	HOODSPORT H	WDFW		62	71858	AD
6	7/19/2013	635590	2010	WALLACE R 07.0940	WALLACE R H	WDFW		53	74551	AD
6	7/19/2013	635590	2010	WALLACE R 07.0940	WALLACE R H	WDFW		57	74552	AD
6	7/19/2013	210963	2010	GROVERS CR H	GROVERS CR H	SUQ	635695	64	74553	AD
6	7/20/2013	635285	2009	SAMISH R 03.0005	SAMISH H	WDFW	635284	70	71832	AD
6	7/21/2013	210905	2009	CLEAR CR 11.0013C	CLEAR CREEK H	NISQ	635096	77	70343	AD
6	7/21/2013	635291	2009	FINCH CR 16.0222	HOODSPORT H	WDFW		70	70344	AD
6	7/21/2013	210973	2010	GORST CR 15.0216	GORST CR REARING PND	SUQ		60	70347	AD
6	7/21/2013	635697	2010	FRIDAY CR 03.0017	SAMISH H	WDFW	635698	62	74563	AD
6	7/23/2013	210912	2009	GROVERS CR H	GROVERS CR H	SUQ	635089	61	70345	AD
6	7/23/2013	635593	2010	FINCH CR 16.0222	HOODSPORT H	WDFW		60	70346	AD
6	7/23/2013	210906	2009	WHITEHORSE SPRINGS	WHITEHORSE POND	STIL		72	71885	AD
6	7/23/2013	181590	2010	Chilliwack R	Chilliwack River H	CDFO	181679,181584,181592,181588	63	71886	AD
6	7/24/2013	636099	2011	FRIDAY CR 03.0017	SAMISH H	WDFW	636098	54	74565	AD
6	7/25/2013	635769	2010	CASCADE R 03.1411	MARBLEMOUNT H	WDFW		68	74567	AD
6	7/26/2013	210957	2010	CLEAR CR 11.0013C	CLEAR CREEK H	NISQ	635692	55	74569	AD
6	7/27/2013	635288	2009	VOIGHT CR TR 10.0428	VOIGHTS CR H	WDFW		79	71834	AD
6	7/27/2013	210963	2010	GROVERS CR H	GROVERS CR H	SUQ	635695	65	74576	AD
6	7/27/2013	635590	2010	WALLACE R 07.0940	WALLACE R H	WDFW		55	74577	AD
6	7/28/2013	210912	2009	GROVERS CR H	GROVERS CR H	SUQ	635089	72	71887	AD
6	7/28/2013	635283	2010	FINCH CR 16.0222	HOODSPORT H	WDFW		59	74574	AD
6	7/28/2013	186310	2010	Cowichan R	Cowichan River H	CDFO		67	74575	AD
6	7/28/2013	635288	2009	VOIGHT CR TR 10.0428	VOIGHTS CR H	WDFW		76	74578	AD
6	7/28/2013	210915	2009	GORST CR 15.0216	GORST CR REARING PND	SUQ		87	74579	AD
6	7/31/2013	635297	2009	BIG SOOS CR 09.0072	SOOS CREEK H	WDFW	635298	79	74580	AD
6	8/1/2013	635291	2009	FINCH CR 16.0222	HOODSPORT H	WDFW		74	71833	AD

Area	Recovery Date	Tag Code	Brood Year	Release Site	Rearing Hatchery	Release Agency	DIT Codes	FL (cm)	Label	Recovery Mark
6	8/2/2013	635469	2009	EAST SOUND BAY (SAN)	GLENWOOD SPRINGS	COOP		64	74581	AD
6	8/2/2013	181397	2010	R-Cowichan R	H-Cowichan River H	CDFO		74	74583	AD
6	8/2/2013	181590	2010	R-Chilliwack R	H-Chilliwack River H	CDFO	181679,181584,181592,181588	66	74584	AD
6	8/2/2013	210963	2010	GROVERS CR H	GROVERS CR H	SUQ	635695	57	74585	AD
6	8/3/2013	210905	2009	CLEAR CR 11.0013C	CLEAR CREEK H	NISQ	635096	66	71632	AD
6	8/3/2013	634780	2008	ICY CR 09.0125	ICY CR H	WDFW		64	74554	AD
6	8/3/2013	210915	2009	GORST CR 15.0216	GORST CR REARING PND	SUQ		74	74562	AD
6	8/4/2013	635288	2009	VOIGHT CR TR 10.0428	VOIGHTS CR H	WDFW		74	74555	AD
6	8/4/2013	635297	2009	BIG SOOS CR 09.0072	SOOS CREEK H	WDFW	635298	83	74559	AD
6	8/4/2013	186228	2010	R-Cowichan R	H-Cowichan River H	CDFO		64	74560	AD
6	8/8/2013	635291	2009	FINCH CR 16.0222	HOODSPORT H	WDFW		83	74558	AD
6	8/11/2013	635283	2010	FINCH CR 16.0222	HOODSPORT H	WDFW		62	71889	AD
6	8/11/2013	210958	2010	WHITEHORSE SPRINGS	STILLAGUAMISH H	STIL		62	71894	AD
6	8/14/2013	90437	2010	BIG CR (LWR COL R)	BIG CR H	ODFW	090366	67	74557	AD

Appendix B.3 Coded-wire tag (CWT) recoveries in the summer Area 9 Chinook MSF from July 16 - August 4, 2013.

Area	Recovery Date	Tag Code	Brood Year	Release Site	Rearing Hatchery	Release Agency	DIT Codes	FL (cm)	Label	Recovery Mark
9	7/16/2013	635291	2009	FINCH CR 16.0222	HOODSPORT H	WDFW		87	32646	AD
9	7/16/2013	635697	2010	FRIDAY CR 03.0017	SAMISH H	WDFW	635698	80	43091	AD
9	7/16/2013	210957	2010	CLEAR CR 11.0013C	CLEAR CREEK H	NISQ	635692	82	43092	AD
9	7/16/2013	210905	2009	CLEAR CR 11.0013C	CLEAR CREEK H	NISQ	635096	80	43093	AD
9	7/16/2013	181590	2010	Chilliwack R	Chilliwack River H	CDFO	181679,181584,181592,181588	77	43094	AD
9	7/16/2013	55405	2010	SPRING CR 29.0159	SPRING CR NFH	FWS	055406	78	43095	AD
9	7/16/2013	210963	2010	GROVERS CR H	GROVERS CR H	SUQ	635695	73	43096	AD
9	7/16/2013	210972	2010	GORST CR 15.0216	GORST CR REARING PND	SUQ		66	62539	AD
9	7/16/2013	210912	2009	GROVERS CR H	GROVERS CR H	SUQ	635089	70	65930	AD
9	7/16/2013	635768	2010	PURDY CR 16.0005	GEORGE ADAMS H	WDFW	635767	56	65931	AD
9	7/16/2013	181592	2010	Chilliwack R	Chilliwack River H	CDFO	181679,181584,181588,181590	69	65933	AD
9	7/16/2013	210905	2009	CLEAR CR 11.0013C	CLEAR CREEK H	NISQ	635096	73	70341	AD
9	7/16/2013	635283	2010	FINCH CR 16.0222	HOODSPORT H	WDFW		62	72643	AD
9	7/16/2013	181588	2010	Chilliwack R	Chilliwack River H	CDFO	181679,181584,181592,181590	66	78601	AD
9	7/16/2013	210916	2009	GORST CR 15.0216	GORST CR REARING PND	SUQ		74	78602	AD
9	7/16/2013	635288	2009	VOIGHT CR TR 10.0428	VOIGHTS CR H	WDFW		76	78603	AD
9	7/16/2013	210915	2009	GORST CR 15.0216	GORST CR REARING PND	SUQ		81	78652	AD
9	7/16/2013	181471	2010	Harrison R	Chehalis River H	CDFO		69	78653	AD
9	7/17/2013	635288	2009	VOIGHT CR TR 10.0428	VOIGHTS CR H	WDFW		91	43097	AD
9	7/17/2013	636069	2010	EAST SOUND BAY (SAN)	GLENWOOD SPRINGS	COOP		68	43491	AD

Area	Recovery Date	Tag Code	Brood Year	Release Site	Rearing Hatchery	Release Agency	DIT Codes	FL (cm)	Label	Recovery Mark
9	7/17/2013	181399	2010	Cowichan R	Cowichan River H	CDFO		62	70441	AD
9	7/17/2013	210915	2009	GORST CR 15.0216	GORST CR REARING PND	SUQ		75	78604	AD
9	7/17/2013	181584	2010	Chilliwack R	Chilliwack River H	CDFO	181679,181592,181588,181590	71	78654	AD
9	7/19/2013	210973	2010	GORST CR 15.0216	GORST CR REARING PND	SUQ		60	72644	AD
9	7/19/2013	181397	2010	Cowichan R	Cowichan River H	CDFO		68	78655	AD
9	7/20/2013	635285	2009	SAMISH R 03.0005	SAMISH H	WDFW	635284	78	70449	AD
9	7/20/2013	636089	2010	COWEEMAN R 26.0003	NA	WDFW		73	78554	AD
9	7/20/2013	210912	2009	GROVERS CR H	GROVERS CR H	SUQ	635089	68	78656	AD
9	7/20/2013	635697	2010	FRIDAY CR 03.0017	SAMISH H	WDFW	635698	61	78657	AD
9	7/21/2013	210973	2010	GORST CR 15.0216	GORST CR REARING PND	SUQ		67	43494	AD
9	7/21/2013	210916	2009	GORST CR 15.0216	GORST CR REARING PND	SUQ		92	43495	AD
9	7/21/2013	635282	2010	WALLACE R 07.0940	WALLACE R H	WDFW	635679	63	51835	AD
9	7/21/2013	635593	2010	FINCH CR 16.0222	HOODSPORT H	WDFW		60	65941	AD
9	7/21/2013	635589	2010	ICY CR 09.0125	ICY CR H	WDFW		60	70442	AD
9	7/21/2013	210963	2010	GROVERS CR H	GROVERS CR H	SUQ	635695	68	72540	AD
9	7/21/2013	635590	2010	WALLACE R 07.0940	WALLACE R H	WDFW		60	78555	AD
9	7/21/2013	210916	2009	GORST CR 15.0216	GORST CR REARING PND	SUQ		75	78659	AD
9	7/21/2013	181590	2010	Chilliwack R	Chilliwack River H	CDFO	181679,181584,181592,181588	75	78660	AD
9	7/25/2013	635593	2010	FINCH CR 16.0222	HOODSPORT H	WDFW		NA	52744	AD
9	7/25/2013	210912	2009	GROVERS CR H	GROVERS CR H	SUQ	635089	83	65940	AD
9	7/26/2013	635283	2010	FINCH CR 16.0222	HOODSPORT H	WDFW		76	43499	AD
9	7/26/2013	635297	2009	BIG SOOS CR 09.0072	SOOS CREEK H	WDFW	635298	68	65942	AD
9	7/27/2013	210972	2010	GORST CR 15.0216	GORST CR REARING PND	SUQ		59	78607	AD
9	7/28/2013	635768	2010	PURDY CR 16.0005	GEORGE ADAMS H	WDFW	635767	63	43496	AD
9	7/30/2013	210912	2009	GROVERS CR H	GROVERS CR H	SUQ	635089	77	78558	AD
9	7/30/2013	210957	2010	CLEAR CR 11.0013C	CLEAR CREEK H	NISQ	635692	71	78559	AD
9	7/30/2013	635288	2009	VOIGHT CR TR 10.0428	VOIGHTS CR H	WDFW		79	78609	AD
9	7/31/2013	635291	2009	FINCH CR 16.0222	HOODSPORT H	WDFW		76	43498	AD
9	7/31/2013	635282	2010	WALLACE R 07.0940	WALLACE R H	WDFW	635679	57	78560	AD
9	8/2/2013	635291	2009	FINCH CR 16.0222	HOODSPORT H	WDFW		85	65944	AD
9	8/2/2013	635366	2009	PURDY CR 16.0005	GEORGE ADAMS H	WDFW	635367	67	78663	AD
9	8/2/2013	635693	2010	BIG SOOS CR 09.0072	SOOS CREEK H	WDFW	635696	69	78665	AD
9	8/3/2013	210928	2009	KALAMA CR 11.0017	KALAMA CR H	NISQ		84	62250	AD
9	8/3/2013	210957	2010	CLEAR CR 11.0013C	CLEAR CREEK H	NISQ	635692	65	62251	AD
9	8/3/2013	210905	2009	CLEAR CR 11.0013C	CLEAR CREEK H	NISQ	635096	84	62252	AD
9	8/3/2013	635589	2010	ICY CR 09.0125	ICY CR H	WDFW		62	67262	AD
9	8/3/2013	210973	2010	GORST CR 15.0216	GORST CR REARING PND	SUQ		67	70879	AD
9	8/3/2013	210912	2009	GROVERS CR H	GROVERS CR H	SUQ	635089	69	78667	AD
9	8/4/2013	210957	2010	CLEAR CR 11.0013C	CLEAR CREEK H	NISQ	635692	69	62254	AD
9	8/4/2013	210912	2009	GROVERS CR H	GROVERS CR H	SUQ	635089	73	78668	AD

9	8/4/2013	635590	2010	WALLACE R 07.0940	WALLACE R H	WDFW		56	78669	AD
9	8/4/2013	210972	2010	GORST CR 15.0216	GORST CR REARING PND	SUQ		61	78670	AD

Appendix B.4 Coded-wire tag (CWT) recoveries in the summer Area 10 Chinook MSF from July 16 – August 18, 2013.

Area	Recovery Date	Tag Code	Brood Year	Release Site	Rearing Hatchery	Release Agency	DIT Codes	FL (cm)	Label	Recovery Mark
10	7/16/2013	210928	2009	KALAMA CR 11.0017	KALAMA CR H	NISQ		75	70878	AD
10	7/16/2013	210972	2010	GORST CR 15.0216	GORST CR REARING PND	SUQ		68	72642	AD
10	7/16/2013	181588	2010	Chilliwack R	Chilliwack River H	CDFO	181679,181584,181592,181590	75	78701	AD
10	7/16/2013	635288	2009	VOIGHT CR TR 10.0428	VOIGHTS CR H	WDFW		70	78703	AD
10	7/16/2013	210963	2010	GROVERS CR H	GROVERS CR H	SUQ	635695	56	78752	AD
10	7/17/2013	181590	2010	Chilliwack R	Chilliwack River H	CDFO	181679,181584,181592,181588	74	78753	AD
10	7/21/2013	635768	2010	PURDY CR 16.0005	GEORGE ADAMS H	WDFW	635767	66	78658	AD
10	7/25/2013	181588	2010	Chilliwack R	Chilliwack River H	CDFO	181679,181584,181592,181590	66	67939	AD
10	7/25/2013	635288	2009	VOIGHT CR TR 10.0428	VOIGHTS CR H	WDFW		78	78710	AD
10	7/26/2013	635768	2010	PURDY CR 16.0005	GEORGE ADAMS H	WDFW	635767	62	67839	AD
10	7/26/2013	210973	2010	GORST CR 15.0216	GORST CR REARING PND	SUQ		63	67940	AD
10	7/26/2013	210963	2010	GROVERS CR H	GROVERS CR H	SUQ	635695	65	67941	AD
10	7/26/2013	210862	2009	CLARKS CRK H	CLARKS CRK H	PUYA		72	78709	AD
10	7/26/2013	635288	2009	VOIGHT CR TR 10.0428	VOIGHTS CR H	WDFW		76	78711	AD
10	7/26/2013	210912	2009	GROVERS CR H	GROVERS CR H	SUQ	635089	76	78712	AD
10	7/27/2013	181386	2010	Shuswap R Low	Shuswap River, Middle,	CDFO		68	67841	AD
10	7/27/2013	210957	2010	CLEAR CR 11.0013C	CLEAR CREEK H	NISQ	635692	71	72647	AD
10	7/27/2013	635283	2010	FINCH CR 16.0222	HOODSPORT H	WDFW		61	78713	AD
10	7/27/2013	635366	2009	PURDY CR 16.0005	GEORGE ADAMS H	WDFW	635367	89	78714	AD
10	7/28/2013	635297	2009	BIG SOOS CR 09.0072	SOOS CREEK H	WDFW	635298	72	72648	AD
10	7/28/2013	211015	2011	TULALIP CR 07.0001	BERNIE GOBIN H	TULA		41	78759	AD
10	7/29/2013	635681	2011	BOYD CR 01.0490	KENDALL CR H	WDFW	635684	45	62796	AD
10	7/30/2013	635288	2009	VOIGHT CR TR 10.0428	VOIGHTS CR H	WDFW		77	78717	AD
10	7/30/2013	210928	2009	KALAMA CR 11.0017	KALAMA CR H	NISQ		73	78718	AD
10	7/30/2013	635695	2010	GROVERS CR H	GROVERS CR H	SUQ	210963	66	78719	AD
10	8/1/2013	210963	2010	GROVERS CR H	GROVERS CR H	SUQ	635695	68	72681	AD
10	8/2/2013	635283	2010	FINCH CR 16.0222	HOODSPORT H	WDFW		63	72683	AD
10	8/2/2013	210915	2009	GORST CR 15.0216	GORST CR REARING PND	SUQ		75	78723	AD
10	8/2/2013	635288	2009	VOIGHT CR TR 10.0428	VOIGHTS CR H	WDFW		84	78724	AD
10	8/3/2013	210973	2010	GORST CR 15.0216	GORST CR REARING PND	SUQ		70	62897	AD
10	8/3/2013	210957	2010	CLEAR CR 11.0013C	CLEAR CREEK H	NISQ	635692	67	67948	AD
10	8/3/2013	635288	2009	VOIGHT CR TR 10.0428	VOIGHTS CR H	WDFW		73	72684	AD
10	8/4/2013	210912	2009	GROVERS CR H	GROVERS CR H	SUQ	635089	68	51846	AD
10	8/6/2013	635297	2009	BIG SOOS CR 09.0072	SOOS CREEK H	WDFW	635298	85	78727	AD

Area	Recovery Date	Tag Code	Brood Year	Release Site	Rearing Hatchery	Release Agency	DIT Codes	FL (cm)	Label	Recovery Mark
10	8/6/2013	635291	2009	FINCH CR 16.0222	HOODSPORT H	WDFW		86	78728	AD
10	8/6/2013	635288	2009	VOIGHT CR TR 10.0428	VOIGHTS CR H	WDFW		80	78730	AD
10	8/7/2013	210957	2010	CLEAR CR 11.0013C	CLEAR CREEK H	NISQ	635692	74	78562	AD
10	8/7/2013	210928	2009	KALAMA CR 11.0017	KALAMA CR H	NISQ		74	78731	AD
10	8/7/2013	181590	2010	Chilliwack R	Chilliwack River H	CDFO	181679,181584,181592,181588	74	78733	AD
10	8/7/2013	635291	2009	FINCH CR 16.0222	HOODSPORT H	WDFW		68	78734	AD
10	8/8/2013	635366	2009	PURDY CR 16.0005	GEORGE ADAMS H	WDFW	635367	75	78671	AD
10	8/9/2013	635589	2010	ICY CR 09.0125	ICY CR H	WDFW		60	67843	AD
10	8/9/2013	210905	2009	CLEAR CR 11.0013C	CLEAR CREEK H	NISQ	635096	80	72688	AD
10	8/9/2013	210905	2009	CLEAR CR 11.0013C	CLEAR CREEK H	NISQ	635096	81	78612	AD
10	8/10/2013	635297	2009	BIG SOOS CR 09.0072	SOOS CREEK H	WDFW	635298	69	67949	AD
10	8/10/2013	635283	2010	FINCH CR 16.0222	HOODSPORT H	WDFW		73	72691	AD
10	8/10/2013	210957	2010	CLEAR CR 11.0013C	CLEAR CREEK H	NISQ	635692	68	78527	AD
10	8/10/2013	635297	2009	BIG SOOS CR 09.0072	SOOS CREEK H	WDFW	635298	74	78613	AD
10	8/10/2013	635589	2010	ICY CR 09.0125	ICY CR H	WDFW		63	78614	AD
10	8/10/2013	635589	2010	ICY CR 09.0125	ICY CR H	WDFW		57	78735	AD
10	8/10/2013	181590	2010	Chilliwack R	Chilliwack River H	CDFO	181679,181584,181592,181588	82	78736	AD
10	8/11/2013	210928	2009	KALAMA CR 11.0017	KALAMA CR H	NISQ		73	67950	AD
10	8/11/2013	210905	2009	CLEAR CR 11.0013C	CLEAR CREEK H	NISQ	635096	67	72693	AD
10	8/11/2013	210916	2009	GORST CR 15.0216	GORST CR REARING PND	SUQ		70	78564	AD
10	8/11/2013	635291	2009	FINCH CR 16.0222	HOODSPORT H	WDFW		74	78565	AD
10	8/11/2013	210905	2009	CLEAR CR 11.0013C	CLEAR CREEK H	NISQ	635096	77	78615	AD
10	8/11/2013	635589	2010	ICY CR 09.0125	ICY CR H	WDFW		59	78616	AD
10	8/11/2013	635199	2011	MINTER CR 15.0048	MINTER CR H	WDFW		53	78737	AD
10	8/13/2013	210957	2010	CLEAR CR 11.0013C	CLEAR CREEK H	NISQ	635692	57	72694	AD
10	8/13/2013	211011	2011	GROVERS CR H	GROVERS CR H	SUQ		59	72695	AD
10	8/13/2013	210912	2009	GROVERS CR H	GROVERS CR H	SUQ	635089	68	72696	AD
10	8/13/2013	210957	2010	CLEAR CR 11.0013C	CLEAR CREEK H	NISQ	635692	60	72697	AD
10	8/15/2013	211011	2011	GROVERS CR H	GROVERS CR H	SUQ		44	51836	AD
10	8/15/2013	210912	2009	GROVERS CR H	GROVERS CR H	SUQ	635089	71	51837	AD
10	8/15/2013	636092	2011	GROVERS CR H	GROVERS CR H	SUQ		38	51838	AD
10	8/15/2013	210912	2009	GROVERS CR H	GROVERS CR H	SUQ	635089	81	51839	AD
10	8/15/2013	211011	2011	GROVERS CR H	GROVERS CR H	SUQ		56	78739	AD
10	8/15/2013	210957	2010	CLEAR CR 11.0013C	CLEAR CREEK H	NISQ	635692	66	78741	AD
10	8/16/2013	210957	2010	CLEAR CR 11.0013C	CLEAR CREEK H	NISQ	635692	64	67951	AD
10	8/16/2013	635590	2010	WALLACE R 07.0940	WALLACE R H	WDFW		62	78674	AD
10	8/17/2013	635589	2010	ICY CR 09.0125	ICY CR H	WDFW		57	72699	AD

Appendix B.5 Coded-wire tag (CWT) recoveries in the summer Area 11 Chinook MSF from June 1 - September 30, 2013.

Area	Recovery Date	Tag Code	Brood Year	Release Site	Rearing Hatchery	Release Agency	DIT Codes	FL (cm)	Label	Recovery Mark
11	6/2/2013	210957	2010	CLEAR CR 11.0013C	CLEAR CREEK H	NISQ	635692	61	62865	AD
11	6/7/2013	635593	2010	FINCH CR 16.0222	HOODSPORT H	WDFW	NA	NA	62804	AD
11	6/9/2013	181584	2010	Chilliwack R	Chilliwack River H	CDFO	181679,181592,181588,181590	72	62866	AD
11	6/10/2013	635593	2010	FINCH CR 16.0222	HOODSPORT H	WDFW	NA	64	65078	AD
11	6/15/2013	635593	2010	FINCH CR 16.0222	HOODSPORT H	WDFW	NA	52	56565	AD
11	6/17/2013	635899	2010	CASCADE R 03.1411	MARBLEMOUNT H	WDFW	636085	53	56566	AD
11	6/21/2013	210950	2010	TULALIP CR 07.0001	BERNIE GOBIN H	TULA	210977	57	56567	AD
11	6/24/2013	181592	2010	Chilliwack R	Chilliwack River H	CDFO	181679,181584,181588,181590	73	42231	AD
11	6/24/2013	635593	2010	FINCH CR 16.0222	HOODSPORT H	WDFW	NA	57	56568	AD
11	6/29/2013	210963	2010	GROVERS CR H	GROVERS CR H	SUQ	635695	61	56718	AD
11	6/30/2013	635590	2010	WALLACE R 07.0940	WALLACE R H	WDFW	NA	55	56569	AD
11	6/30/2013	181590	2010	Chilliwack R	Chilliwack River H	CDFO	181679,181584,181592,181588	NA	56574	AD
11	6/30/2013	181584	2010	Chilliwack R	Chilliwack River H	CDFO	181679,181592,181588,181590	71	67937	AD
11	7/5/2013	635593	2010	FINCH CR 16.0222	HOODSPORT H	WDFW	NA	55	62805	AD
11	7/6/2013	210957	2010	CLEAR CR 11.0013C	CLEAR CREEK H	NISQ	635692	66	65079	AD
11	7/13/2013	182068	2011	Chilliwack R	Chilliwack River H	CDFO	182467,181982,182385,180279	56	67835	AD
11	7/15/2013	635590	2010	WALLACE R 07.0940	WALLACE R H	WDFW	NA	59	62803	AD
11	7/16/2013	210915	2009	GORST CR 15.0216	GORST CR REARING PND	SUQ	NA	79	62823	AD
11	7/19/2013	210972	2010	GORST CR 15.0216	GORST CR REARING PND	SUQ	NA	68	62795	AD
11	7/21/2013	635593	2010	FINCH CR 16.0222	HOODSPORT H	WDFW	NA	50	62868	AD
11	7/21/2013	635593	2010	FINCH CR 16.0222	HOODSPORT H	WDFW	NA	59	62869	AD
11	7/26/2013	210912	2009	GROVERS CR H	GROVERS CR H	SUQ	635089	90	54015	AD
11	7/26/2013	210958	2010	WHITEHORSE SPRINGS	STILLAGUAMISH H	STIL	NA	62	56572	AD
11	7/27/2013	210912	2009	GROVERS CR H	GROVERS CR H	SUQ	635089	76	65080	AD
11	7/27/2013	210905	2009	CLEAR CR 11.0013C	CLEAR CREEK H	NISQ	635096	63	67840	AD
11	7/29/2013	635768	2010	PURDY CR 16.0005	GEORGE ADAMS H	WDFW	635767	63	56573	AD
11	7/30/2013	181590	2010	Chilliwack R	Chilliwack River H	CDFO	181679,181584,181592,181588	71	8102	AD
11	7/30/2013	210957	2010	CLEAR CR 11.0013C	CLEAR CREEK H	NISQ	635692	68	62797	AD
11	7/31/2013	635288	2009	VOIGHT CR TR 10.0428	VOIGHTS CR H	WDFW	NA	73	8104	AD
11	8/3/2013	210963	2010	GROVERS CR H	GROVERS CR H	SUQ	635695	67	67947	AD
11	8/6/2013	635768	2010	PURDY CR 16.0005	GEORGE ADAMS H	WDFW	635767	67	62798	AD
11	8/6/2013	635199	2011	MINTER CR 15.0048	MINTER CR H	WDFW	NA	74	65081	AD
11	8/9/2013	210915	2009	GORST CR 15.0216	GORST CR REARING PND	SUQ	NA	66	62800	AD
11	8/10/2013	210928	2009	KALAMA CR 11.0017	KALAMA CR H	NISQ	NA	74	56576	AD
11	8/11/2013	210905	2009	CLEAR CR 11.0013C	CLEAR CREEK H	NISQ	635096	75	67844	AD
11	8/11/2013	210912	2009	GROVERS CR H	GROVERS CR H	SUQ	635089	80	67845	AD
11	8/12/2013	210957	2010	CLEAR CR 11.0013C	CLEAR CREEK H	NISQ	635692	70	52743	AD
11	8/15/2013	210957	2010	CLEAR CR 11.0013C	CLEAR CREEK H	NISQ	635692	57	8103	AD

Area	Recovery Date	Tag Code	Brood Year	Release Site	Rearing Hatchery	Release Agency	DIT Codes	FL (cm)	Label	Recovery Mark
11	8/15/2013	635096	2009	CLEAR CR 11.0013C	CLEAR CREEK H	NISQ	210905	57	56929	AD
11	8/16/2013	210973	2010	GORST CR 15.0216	GORST CR REARING PND	SUQ	NA	57	51691	AD
11	8/16/2013	635593	2010	FINCH CR 16.0222	HOODSPORT H	WDFW	NA	58	54016	AD
11	8/17/2013	210916	2009	GORST CR 15.0216	GORST CR REARING PND	SUQ	NA	85	62937	AD
11	8/18/2013	635086	2009	CHAMBERS CR 12.0007	CHAMBERS CR H	WDFW	NA	72	62873	AD
11	8/22/2013	210957	2010	CLEAR CR 11.0013C	CLEAR CREEK H	NISQ	635692	74	62731	AD
11	8/22/2013	635283	2010	FINCH CR 16.0222	HOODSPORT H	WDFW	NA	64	62732	AD
11	8/22/2013	635096	2009	CLEAR CR 11.0013C	CLEAR CREEK H	NISQ	210905	74	62870	UM
11	8/25/2013	635291	2009	FINCH CR 16.0222	HOODSPORT H	WDFW	NA	75	51841	AD
11	8/25/2013	635593	2010	FINCH CR 16.0222	HOODSPORT H	WDFW	NA	68	54017	AD
11	9/12/2013	635589	2010	ICY CR 09.0125	ICY CR H	WDFW	NA	53	51976	AD

Appendix B.6 Coded-wire tag (CWT) recoveries in the summer Area 12 Chinook MSF from July 1 - September 30, 2013.

Area	Recovery Date	Tag Code	Brood Year	Release Site	Rearing Hatchery	Release Agency	DIT Codes	FL (cm)	Label	Recovery Mark
12	8/4/2013	635283	2010	FINCH CR 16.0222	HOODSPORT H	WDFW		68	42069	AD
12	8/15/2013	635366	2009	PURDY CR 16.0005	GEORGE ADAMS H	WDFW	635367	NA	73553	AD
12	8/21/2013	635768	2010	PURDY CR 16.0005	GEORGE ADAMS H	WDFW	635767	78	73556	AD
12	8/29/2013	635593	2010	FINCH CR 16.0222	HOODSPORT H	WDFW		55	56719	AD

Appendix B.7 Coded-wire tag (CWT) recoveries in the summer Area 13 Chinook MSF from May 1 - September 30, 2013.

Area	Recovery Date	Tag Code	Brood Year	Release Site	Rearing Hatchery	Release Agency	DIT Codes	FL (cm)	Label	Recovery Mark
13	5/19/2013	635587	2010	MINTER CR 15.0048	MINTER CR H	WDFW		64	62794	AD
13	8/13/2013	635587	2010	MINTER CR 15.0048	MINTER CR H	WDFW		63	26136	AD
13	8/27/2013	210905	2009	CLEAR CR 11.0013C	CLEAR CREEK H	NISQ	635096	75	26137	AD
13	9/3/2013	210957	2010	CLEAR CR 11.0013C	CLEAR CREEK H	NISQ	635692	68	56596	AD