

Draft November 23, 2018

**2017-18 Winter Mark-Selective Recreational Chinook Fisheries
In Marine Areas 5, 6, 7, 8-1, 8-2, 9, 10, 11, 12 and 13**

Post-season Report

DRAFT

October 23, 2018

Prepared by:

Ty Garber and Karen Kloempken

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INTRODUCTION

In recent years, abundant runs of hatchery Chinook salmon (*Oncorhynchus tshawytscha*) have been mixed with depressed runs of natural-origin 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, natural-origin 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 natural-origin 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 natural-origin) salmon encountered¹.

Since the Washington Department of Fish and Wildlife (WDFW) implemented the first marine mark-selective Chinook salmon fisheries 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 in multiple Puget Sound Marine Catch Areas during both the summer and winter seasons. Including the 2017 management season, mark-selective fisheries for Chinook salmon have been conducted in Puget Sound for the last 15 summer (May through September) seasons and the last 13 winter (October through April) seasons.

¹ The regulations specific to winter Chinook MSFs 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.

During the 2017-18 winter season (October 2017 through April 2018), WDFW implemented ten Chinook salmon MSFs in Areas 5, 6, 7, 8-1, 8-2, 9, 10, 11, 12, 13. The scheduled seasons in each of the areas were as follows:

- Area 5 from March 16, 2017 through April 30, 2018;
- Area 6 from March 1, 2017 through April 15, 2018;
- Area 7 from January 1, 2018 through April 30, 2018;
- Areas 8-1 and 8-2 from November 1, 2017 through April 30, 2018;
- Area 9 from November 1-30, 2017 and January 16 – April 15, 2018;
- Area 10 from November 1, 2017 through February 28, 2018;
- Area 11 from October 1, 2017 through April 30, 2018;
- Area 12 from October 1 through April 30, 2018;
- Area 13 from October 1, 2017 – April 30, 2018.

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

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, 7, 8-1, 8-2, 9, 10, 11, 12 and 13 to collect the data needed to evaluate each salmon MSF and its impact on unmarked salmon. Through state-tribal agreement (WDFW and NWIFC 2017), 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 salmon trip reports (STRs, formally 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 salmon population;
- ii) the total number of Chinook salmon retained 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 salmon mortalities;
- v) and the total mortality of marked and unmarked double index tag (DIT) CWT stock groups.

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

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

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 salmon MSF study design for both winter and summer fisheries, sampling procedures, data analysis methods, and all equations used to generate estimates and variances. 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 salmon MSFs in Areas 5, 6, 7, 8-1, 8-2, 9, 10, 11, 12 and 13. In the following pages, we report the results generated through our monitoring activities during the 2017-18 winter Chinook salmon 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 text is needed to specify noteworthy in-season adjustments or other circumstances unique to the particular season). We present 2017-18 winter Chinook salmon 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 salmon 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 mortality estimates of marked and unmarked DIT CWT stock groups by hatchery and brood year; v) total fishery Chinook salmon 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; vi) sample rate information based on dockside sampling of retained Chinook salmon; and vii) historical Chinook salmon encounters estimates for each area's winter Chinook salmon MSF.

RESULTS

1) Marine Area 5 Winter Mark-Selective Chinook Salmon Fishery

WDFW implemented the third winter Chinook MSF in Marine Area 5 from March 16, 2018 through April 30, 2018. Data collection methods used to monitor the Area 5 Chinook MSF included dockside angler interviews with catch sampling.

WDFW dockside samplers conducted “Baseline Sampling” at selected access sites during the 2017-18 winter Chinook salmon MSF in Area 5. Complete details of these methods are presented in a separate Methods Report (WDFW 2012a). Briefly, baseline sampling is opportunistic in nature, with overall sampling effort allocated across space and time in a manner that maximizes the number of angler interviews obtained per sample effort. The Area 5 baseline sample frame included two access sites (**Table 1.3**), and a total of 31 site visits during the two-month season. Site visits ranged from short (e.g., “no effort” samples) to full-day (8+ hours) sampling events. When present, samplers interviewed all anglers exiting the Area 5 fishery at the selected access site. The interview and catch-sampling procedures employed were identical to those used in other MSFs. Area 5 samplers acquired information about: 1) angling effort (boat and angler trips, trip length), 2) encounters composition (retained and/or released) by species and mark status (marked vs. unmarked, Chinook and Coho salmon only), and 3) landed Chinook salmon size (fork and total length) and age (scales were collected) composition. Samplers also inspected landed Chinook and Coho salmon for CWTs using wand detectors and acquired snouts when tags were present. Resulting tag data were used to estimate the unexpanded CWT-based composition of landed catch.

In contrast to the intensive “Murthy” survey design employed in other areas, Area 5 sampling results could not be used to produce fishery-total estimates of effort, encounters (retained catch + releases), and unmarked-DIT Chinook salmon impacts. However, Area 5 baseline sampling observations will ultimately be combined with Catch Record Card (CRC) data, once they become available, to estimate catch and effort at the fishery-total level. While these descriptors of MSF impacts are not presented in this document, they will be available at a later date. In the following section, we present results from our monitoring activities during the Area 5 winter 2017-18 Chinook salmon MSF.

Table 1.1 Observations of fishing effort, Chinook salmon retained, and reported Chinook salmon releases, by week, for the winter Chinook salmon MSF in Marine Area 5. 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, UD = undetermined mark-status.

Stat Week	Start	End	Effort		Retained Fish				Released Fish		
			Boats	Anglers	Chin AD	Chin UM	Chin UD	Chin UK	Chin AD	Chin UM	Chin UK
11	16-Mar	18-Mar	12	33	9	0	0	0	12	6	0
12	19-Mar	25-Mar	38	82	27	1	0	0	30	6	17
13	26-Mar	1-Apr	20	39	30	0	0	0	16	2	2
14	2-Apr	8-Apr	20	46	14	0	0	0	26	11	3
15	9-Apr	15-Apr	41	100	31	0	0	0	64	10	17
16	16-Apr	22-Apr	38	77	44	0	0	0	56	14	23
17	23-Apr	29-Apr	36	71	28	0	1	1	23	11	13
18	30-Apr	30-Apr	0	0	0	0	0	0	0	0	0
Season Total			205	448	183	1	1	1	227	60	75

Table 1.2 Observations of fishing effort, salmon retained (other than Chinook), and reported salmon releases (other than Chinook), by week, for the winter Chinook salmon MSF in Marine Area 5. 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, UD = undetermined mark-status.

Stat Week	Start	End	Effort		Released Fish			
			Boats	Anglers	Coho AD	Coho UM	Cutthroat UK	Pink UK
11	16-Mar	18-Mar	12	33	0	1	1	0
12	19-Mar	25-Mar	38	82	1	0	0	2
13	26-Mar	1-Apr	20	39	0	0	0	0
14	2-Apr	8-Apr	20	46	0	0	0	0
15	9-Apr	15-Apr	41	100	1	0	0	0
16	16-Apr	22-Apr	38	77	0	0	0	0
17	23-Apr	29-Apr	36	71	0	0	0	0
18	30-Apr	30-Apr	0	0	0	0	0	0
Season Total			205	448	2	1	1	2

Table 1.3 List of sites sampled with the number of sampling events (site-days) during the winter Chinook salmon MSF in Marine Area 5.

Location Name	Number of Site Days Sampled Per Month		Total Site-Days	% of Total
	March	April		
Olson's Ramp & Docks	1	0	1	3.2%
Olson's Resort	11	19	30	96.8%
Grand Total	12	19	31	100.0%

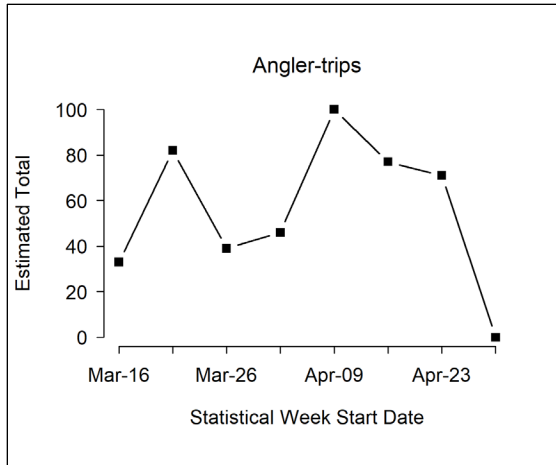


Figure 1.1 Temporal patterns in fishing effort during the 2017-18 winter Chinook salmon MSF in Marine Area 5. Note: displayed values are sample observations (summed across sampled sites)

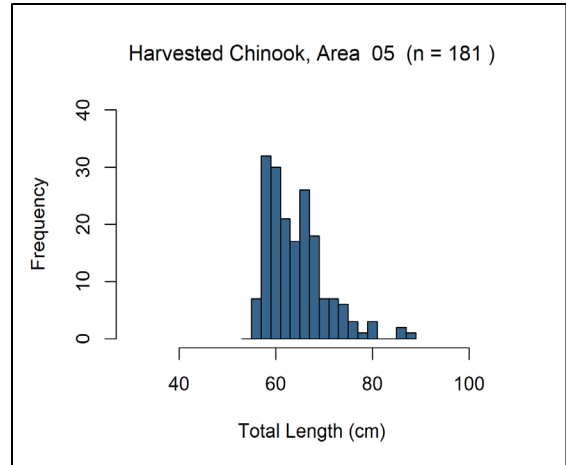


Figure 1.3 Length-frequency distributions of retained marked Chinook salmon sampled in dockside angler interviews during the 2017-18 winter Chinook salmon MSF in Marine Area 5. Note: displayed values are observations where lengths taken.

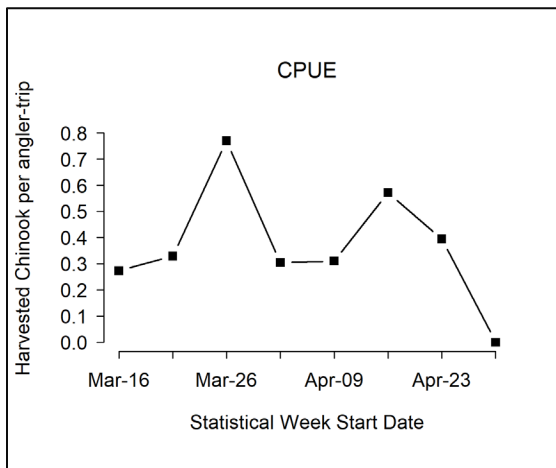


Figure 1.2 Temporal patterns in CPUE (number of Chinook salmon landed per angler trip) during the 2017-18 winter Chinook salmon MSF in Marine Area 5.

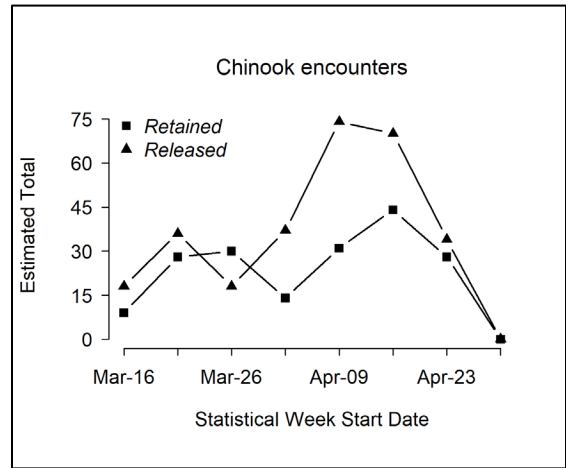


Figure 1.4 Temporal patterns in Chinook salmon encounters (number retained and released) during the 2017-18 winter Chinook salmon MSF in Marine Area 5. Note: displayed values are sample observations (summed across sampled sites)

Table 1.4 Summary of CWTs recovered from Chinook salmon harvested during the 2017-2018 winter Chinook salmon MSF in Marine Area 5. The field “Number DITs” indicates the number of tags that belonged to double-index tag groups.

Release Domain	Release Region	Release Site	Rearing Location	CWTs Recovered	No. DITs
WA	N. Washington(15.4%)	East Sound Bay (San)	Glenwood Springs	1 (7.7%)	0
		Kendall Cr 01.0406	Kendall Cr Hatchery	1 (7.7%)	0
	Hood Canal (15.4%)	Finch Cr 16.0222	Hoodsport Hatchery	2 (15.4%)	0
	N. Puget Sound (15.4%)	Tulalip Cr 07.0001	Bernie Gobin Hatch	1 (7.7%)	1
		Wallace R 07.0940	Wallace R Hatchery	1 (7.7%)	1
	Skagit River (7.7%)	Cascade R 03.1411	Marblemount Hatchery	1 (7.7%)	0
Mid Puget Sound (7.7%)	Grovers Cr 15.0299	Grovers Cr Hatchery	1 (7.7%)	1	
Col. Riv.	Upper Columbia R (7.7%)	Similkameen R 490325	Similkameen Hatchery	1 (7.7%)	0
	Lower Columbia R (7.7%)	Willamette R M Fk-1	Dexter Ponds (Willam	1 (7.7%)	0
CA	Cen. California Coast (7.7%)	Golden Gate Bridge	Mok R Fish Ins	1 (7.7%)	0
	Sacramento River (7.7%)	Coleman Nfh	Coleman Nfh	1 (7.7%)	0
	San Joaquin River (7.7%)	San Joaq Shrm Isl Net Pen	Mok R Fish Ins	1 (7.7%)	0
Total				13	3

Table 1.5 Summary of total length samples from retained Chinook salmon collected during dockside angler interviews in the 2017-18 winter Chinook salmon MSF in Marine Area 5.

Mark Type	Legal	Sublegal	Total
Marked	178	3	181
Unmarked	1	0	1
Total	179	3	182

2) Marine Area 6 Winter Mark-Selective Chinook Salmon Fishery

WDFW implemented a seventh winter MSF in Marine Area 6 from March 1, 2018 through April 8, 2018. The PSSU implemented an intensive monitoring program in Area 6 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, aerial effort surveys and collection of VTRs from the angling public. 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 winter Chinook salmon MSF from March 1, 2018 through April 8, 2018. In addition to the major components of the results described previously (page 3), we present aerial survey and dockside data used to estimate the sample fraction in Area 6 (see WDFW 2012a, Aerial-Access Design). The four sites included in the Area 6 dockside sample frame are John Wayne Marina, Port Angeles Boat Haven, Ediz Hook and Cornet Ramp, which are assumed to be the highest-use access sites for Area 6 anglers. The Olympic Peninsula Derby took place from March 9-11 over portions of Marine Areas 6 and 9. Total derby effort was allocated to each Marine Area using the proportion of effort that occurred in each area based on dockside sampling efforts at designated weigh-in stations during the derby. Total catch by Marine Area was obtained from derby organizers.

Table 2.1 Sampling/estimation details on target parameters associated with the overall Area 6 Chinook salmon MSF 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.
Aerial Surveys	Fraction of Area 6 effort (boats) captured in the four-site sample frame via creel surveys (Sample Fraction, f_{ij}).	Total boat counts at assumed peak effort time interval (instantaneous count); spatial distribution of fishing boats in the area.	Boats	Season	The sample fraction was calculated for individual aerial survey dates (see Table 2.11 $n=5$ surveys conducted out of $N=38$ days available in the season). Season-wide sample fraction was calculated as the average sample fraction over the 5 individual aerial surveys.
Voluntary Trip Reports (VTRs)	Size (legal/sublegal) and mark-status (marked/unmarked) composition of encountered Chinook salmon	Encounter data for non-Chinook salmon species (e.g., Coho salmon) that the angler may record on the VTR form	Fish encounter	Season	Private VTR data (Table 2.6) were used to estimate the size/mark-status proportions (LM = 54%, LU = 12%, SM = 31%, SU = 3%) needed to produce encounter and mortality estimates.
Overall Fishery Impacts Estimation	Total Chinook salmon encounters and mortalities, by size/mark-status group	Ratios of encounters and mortalities per kept Chinook salmon	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.

Table 2.2 Estimates of total fishing effort and total salmon catch (retained and released) during the 2017-18 winter Chinook salmon MSF in Marine Area 6. 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	
Mar	9	1-Mar	4-Mar	187	348	199	0	148	60	406
	10	5-Mar	11-Mar	205	360	228	0	170	68	466
	11	12-Mar	18-Mar	253	450	219	0	163	66	448
	12	19-Mar	25-Mar	132	230	59	0	44	18	120
	13	26-Mar	1-Apr	220	372	171	0	127	51	349
Apr	14	2-Apr	8-Apr	166	269	128	0	96	39	263
Sub-Total:				1163	2,028	1003	0	747	302	2,052
Olympic Peninsula Derby				90	192	115	0	86	35	235
Season Total:				1,253	2,220	1,118	0	833	336	2,287
Variance:				12,323	41,324	19,872	0	112,000	12,225	148,789
SE:				111	203	141	0	335	111	386
CV (%):				9%	9%	13%	0%	40%	33%	17%
95% CI:				1,036 - 1,471	1,821 - 2,618	842 - 1,394	0 - 0	177 - 1,489	120 - 553	1,531 - 3,043

Table 2.3 Summary of total length samples from retained Chinook salmon collected during dockside angler interviews in the 2017-18 winter Chinook salmon MSF in Marine Area 6.

Mark Type	Number Sampled		
	Legal-size	Sublegal-size	Total
Marked	551	18	569
Unmarked	1	0	1
Total	552	18	570

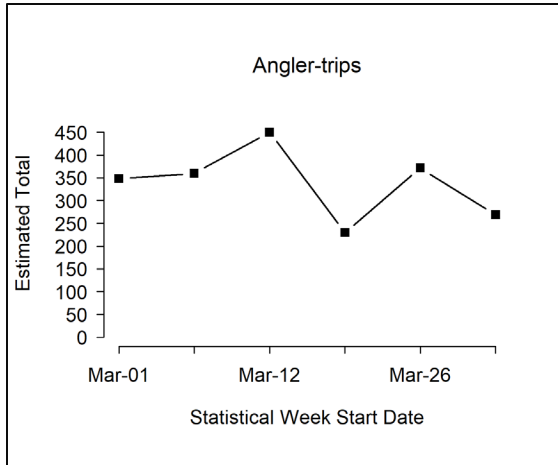


Figure 2.1 Temporal patterns in fishing effort during the 2017-18 winter Chinook salmon MSF in Marine Area 6.

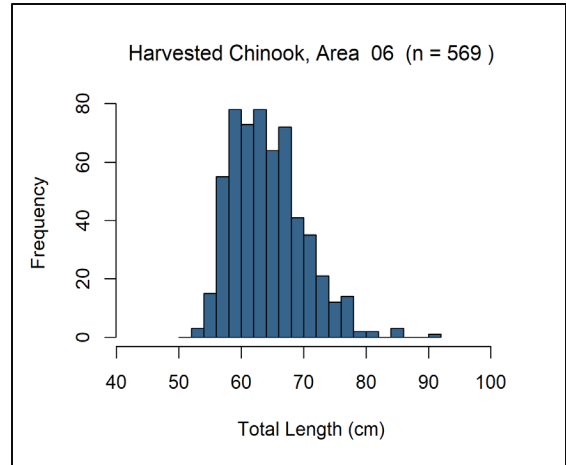


Figure 2.3 Length-frequency distribution of retained marked Chinook salmon sampled in dockside angler interviews during the 2017-18 winter Chinook salmon MSF in Marine Area 6. Note: displayed values are observations where lengths taken.

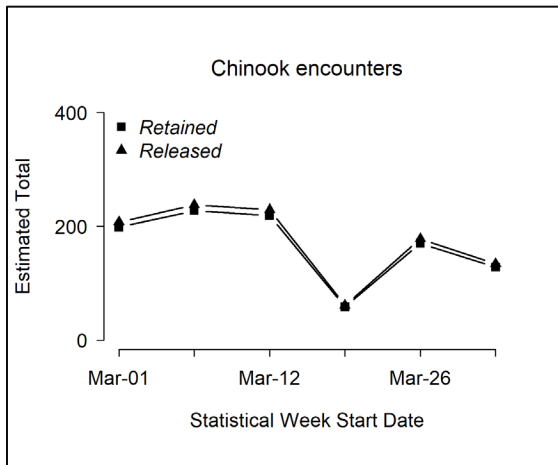


Figure 2.2 Temporal patterns in Chinook salmon encounters (number retained and released) during the 2017-18 winter Chinook salmon MSF in Marine Area 6.

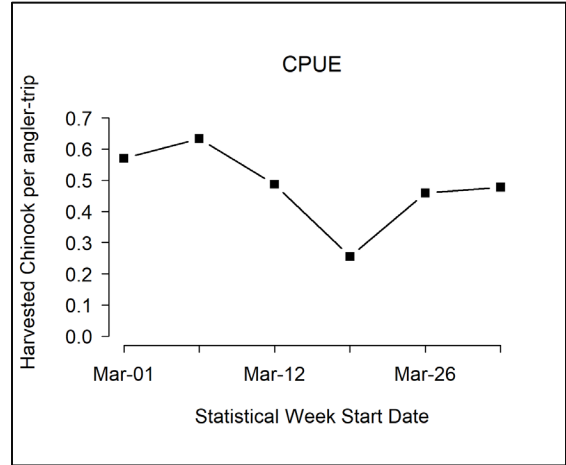


Figure 2.4 Temporal patterns in CPUE (number of Chinook salmon landed per angler trip) during the 2017-18 winter Chinook salmon MSF in Marine Area 6.

Table 2.4 Summary of CWTs recovered from Chinook salmon retained during the 2017-18 winter Chinook salmon MSF in Marine Area 6. The field “Number DITs” indicates the number of tags that belonged to double-index tag groups.

Release Domain	Release Region	Release Site	Rearing Location	CWTs Recovered	No. DITs
WA	N Washington (5.9%)	Friday Cr 03.0017	Samish Hatchery	3 (4.4%)	0
		East Sound Bay (San)	Glenwood Springs	1 (1.5%)	0
	Strait of Juan De Fuca (1.5%)	Elwha R 18.0272	Elwha Hatchery	1 (1.5%)	0
	Hood Canal (27.9%)	Finch Cr 16.0222	Hoodsport Hatchery	11 (16.2%)	0
		Purdy Cr 16.0005	George Adams Hatchery	8 (11.8%)	3
	N Puget Sound (4.4%)	Tulalip Cr 07.0001	Bernie Gobin Hatch	2 (2.9%)	2
		Wallace R 07.0940	Wallace R Hatchery	1 (1.5%)	1
	Skagit River (11.8%)	Co Line Pd2 03.1853B	Marblemount Hatchery	2 (2.9%)	0
		Cascade R 03.1411	Marblemount Hatchery	6 (8.8%)	0
	Mid Puget Sound (30.9%)	Lk Washington (King)	Issaquah Hatchery	1 (1.5%)	0
		Gorst Cr 15.0216	Gorst Cr Rearing Pnd	3 (4.4%)	0
		Voight Cr 10.0414	Voights Cr Hatchery	5 (7.4%)	0
		Clarks Crk Hatchery	Clarks Crk Hatchery	2 (2.9%)	0
		Big Soos Cr 09.0072	Soos Creek Hatchery	5 (7.4%)	0
		Grovers Cr 15.0299	Grovers Cr Hatchery	4 (5.9%)	4
	S Puget Sound (16.2%)	Icy Cr 09.0125	Icy Cr Hatchery	1 (1.5%)	0
		Minter Cr 15.0048	Minter Cr Hatchery	2 (2.9%)	0
		Clear Cr 11.0013C	Clear Creek Hatchery	8 (11.8%)	7
		Mcallister Springs Hatch	Clear Creek Hatchery	1 (1.5%)	0
Col Riv.	Lower Columbia River (1.5%)	Bull Run R	Sandy Hatchery	1 (1.5%)	0
Total				68	17

Table 2.5 Summary of double-index tagged (DIT) Chinook salmon kept by anglers, and estimated total mortality of unmarked DIT Chinook salmon due to hook-and-release impacts resulting from the 2017-18 winter Chinook salmon MSF in Marine Area 6. AD = marked (adipose-clipped), UM = unmarked.

Hatchery	Brood Year	DITs Obs	Est.AD	var(Est.AD)	UM DIT Enc	Est.UM	var(Est.UM)	SE(Est.UM)
Bernie Gobin Hatch	2014	2	8.8	29.79	8.5	0.9	0.28	0.75
Clear Creek Hatchery	2014	7	30.7	104.27	31.2	3.1	1.071	2.74
George Adams Hatchery	2014	3	13.2	44.69	13.2	1.3	0.447	1.16
Grovers Cr Hatchery	2014	2	8.8	29.79	9	0.9	0.315	0.79
Grovers Cr Hatchery	2015	2	8.8	29.79	8.7	0.9	0.294	0.77
Wallace R Hatchery	2014	1	4.4	14.9	4.4	0.4	0.152	0.39
Total		17	74.7	253.22	75	7.5	2.559	6.59

Table 2.6 Total Chinook salmon encountered (retained and released) by charter and private-boat anglers logging their trips on VTRs, with estimates of legal-size and overall (legal and sublegal) mark rates during the 2017-18 winter Chinook salmon MSF in Marine Area 6. 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	22 1-trip VTRs, 28 Angler Trips	37	8	21	2	68	0.85	0.82
Size/mark-status composition:		0.54	0.12	0.31	0.03			
Variance:		(0.0037)	(0.0015)	(0.0032)	(0.0004)			
Charter VTR	4 1-trip VTRs, 10 Angler Trips	4	0	1	1	6	0.83	1.00
Size/mark-status composition:		0.06	0.00	0.01	0.01			
Variance:		(0.0444)	(0.0000)	(0.0278)	(0.0278)			

Table 2.7 Summary of season-wide fishery impact estimates for the 2017-18 winter Chinook salmon MSF in Marine Area 6. 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	1,244	1,083	162	24	1,107	20,522	143	826 - 1,388	13
Legal UM	269	0	269	40	40	223	15	11 - 70	37
Sublegal AD	706	35	671	134	170	1291	36	99 - 240	21
Sublegal UM	67	0	67	13	13	92	10	0 - 32	71
Total	2,287	1,118	1,169	212	1,330	22,128	149	1,039 - 1,622	11

Table 2.8 Comparison of modeled (FRAM model run 2017) and estimated total Chinook salmon encounters for the 2017-18 winter Chinook salmon MSF in Marine Area 6. 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	712	268	444	8
	AD	1,590	991	599	863
	Total	2,302	1,259	1,043	871
	% Marked	69	79	57	99
Estimated (Creel) Encounters	UM	336	269	67	0
	AD	1,951	1,244	706	1,118
	Total	2,287	1,513	773	1,118
	% Marked	85	82	91	100

Table 2.9 Comparison of modeled (FRAM model run 2017) and estimated total Chinook salmon mortalities for the 2017-18 winter Chinook salmon MSF in Marine Area 6. 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)	136	1,045	1,181	54	1,276	1,330
Released Legal	39	62	101	40	24	65
Released Sublegal	89	120	209	13	134	148
Landed Only	8	863	871	0	1,118	1,118

Table 2.10 Monthly sample rates (Total retained Chinook salmon sampled / Estimated retained Chinook salmon) for the 2017-18 winter Chinook salmon MSF in Marine Area 6. AD = marked (adipose-clipped), UM = unmarked. Note: Observed retained fish may not have lengths recorded.

Time period			Estimated Retained Chinook			Number of Chinook sampled			Sample Rate
Month	Stat Weeks	Dates	AD	UM	Total	AD	UM	Total	
March	9 - 13	1 Mar - 1 Apr	990	0	990	533	2	535	54
April	14 - 14	2 Apr - 8 Apr	128	0	128	68	0	68	53.1
Season Total			1,118	0	1,118	601	2	603	53.9

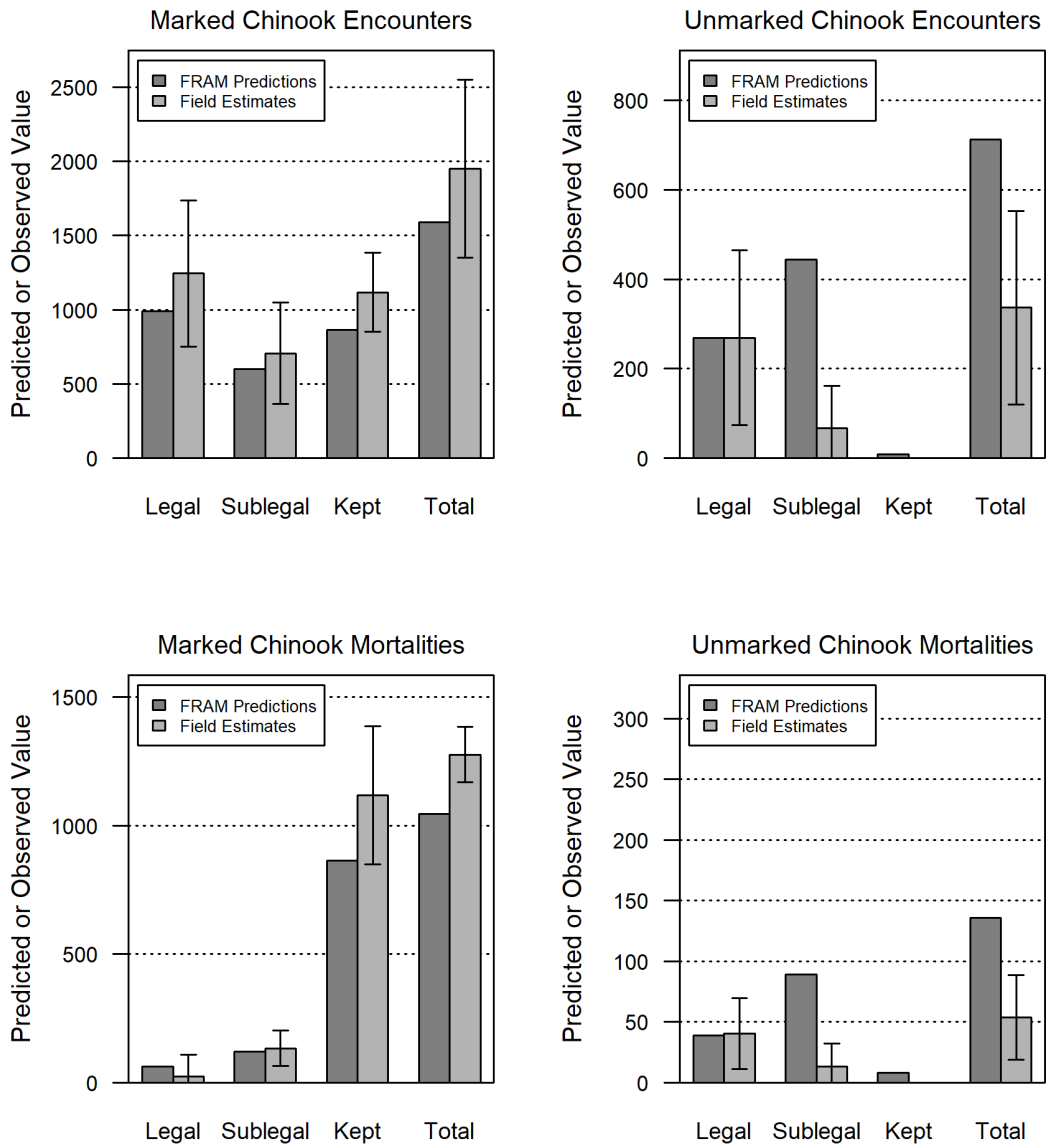


Figure 2.5 Comparison of modeled (FRAM model run 2017) and estimated total Chinook salmon encounters and mortalities for the 2017-18 winter Chinook salmon MSF in Marine Area 6. Error bars represent approximate 95% confidence intervals for field estimates.

Table 2.11 Summary of aerial survey and dockside data used to estimate the fraction of effort captured in the four-site sample frame during the 2017-18 winter Chinook salmon MSF in Marine Area 6. See Methods Report (WDFW 2012a) for computational details and notation.

Survey Date	Stratum	Aerial Survey Details			Dockside Sampling Details			Sample Fraction, f_{ij}
		Start Time	End Time	Total Boats, m_{ij}	Sampled Boats	Active Boats, X_{ij}	Total Boats, $S_{y_{ijk}}$	
1-Mar	WD	11:06	12:08	32	39	28	45	0.875
3-Mar	WE	10:36	11:31	51	54	42	66	0.824
20-Mar	WD	11:07	12:07	27	24	16	41	0.593
30-Mar	WE	11:07	11:55	13	14	7	26	0.538
3-Apr	WD	10:22	11:12	31	31	27	36	0.871
Season Totals:				154	162	120	212	
Mean:				31	32	24	42	0.740
St Dev:				12	14	12	13	0.145
CV(%):				39.5%	41.9%	49.4%	30.9%	19.6%

Table 2.12 Fishery-total estimates of retained and released salmon (*other than Chinook salmon*) during the 2017-18 winter Chinook salmon MSF in Marine Area 6. 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	Released Salmon
			Unknown
9	1-Mar	4-Mar	16
10	5-Mar	11-Mar	17
11	12-Mar	18-Mar	10
12	19-Mar	25-Mar	5
13	26-Mar	1-Apr	19
14	2-Apr	8-Apr	0
Season Total:			67
Variance:			219
Standard Error:			15
CV (%):			22
95% CI:			37 - 96

Table 2.13 Season-total estimates of Chinook salmon encounters by size/mark-status and total estimates of angler effort, summarized for all seasons to date of the Area 6 Winter Chinook salmon MSF. Values may not add exactly due to rounding error. LM = legal-sized marked, LU = legal-sized unmarked, SM = sublegal-sized marked, SU = sublegal-sized unmarked.

Area	Season Dates	Effort (Angler- trips)	Retained Chinook				Released Chinook				Total Encounters
			LM	LU	SM	SU	LM	LU	SM	SU	
6	Dec 1, 2012 - Apr 10, 2013	4,916	1,395	21	14	0	209	385	315	135	2,474
6	Dec 1, 2013 - Apr 10, 2014	4,323	2,117	13	72	0	316	372	742	165	3,797
6	Dec 1, 2014 - Apr 10, 2015	6,751	2,215	3	40	0	331	417	1,124	229	4,358
6	Oct 1, 2015 - Apr 10, 2016	9,014	397	0	47	0	59	188	1,385	366	2,441
6	Dec 1, 2016 - Apr 15, 2017	4,880	2,194	3	53	0	328	275	554	103	3,511
6	Mar 1, 2018 - Apr 8, 2018	2,220	1,083	0	35	0	162	269	671	67	2,287

3) Marine Area 7 Winter Mark-Selective Chinook Salmon Fishery

WDFW implemented an eleventh consecutive winter MSF in Marine Area 7 from January 1, 2018 through April 30, 2018. The PSSU implemented an intensive monitoring program in Area 7 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, aerial effort surveys, test fishing and collection of 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 7 winter fishery from January 1, 2018 through April 30, 2018. In addition to the major components of the results described previously, we present aerial survey and dockside data used to estimate the sample fraction in Area 7 (see WDFW 2012a, Aerial-Access Design). The four sites included in the Area 7 dockside sample frame are Washington Park Ramp, Bellingham Ramp, Cornet Ramp, and Friday Harbor which are assumed to be the highest-use access sites for Area 7 anglers. Due to safety concerns and in an effort to improve sampling efficiencies, we modified the flight path of Area 7 aerial surveys to exclude the area of open water north of Patos Island beginning in December 2012. An examination of flight survey data from previous years suggests that approximately 5% of the boats observed during flights were located in this area. Given the limited amount of effort occurring in this area we assumed the effect on effort and harvest estimates would be negligible

Table 3.1 Sampling/estimation details on target parameters associated with the overall Area 7 Chinook salmon MSF 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.
Aerial Surveys	Fraction of Area 7 effort (boats) captured in the four-site sample frame via creel surveys (Sample Fraction, f_{ij}).	Total boat counts at assumed peak effort time interval (instantaneous count); spatial distribution of fishing boats in the area.	Boats	Season	The sample fraction was calculated for individual aerial survey dates (see Table 3.13 ; $n=14$ surveys conducted out of $N=119$ days available in the season).
Test Fishing	Size (legal/sublegal) and mark-status (marked/unmarked) composition of encountered Chinook salmon	Chinook salmon length, age, and DNA-based ² stock composition; species composition of non-Chinook salmon encounters	Fish encounter	Season	We used the test fishery data only to estimate the size/mark-status proportions (LM = 38%, LU = 15%, SM = 33%, SU = 15%; 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 salmon	Encounter data for non-Chinook salmon species (e.g., Coho) that the angler may record on the VTR form	Fish encounter	Season	VTR data (Table 3.6) were not used for impact estimation steps due to the assumed higher data quality and sufficient sample size of test fishery data. See comment in row above.
Overall Fishery Impacts Estimation	Total Chinook salmon encounters and mortalities, by size/mark-status group	Ratios of encounters and mortalities per kept Chinook salmon	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 (retained and released) during the 2017-18 winter Chinook salmon MSF in Marine Area 7. 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	
Jan	1	1-Jan	7-Jan	368	764	264	0	288	232	784
	2	8-Jan	14-Jan	412	852	333	0	363	292	988
	3	15-Jan	21-Jan	47	96	25	0	28	22	76
	4	22-Jan	28-Jan	87	183	44	0	48	38	129
	5	29-Jan	4-Feb	306	623	165	0	180	144	489
Feb	6	5-Feb	11-Feb	401	876	183	0	200	161	545
	7	12-Feb	18-Feb	73	154	47	0	52	41	140
	8	19-Feb	25-Feb	65	136	44	0	48	38	129
	9	26-Feb	4-Mar	211	476	90	0	98	79	266
Mar	10	5-Mar	11-Mar	363	809	180	0	196	157	533
	11	12-Mar	18-Mar	321	695	157	0	172	138	467
	12	19-Mar	25-Mar	103	227	23	0	25	20	68
	13	26-Mar	1-Apr	243	555	92	0	101	81	274
Apr	14	2-Apr	8-Apr	65	142	24	0	26	21	72
	15	9-Apr	15-Apr	164	349	84	0	91	73	248
	16	20-Apr	22-Apr	91	174	55	0	59	48	162
	17	23-Apr	29-Apr	270	538	71	0	77	62	210
	18	30-Apr	30-Apr	63	116	15	0	16	13	43
Sub-Total:				3,654	7,764	1,895	0	2,067	1,661	5,624
Resurrection Derby				104	339	53	0	58	46	157
Friday Harbor Derby				100	329	100	0	109	88	297
Roche Harbor Derby				101	357	179	0	195	157	531
Season Total:				3,959	8,789	2,227	0	2,430	1,953	6,609
Variance:				271,849	1,196,112	111,287	0	777,360	200,558	1,819,207
SE:				521	1094	334	0	882	448	1349
CV (%):				13%	12%	15%	0%	36%	23%	20%
95% CI:				2,937 - 4,981	6,645 - 10,932	1,573 - 2,880	0 - 0	702 - 4,158	1,075 - 2,830	3,965 - 9,253

Table 3.3 Summary of total length samples from retained Chinook salmon collected during dockside angler interviews in the Area 7 Chinook salmon MSF.

Mark Type	Number Sampled		
	Legal-size	Sublegal-size	Total
Marked	490	16	506
Unmarked	1	0	1
Total	491	16	507

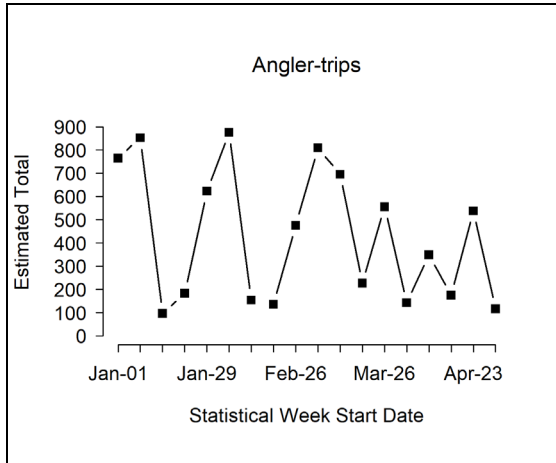


Figure 3.1 Temporal patterns in fishing effort during the 2017-18 winter Chinook salmon MSF in Marine Area 7.

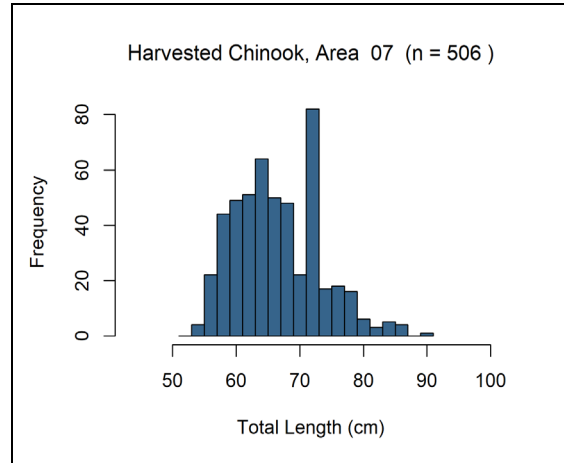


Figure 3.3 Length-frequency distribution of retained marked Chinook salmon sampled in dockside angler interviews during the 2017-18 winter Chinook salmon MSF in Marine Area. Note: displayed values are observations where lengths taken.

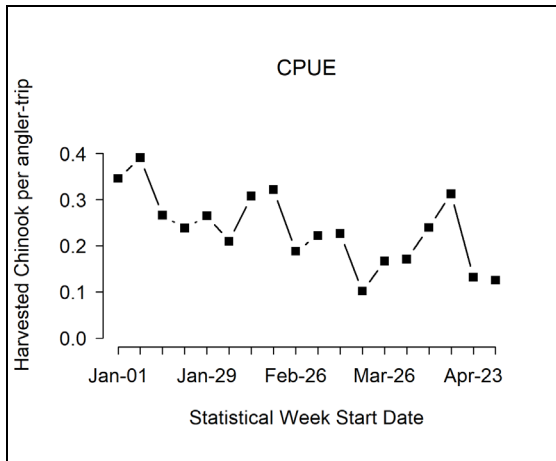


Figure 3.2 Temporal patterns in CPUE (number of Chinook salmon landed per angler trip) during the 2017-18 winter Chinook salmon MSF in Marine Area 7.

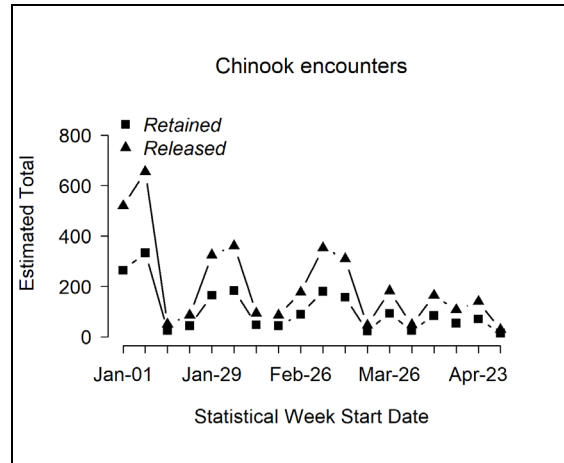


Figure 3.4 Temporal patterns in Chinook salmon encounters (number retained and released) during the 2017-18 winter Chinook salmon MSF in Marine Area 7.

Table 3.4 Summary of CWTs recovered from Chinook salmon retained during the 2017-18 winter Chinook salmon MSF in Marine Area 7. The field “Number DITs” indicates the number of tags that belonged to double-index tag groups.

Release Domain	Release Region	Release Site	Rearing Location	CWTs Recovered	No. DITs
BC	Georgia Strait (2%)	R-Cowichan R	H-Cowichan River H	2 (2%)	0
WA	N Washington (10%)	Friday Cr 03.0017	Samish Hatchery	3 (3%)	0
		Kendall Cr 01.0406	Kendall Cr Hatchery	6 (6%)	0
		East Sound Bay (San)	Glenwood Springs	1 (1%)	0
	Hood Canal (6%)	Finch Cr 16.0222	Hoodsport Hatchery	4 (4%)	0
		Purdy Cr 16.0005	George Adams Hatchery	2 (2%)	0
	N Puget Sound (20%)	Stillaguamish R -Sf	Brenner Hatchery	1 (1%)	0
		Tulalip Cr 07.0001	Bernie Gobin Hatch	4 (4%)	4
		Wallace R 07.0940	Wallace R Hatchery	8 (8%)	4
		Whitehorse Springs	Whitehorse Pond	7 (7%)	0
	Skagit River (43%)	Cascade R 03.1411	Marblemount Hatchery	39 (39%)	0
		Co Line Pd2 03.1853B	Marblemount Hatchery	4 (4%)	0
	Mid Puget Sound (16%)	Big Soos Cr 09.0072	Soos Creek Hatchery	8 (8%)	1
		Grovers Cr 15.0299	Grovers Cr Hatchery	2 (2%)	2
		Icy Cr 09.0125	Icy Cr Hatchery	2 (2%)	0
		Voight Cr 10.0414	Voights Cr Hatchery	4 (4%)	0
	S Puget Sound (3%)	Kalama Cr 11.0017	Kalama Cr Hatchery	1 (1%)	0
Clear Cr 11.0013C		Clear Creek Hatchery	2 (2%)	1	
Total				100	12

Table 3.5 Total Chinook salmon encountered (retained and released) by private-boat anglers logging their trips on VTRs, with estimates of legal-size and overall (legal and sublegal) mark rates during the 2017-18 winter Chinook salmon MSF in Marine Area 7. 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	Hrs Fished	AD	UM	AD	UM	
1	3	17.9	4	1	2	1	8
2	4	21.3	5	3	5	0	13
4	2	12.2	1	0	1	2	4
5	2	10.7	0	1	2	0	3
6	2	7.7	0	1	0	0	1
7	4	21.6	3	1	3	1	8
8	1	5.7	0	0	0	0	0
9	3	15.9	3	0	1	0	4
10	4	20.8	2	1	2	1	6
11	2	11.3	5	1	4	2	12
12	4	11.9	5	2	6	2	15
13	4	25.3	1	2	0	1	4
14	3	18.0	2	0	0	0	2
15	1	5.9	0	0	0	0	0
16	3	17.0	0	0	2	3	5
17	2	11.4	2	0	1	0	3
Total	44	234.6	33	13	29	13	88
Size/mark-status composition:			0.38	0.15	0.33	0.15	
Legal size mark rate:			0.72				
Overall mark rate:			0.70				

Table 3.6 Total Chinook salmon encountered (retained and released) by private-boat anglers logging their trips on VTRs, with estimates of legal-size and overall (legal and sublegal) mark rates during the 2017-18 winter Chinook salmon MSF in Marine Area 7. 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	17 1-trip VTRs, 30 Angler Trips	38	6	21	14	79	0.75	0.86
Size/mark-status composition:		0.48	0.08	0.27	0.18			
Variance:		(0.0032)	(0.0009)	(0.0025)	(0.0019)			
Charter VTR		35	13	37	25	110	0.65	0.73
Size/mark-status composition:		0.44	0.16	0.47	0.32			
Variance:		(0.0020)	(0.0010)	(0.0020)	(0.0016)			

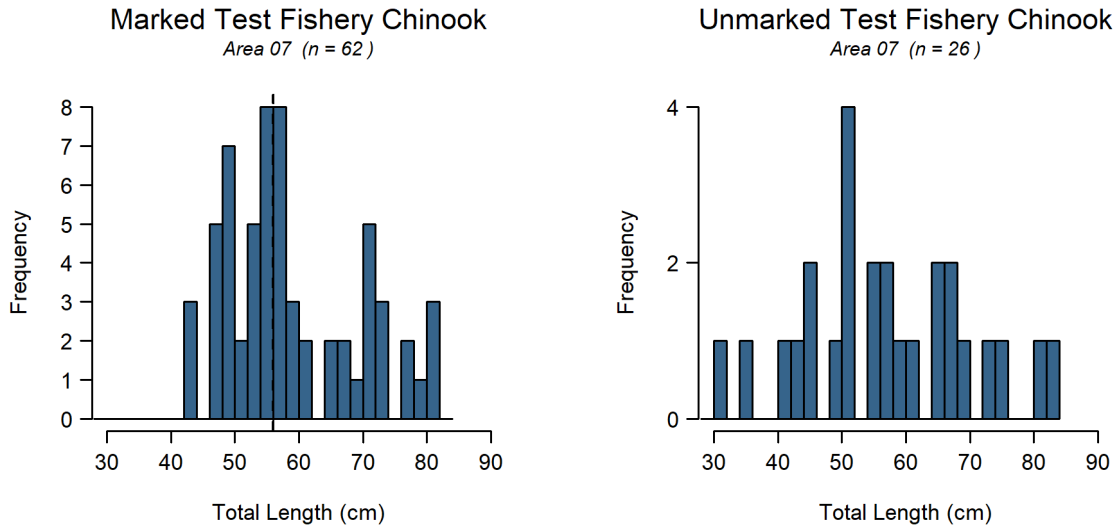


Figure 3.5 Length-frequency distributions of marked (*left panel*) and unmarked (*right panel*) Chinook salmon encountered by test fishers during the 2017-18 winter Chinook salmon MSF in Marine Area 7. The vertical dashed line in the left panel corresponds to the legal size limit (22 in or 56 cm).

Table 3.7 Summary of season-wide fishery impact estimates for the 2017-18 winter Chinook salmon MSF in Marine Area 7. 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	2,478	2,156	322	48	2,205	115,217	339	1,539 - 2,870	15%
Legal UM	976	0	976	146	146	2256	48	53 - 240	32%
Sublegal AD	2,178	70	2,108	422	492	12,490	112	273 - 711	23%
Sublegal UM	976	0	976	195	195	4,011	63	71 - 319	32%
Total	6,609	2,227	4,382	812	3,038	133,975	366	2,321 - 3,756	12%

Table 3.8 Comparison of modeled (FRAM model run 2017) and estimated total Chinook salmon encounters for the 2017-18 winter Chinook salmon MSF in Marine Area 7. 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	2887	1504	1383	15
	AD	7,002	4,019	2,983	3,497
	Total	9,889	5,523	4,366	3,512
	% Marked	71	73	68	100
Estimated (Creel) Encounters	UM	1,953	976	976	0
	AD	4,656	2,478	2,178	2,227
	Total	6,609	3,455	3,154	2,227
	% Marked	70	72	69	100

Table 3.9 Comparison of modeled (FRAM model run 2017) and estimated total Chinook salmon mortalities for the 2017-18 winter Chinook salmon MSF in Marine Area 7. 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)	516	4,347	4,863	342	2,696	3,038
Released Legal	224	253	477	146	48	195
Released Sublegal	277	597	874	195	422	617
Landed Only	15	3,497	3,512	0	2,227	2,227

Table 3.10 Summary of double-index tagged (DIT) Chinook salmon kept by anglers, and estimated total mortality of unmarked DIT Chinook salmon due to hook-and-release impacts resulting from the 2017-18 winter Chinook salmon MSF in Marine Area 7. AD = marked (adipose-clipped), UM = unmarked.

Hatchery	Brood Year	DITs Obs	Est.AD	var(Est.AD)	UM DIT Enc	Est.UM	var(Est.UM)	SE(Est.UM)
Bernie Gobin Hatch	2014	4	7.8	7.54	7.6	0.8	0.071	0.53
Clear Creek Hatchery	2014	1	2	1.89	2	0.2	0.019	0.14
Grovers Cr Hatchery	2015	2	3.9	3.77	3.9	0.4	0.037	0.27
Soos Creek Hatchery	2013	1	2	1.89	2	0.2	0.019	0.14
Wallace R Hatchery	2014	4	7.8	7.54	7.9	0.8	0.077	0.55
Total		12	23.5	22.62	23.4	2.3	0.223	1.64

Table 3.11 Monthly sample rates (Total retained Chinook salmon sampled¹ / Estimated retained Chinook salmon) for the 2017-18 winter Chinook salmon MSF in Marine Area 7. 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	
January	1 - 4	01 Jan - 28 Jan	819	0	819	186	0	186	22.7
February	5 - 8	29 Jan - 25 Feb	618	0	618	129	0	129	20.9
March	9 - 13	26 Feb - 01 Apr	542	0	542	131	1	132	24.4
April	14 - 18	02 Apr - 30 Apr	248	0	248	76	0	76	30.7
Season Total			2,227	0	2,227	522	1	523	23.5

¹ Number of retained Chinook salmon sampled includes all retained Chinook salmon inspected for CWTs, from all sites sampled during the winter 2017-18 Area 7 Chinook salmon MSF (the sample-frame sites included in the creel estimates and the fish sampled as part of derbies and other baseline sampling in the Area).

Table 3.12 Fishery-total estimates of retained and released salmon (*other than Chinook salmon*) during the 2017-18 winter Chinook salmon MSF in Marine Area 7. Values may not add exactly due to rounding error. AD = marked (adipose-clipped), UM = unmarked, UK = unknown mark-status

Week	Start Date	End Date	Kept Salmon	Released Salmon
			Unknown	Unknown
1	1-Jan	7-Jan	0	0
2	8-Jan	14-Jan	7	0
3	15-Jan	21-Jan	0	0
4	22-Jan	28-Jan	0	0
5	29-Jan	4-Feb	5	0
6	5-Feb	11-Feb	5	0
7	12-Feb	18-Feb	0	0
8	19-Feb	25-Feb	0	0
9	26-Feb	4-Mar	0	0
10	5-Mar	11-Mar	0	4
11	12-Mar	18-Mar	0	0
12	19-Mar	25-Mar	0	0
13	26-Mar	1-Apr	5	0
14	2-Apr	8-Apr	5	0
15	9-Apr	15-Apr	4	0
16	20-Apr	22-Apr	0	0
17	23-Apr	29-Apr	0	0
18	30-Apr	30-Apr	0	0
Season Total:			30	4
Variance:			178	6
Standard Error:			13	3
CV (%):			44	66
95% CI:			4 - 57	0 - 9

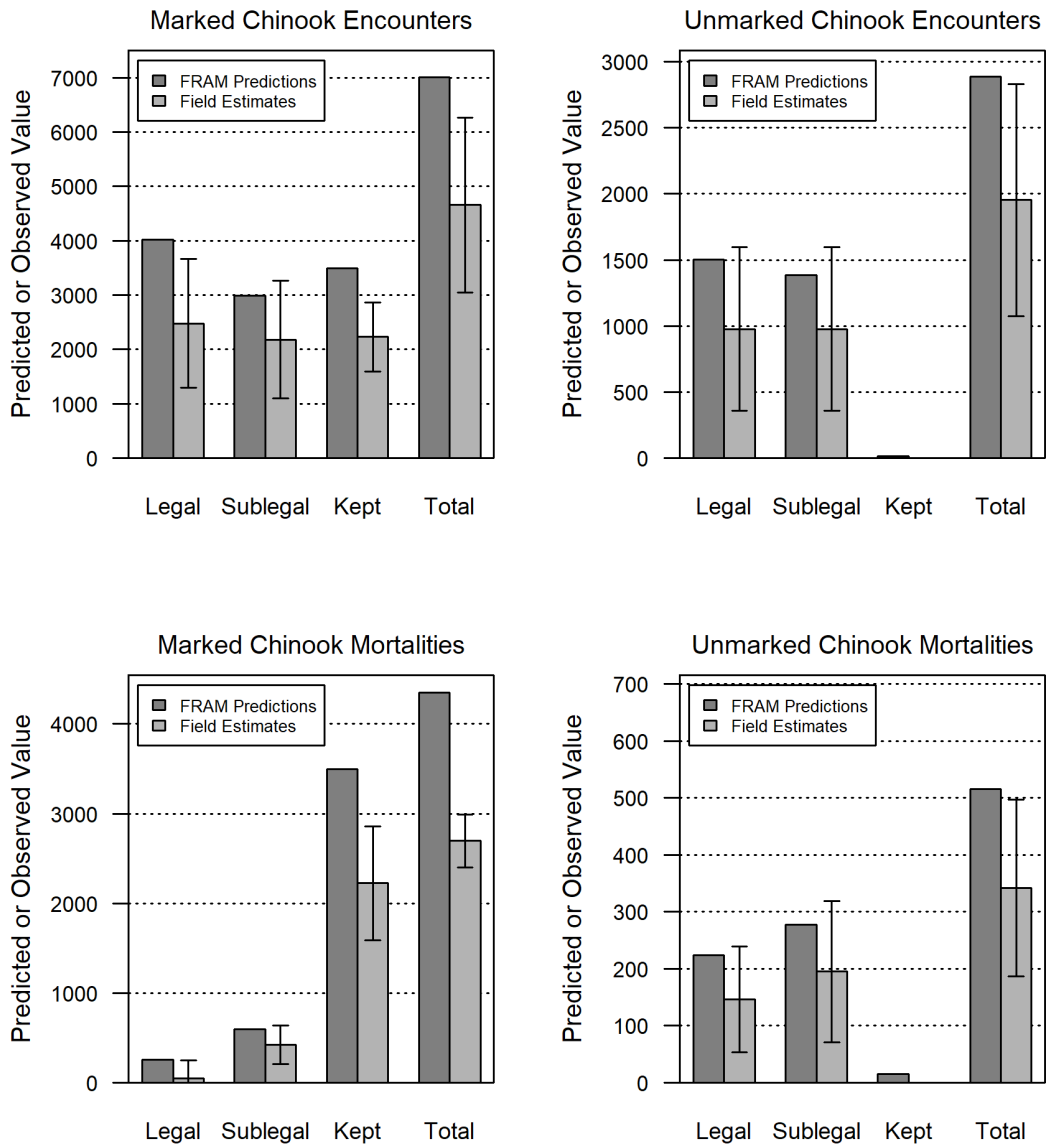


Figure 3.6 Comparison of modeled (FRAM model run 2017) and estimated total Chinook salmon encounters and mortalities for the 2017-18 winter Chinook salmon MSF in Marine Area 7. Error bars represent approximate 95% confidence intervals for field estimates.

Table 3.13 Summary of aerial survey and dockside data used to estimate the fraction of effort captured in the three-site sample frame during the 2017-18 winter Chinook salmon MSF in Marine Area 7. See Methods Report (WDFW 2012a) for computational details and notation.

Survey Date	Stratum	Aerial Survey Details			Dockside Sampling Details			Sample Fraction, f_{ij}
		Start Time	End Time	Total Boats, m_{ij}	Sampled Boats	Active Boats, X_{ij}	Total Boats, $S_{y_{ijk}}$	
2-Jan	WD	9:58	11:06	80	50	44	91	0.550
16-Jan	WD	11:33	12:34	13	3	2	20	0.154
30-Jan	WD	11:27	12:24	16	9	7	21	0.438
11-Feb	WE	10:10	11:17	104	84	71	123	0.683
20-Feb	WD	11:19	12:43	25	14	7	50	0.280
1-Mar	WD	12:08	13:21	17	16	5	54	0.294
3-Mar	WE	11:32	12:36	88	39	27	127	0.307
20-Mar	WD	12:07	13:23	35	27	10	95	0.286
25-Mar	WE	11:16	12:30	77	38	22	133	0.286
30-Mar	WE	11:56	12:58	19	23	5	87	0.263
31-Mar	WE	10:40	23:43	84	79	53	125	0.631
3-Apr	WD	11:13	12:15	30	27	19	43	0.633
15-Apr	WE	11:13	12:22	90	72	50	130	0.556
19-Apr	WD	11:17	12:44	69	43	29	102	0.420
Season Totals:				747	524	351	1200	
Mean:				53	37	25	86	0.413
St Dev:				32	25	21	40	0.163
CV(%):				60.9%	66.6%	83.6%	46.2%	39.6%

Table 3.14 Season-total estimates of Chinook salmon encounters by size/mark-status and total estimates of angler effort, summarized for all seasons to date of the Area 7 Winter Chinook salmon MSF. Values may not add exactly due to rounding error. LM = legal-sized marked, LU = legal-sized unmarked, SM = sublegal-sized marked, SU = sublegal-sized unmarked.

Area	Season Dates	Effort (Angler-trips)	Retained Chinook				Released Chinook				Total Encounters
			LM	LU	SM	SU	LM	LU	SM	SU	
7	Feb 1 - Feb 29, 2008	4,862	1,301	2	24	0	200	1,042	244	155	2,967
7	Feb 1 - Apr 15, 2009	8,167	1,406	9	14	0	210	708	139	17	2,501
7	Dec 1, 2009 - Apr 30, 2010	9,589	1,400	0	18	0	209	673	150	74	2,524
7	Dec 1, 2010 - Apr 30, 2011	11,814	2,368	4	10	0	354	1,988	521	531	5,776
7	Dec 1, 2011 - Apr 30, 2012	10,536	2,359	0	54	0	353	1,446	1,935	678	6,825
7	Dec 1, 2012 - Apr 30, 2013	10,322	3,469	3	106	0	518	1,363	817	332	6,609
7	Dec 1, 2013 - Apr 30, 2014	12,382	3,359	11	86	0	502	1,591	941	493	6,982
7	Oct 1 2014 - Feb 15, 2015	9,092	3,423	16	47	0	511	1,062	3,857	1,077	9,992
7	Oct 1 2015- April 30, 2016	11,242	2,523	3	143	0	377	2,147	5,843	2,525	13,562
7	Oct 1 - Apr 21 2017	11,547	4,820	18	233	6	720	2,004	3,811	2,016	13,625
7	Jan 1, 2018 - Apr 30, 2018	8,789	2,156	0	70	0	322	976	2,108	976	6,609

4) Marine Areas 8-1 & 8-2 Winter Mark-Selective Chinook Salmon Fishery

WDFW implemented a thirteenth consecutive winter Chinook salmon MSF in Marine Areas 8-1 and 8-2 from November 1, 2017 through November 12, 2017 and February 16, 2018 through April, 30 2018. Although the fishery was scheduled for the full month of November, and January 16, 2018 – February 15, 2018 the fishery was closed November 12, 2017 due to the presence of sub-legal fish observed in the Marine Area 9 test fishery and VTR data collected in Marine Areas 8-1 and 8-2. During the closure, WDFW continued to perform testfishing, and the fishery was re-opened on February 16, 2018 when legal-mark proportions indicated less sub-legal fish would be encountered. The PSSU implemented an intensive monitoring program in Areas 8-1 and 8-2 during the November-April 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, on-the-water effort surveys, and collection of 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 the following section we present results from our monitoring activities during the Areas 8-1 and 8-2 winter Chinook salmon MSF from November 1, 2016 through April 30, 2017.

Table 4.1 Sampling/estimation details on target parameters associated with the overall Areas 8-1 and 8-2 Chinook salmon MSF 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., “size measures” or “weights” of sampled sites) versus out-of-frame sites.	Total on-water boat and angler counts at assumed peak effort time interval (instantaneous count); spatial distribution of fishing boats in the area.	Boats and anglers.	Month	A total of 4 boat surveys were conducted during the six-month fishery. The results of these surveys were incorporated into multi-year site-weight averages.
Voluntary Trip Reports (VTRs)	Size (legal/sublegal) and mark-status (marked/unmarked) composition of encountered Chinook salmon	Encounter data for non-Chinook salmon species (e.g., Coho) that the angler may record on the VTR form	Fish encounter	Season (6 months)	We used the combined (p-value=.37) 8-1, 8-2 Nov-Apr VTR data to estimate the size/mark-status proportions. (LM = 38%, LU = 5%, SM = 43% and SU = 14%; see Table 4.9) needed to produce encounter and mortality estimates.
Overall Fishery Impacts Estimation	Total Chinook salmon encounters and mortalities, by size/mark-status group	Ratios of encounters and mortalities per kept Chinook salmon	N/A	Season (6 months)	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 (6 months)	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 4.2 Estimates of total fishing effort and total salmon catch (retained and releases) during the 2017-18 winter Chinook salmon MSF in Marine Area 8-1. 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	
Nov	45	1-Nov	5-Nov	40	84	30	2	43	14	89
	46	6-Nov	12-Nov	67	141	24	5	35	9	72
Feb	7	16-Feb	18-Feb	53	114	65	0	95	36	197
	8	19-Feb	25-Feb	43	62	17	0	24	9	50
	9	26-Feb	4-Mar	93	171	40	0	58	22	121
Mar	10	5-Mar	11-Mar	100	179	31	0	45	17	94
	11	12-Mar	18-Mar	126	242	46	0	66	26	138
	12	19-Mar	25-Mar	104	222	37	6	54	15	111
	13	26-Mar	1-Apr	131	273	30	6	44	11	91
Apr	14	2-Apr	8-Apr	40	75	10	0	14	5	29
	15	9-Apr	15-Apr	49	84	12	0	17	7	36
	16	16-Apr	22-Apr	67	126	3	0	4	2	9
	17	23-Apr	29-Apr	90	157	12	0	17	6	35
	18	30-Apr	30-Apr	7	12	0	0	0	0	0
Sub-Total:				1,011	1,944	357	19	517	180	1,072
Everett Derby				48	69	20	0	29	11	60
Everett Black Mouth Derby				26	80	29	0	42	16	87
Hot Plug's Derby				54	103	28	0	41	16	84
Stanwood Derby				64	129	36	0	52	20	108
Season Total:				1,203	2,325	470	19	680	243	1,411
Variance:				13,599	50,826	2,390	149	34,570	5,401	61,710
SE:				117	225	49	12	186	73	248
CV (%):				10	10	10	65	27	30	18
95% CI:				974 - 1,431	1,883 - 2,767	374 - 566	0 - 43	316 - 1,044	99 - 387	924 - 1,898

Table 4.3 Summary of total length samples from retained Chinook salmon collected during dockside angler interviews in the Area 8-1 Chinook salmon MSF.

Mark Type	Number Sampled		
	Legal-size	Sublegal-size	Total
Marked	162	0	162
Unmarked	2	0	2
Total	164	0	164

Table 4.4 Estimates of total fishing effort and total salmon catch (retained and released) during the 2017-18 winter Chinook salmon MSF in Marine Area 8-2. 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	
Nov	45	1-Nov	5-Nov	63	115	19	0	24	10	53
	46	6-Nov	12-Nov	131	263	29	0	36	15	80
Feb	7	16-Feb	18-Feb	73	153	51	0	65	26	143
	8	19-Feb	25-Feb	88	184	39	0	49	20	108
	9	26-Feb	4-Mar	220	440	93	0	118	48	259
Mar	10	5-Mar	11-Mar	271	542	88	0	112	46	246
	11	12-Mar	18-Mar	284	596	73	0	93	38	203
	12	19-Mar	25-Mar	178	371	37	0	46	19	102
	13	26-Mar	1-Apr	216	423	33	0	42	17	92
Apr	14	2-Apr	8-Apr	51	105	9	0	12	5	25
	15	9-Apr	15-Apr	77	142	9	0	12	5	25
	16	16-Apr	22-Apr	150	297	18	0	22	9	49
	17	23-Apr	29-Apr	190	394	24	0	30	12	67
	18	30-Apr	30-Apr	21	35	16	0	20	8	43
Sub-Total:				2,013	4,059	538	0	681	277	1,495
Everett Derby				83	164	28	0	35	14	78
Everett Black Mouth Derby				56	170	61	0	77	31	170
Hot Plug's Derby				19	38	10	0	13	5	28
Stanwood Derby				18	36	10	0	13	5	28
Season Total:				2,189	4,467	647	0	819	333	1,799
Variance:				33,133	143,539	4,115	0	55,335	8,490	98,067
SE:				182	379	64	0	235	92	313
CV (%):				8	8	10	0	29	28	17
95% CI:				1,833 - 2,546	3,724 - 5,209	521 - 772	0 - 0	358 - 1,280	152 - 514	1,185 - 2,412

Table 4.5 Summary of total length samples from retained Chinook salmon collected during dockside angler interviews in the Area 8-2 Chinook salmon MSF.

Mark Type	Number Sampled		
	Legal-size	Sublegal-size	Total
Marked	163	13	176
Unmarked	1	0	1
Total	164	13	177

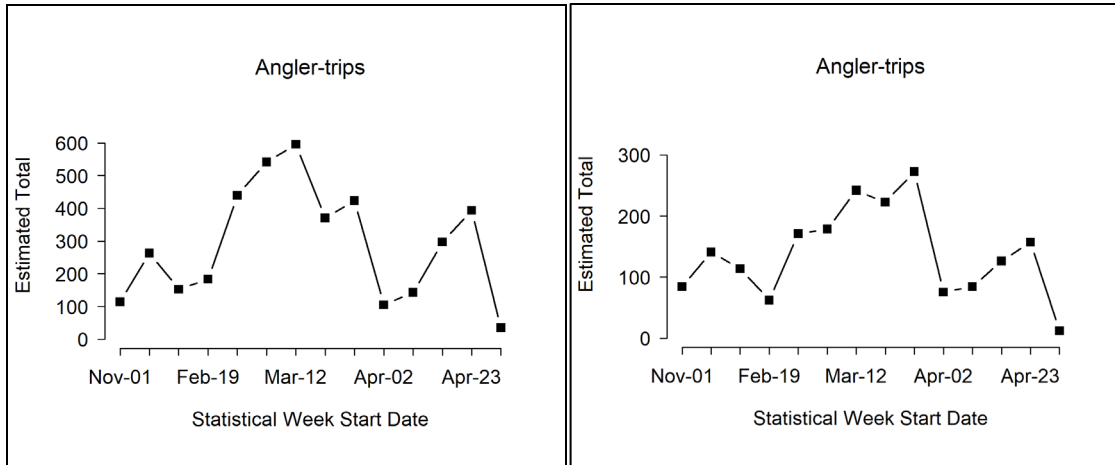


Figure 4.1 Temporal patterns in fishing effort during the 2017-18 winter Chinook salmon MSFs in Marine Areas 8-1 (left panel) and 8-2 (right panel).

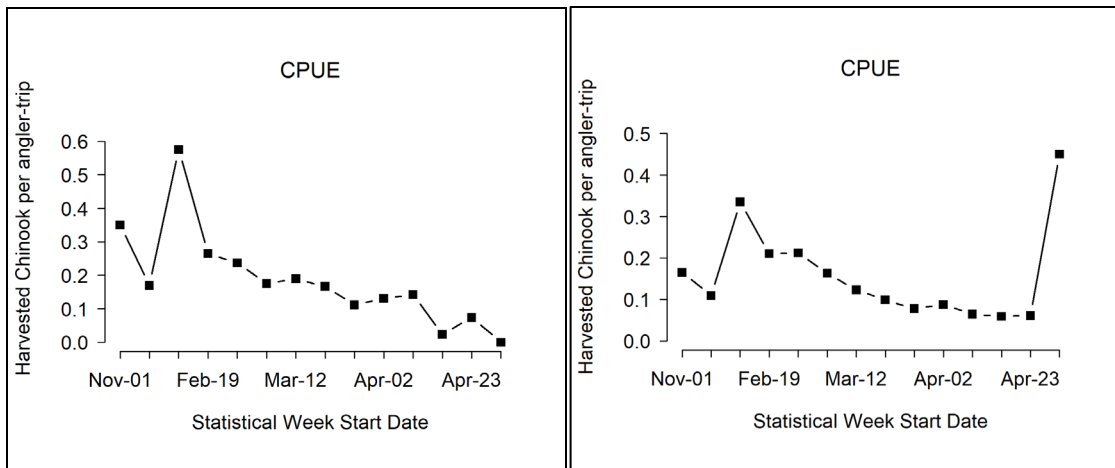


Figure 4.2 Temporal patterns in CPUE (number of Chinook salmon landed per angler trip) during the 2017-18 winter Chinook salmon MSFs in Marine Areas 8-1 (left panel) and 8-2 (right panel).

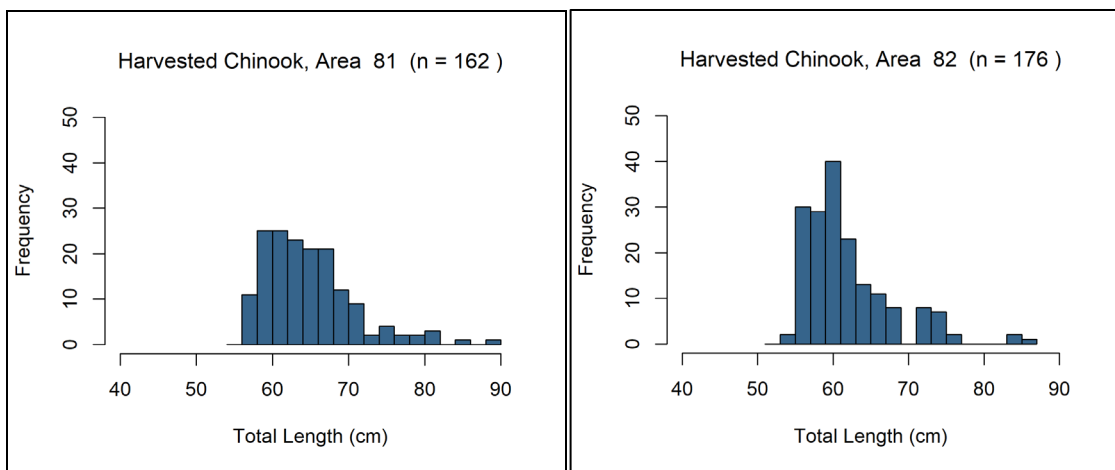


Figure 4.3 Length-frequency distributions of retained marked Chinook salmon sampled in dockside angler interviews during the 2017-18 winter Chinook salmon MSFs in Marine Areas 8-1 (left panel) and 8-2 (right panel). Note: displayed values are observations where lengths taken.

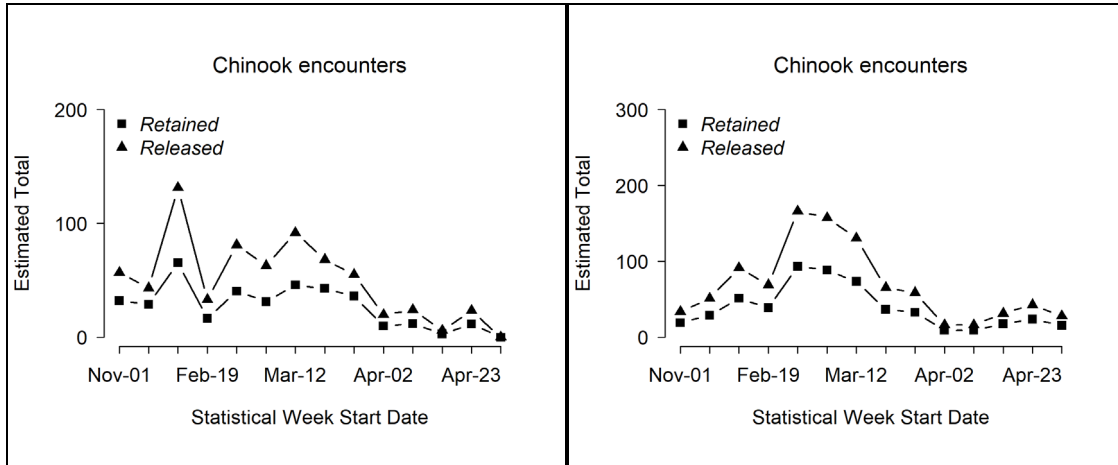


Figure 4.4 Temporal patterns in CPUE (number of Chinook salmon landed per angler trip) during the 2017-18 winter Chinook salmon MSFs in Marine Areas 8-1 (left panel) and 8-2 (right panel).

Table 4.6 Summary of CWTs recovered from Chinook salmon retained during the 2017-18 winter Chinook salmon MSFs in Marine Areas 8-1. The field “Number DITs” indicates the number of tags that belonged to double-index tag groups.

Release Domain	Release Region	Release Site	Rearing Location	CWTs Recovered	No. DITs
WA	Hood Canal (7.7%)	Finch Cr 16.0222	Hoodsport Hatchery	1 (3.8%)	0
		Purdy Cr 16.0005	George Adams Hatchery	1 (3.8%)	1
	N Puget Sound (23.1%)	Wallace R 07.0940	Wallace R Hatchery	5 (19.2%)	0
		Whitehorse Springs	Whitehorse Pond	1 (3.8%)	0
	Skagit River (15.4%)	Cascade R 03.1411	Marblemount Hatchery	4 (15.4%)	0
	Mid Puget Sound (42.3%)	Clarks Crk Hatchery	Clarks Crk Hatchery	4 (15.4%)	0
		Big Soos Cr 09.0072	Soos Creek Hatchery	2 (7.7%)	0
		Grovers Cr 15.0299	Grovers Cr Hatchery	2 (7.7%)	2
		Icy Cr 09.0125	Icy Cr Hatchery	2 (7.7%)	0
		Portage Bay/Ship Cnl	Issaquah Hatchery	1 (3.8%)	0
	S Puget Sound (11.5%)	Clear Cr 11.0013C	Clear Creek Hatchery	2 (7.7%)	0
		Mcallister Springs Hatch	Clear Creek Hatchery	1 (3.8%)	0
Total				26	3

Table 4.7 Summary of double-index tagged (DIT) Chinook salmon kept by anglers, and estimated total mortality of unmarked DIT Chinook salmon due to hook-and-release impacts resulting from the 2017-18 winter Chinook salmon MSFs in Marine Area 8-1 AD = marked (adipose-clipped), UM = unmarked.

Hatchery	Brood Year	DITs Obs	Est. AD	var(Est.AD)	UM DIT Enc	Est.UM	var(Est.UM)	SE(Est.UM)
George Adams Hatchery	2014	1	3	5.9	3	0.3	0.059	0.24
Grovers Cr Hatchery	2015	2	6	11.8	5.9	0.6	0.116	0.48
Total		3	8.9	17.7	8.9	0.9	0.175	0.73

Table 4.8 Summary of CWTs recovered from Chinook salmon retained during the 2017-18 winter Chinook salmon MSFs in Marine Areas 8-2. The field “Number DITs” indicates the number of tags that belonged to double-index tag groups.

Release Domain	Release Region	Release Site	Rearing Location	CWTs Recovered	No. DITs
BC	Thompson River (5%)	R-Chilliwack R	H-Chilliwack River H	1 (5%)	0
WA	N Puget Sound (20%)	Wallace R 07.0940	Wallace R Hatchery	3 (15%)	0
		Whitehorse Springs	Whitehorse Pond	1 (5%)	0
	Skagit River (10%)	Cascade R 03.1411	Marblemount Hatchery	2 (10%)	0
	Mid Puget Sound (55%)	Icy Cr 09.0125	Icy Cr Hatchery	2 (10%)	0
		Clarks Crk Hatchery	Clarks Crk Hatchery	1 (5%)	0
		Portage Bay/Ship Cnl	Issaquah Hatchery	1 (5%)	0
		Big Soos Cr 09.0072	Soos Creek Hatchery	1 (5%)	0
		Voight Cr 10.0414	Voights Cr Hatchery	2 (10%)	0
		Lk Washington (King)	Issaquah Hatchery	2 (10%)	0
		Gorst Cr 15.0216	Gorst Cr Rearing Pnd	2 (10%)	0
	S Puget Sound (10%)	Clear Cr 11.0013C	Clear Creek Hatchery	2 (10%)	0
Total				20	0

Table 4.9 Total Chinook salmon encountered (retained and released) by private-boat anglers logging their trips on VTRs during the 2017-18 winter Chinook salmon MSFs in Marine Areas 8-1 (*upper panel*), 8-2 (*middle panel*) and combined (*lower panel*), 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 provided in parentheses.

Data Source	Effort and Sample Size	Legal		Sublegal		Totals	Mark Rate	
		AD	UM	AD	UM		Overall	Legal
8-1 Private VTR	18 1-trip VTRs, 29 Angler Trips	23	4	30	10	67	0.79	0.85
Size/mark-status composition:		0.34	0.06	0.45	0.15			
Variance:		(0.0034)	(0.0009)	(0.0037)	(0.0019)			
Data Source	Effort and Sample Size	Legal		Sublegal		Totals	Mark Rate	
		AD	UM	AD	UM		Overall	Legal
8-2 Private VTR	5 1-trip VTRs, 12 Angler Trips	8	0	5	1	14	0.93	1.00
Size/mark-status composition:		0.12	0.00	0.07	0.01			
Variance:		(0.0188)	(0.0000)	(0.0177)	(0.0051)			
Data Source	Effort and Sample Size	Legal		Sublegal		Totals	Mark Rate	
		AD	UM	AD	UM		Overall	Legal
Combined ¹ VTR	23 1-trip VTRs, 41 Angler Trips	31	4	35	11	81	0.81	0.89
Size/mark-status composition:		0.38	0.05	0.43	0.14			
Variance:		(0.0030)	(0.0006)	(0.0031)	(0.0015)			

¹ Combined 8-1 and 8-2 VTR legal-mark proportions showed no significant difference (p-value=0.37), and were used for encounter estimates for both Marine Area 8-1 and Marine Area 8-2.

Table 4.10 Summary of season-wide fishery impact estimates for the 2017-18 winter Chinook salmon MSFs in Marine Areas 8-1 (*upper panel*) and 8-2 (*lower panel*). 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	540	470	70	11	480	2,775	53	377 - 584	11
Legal UM	70	19	51	8	26	181	13	0 - 53	51
Sublegal AD	610	0	610	122	122	698	26	70 - 174	22
Sublegal UM	192	0	192	38	38	159	13	14 - 63	33
Total	1,411	489	923	178	667	3,812	62	546 - 788	9

Size/mark group	Encounters	Retained	Released	Release Mortality	Total Mortality	Var	SE	95% CI	CV (%)
Legal AD	688	599	89	13	612	4,255	65	484 - 740	11
Legal UM	89	0	89	13	13	47	7	0 - 27	51
Sublegal AD	777	48	729	146	194	1256	35	124 - 263	18
Sublegal UM	244	0	244	49	49	256	16	17 - 80	33
Total	1,799	647	1152	221	868	5,815	76	719 - 1,018	9

Table 4.11 Comparison of modeled (FRAM model run 2017) and estimated total Chinook salmon encounters for the 2017-18 winter Chinook salmon MSFs in Marine Areas 8-1 and 8-2, combined. 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	1,074	252	822	3
	AD	4,418	1107	3,311	963
	Total	5,492	1,359	4,133	966
	% Marked	80	81	80	100
Estimated (Creel) Encounters	UM	594	159	436	19
	AD	2615	1228	1387	1117
	Total	3,210	1387	1823	1135
	% Marked	81	89	76	98

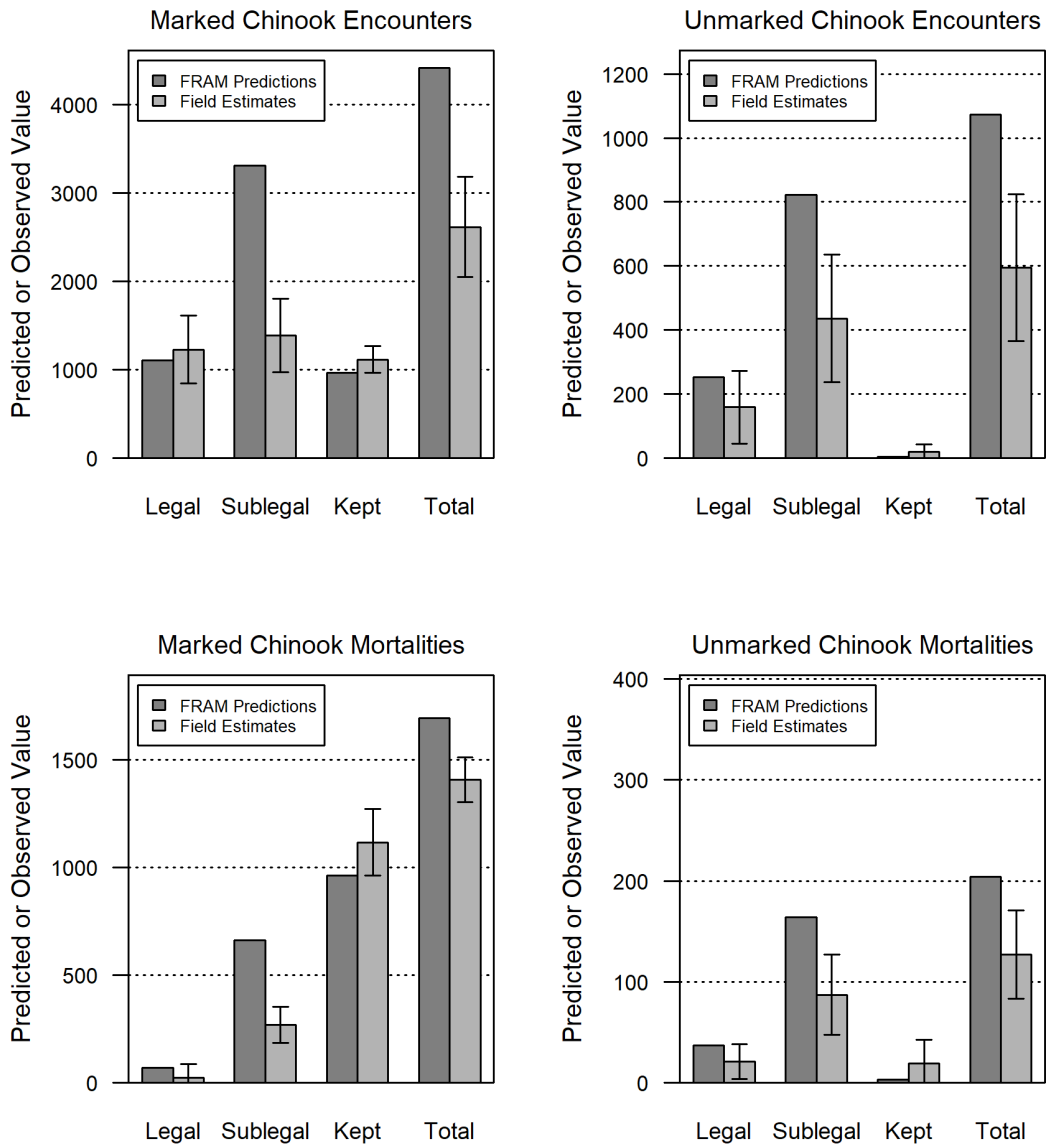


Figure 4.5 Comparison of modeled (FRAM model run 2017) and estimated total Chinook salmon encounters and mortalities for the 2017-18 winter Chinook salmon MSFs in Marine Areas 8-1 and 8-2, combined. Error bars represent approximate 95% confidence intervals for field estimates.

Table 4.12 Comparison of modeled (FRAM model run 2017) and estimated total Chinook salmon mortalities for the 2017-18 winter Chinook salmon MSFs in Marine Areas 8-1 and 8-2, combined. 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)	204	1,694	1,898	127	1,408	1,535
Released Legal	37	69	106	21	24	45
Released Sublegal	164	662	826	87	268	355
Landed Only	3	963	966	19	1,117	1,135

Table 4.13 Monthly sample rates (Total retained Chinook salmon sampled¹ / Estimated retained Chinook salmon) for the 2017-18 winter Chinook salmon MSFs in Marine Areas 8-1 (upper panel) and 8-2 (lower panel).

Time period			Estimated Retained Chinook			Number of Chinook sampled			Sample Rate
Month	Stat Weeks	Dates	AD	UM	Total	AD	UM	Total	
November	45 - 48	1 Nov - 12 Nov	73	7	81	15	0	15	18.60%
February	6 - 9	16 Feb - 26 Feb	82	0	82	52	0	52	63.40%
March	10 - 14	27 Feb - 2 Apr	214	12	226	77	2	79	35.00%
April	15 - 18	3 Apr - 30 Apr	36	0	36	18	0	18	49.50%
Season Total			406	19	425	162	2	164	38.60%

Time period			Estimated Retained Chinook			Number of Chinook sampled			Sample Rate
Month	Stat Weeks	Dates	AD	UM	Total	AD	UM	Total	
November	45 - 48	1 Nov - 12 Nov	76	0	76	17	0	17	22.40%
February	6-9	12 Feb - 26 Feb	90	0	90	35	0	35	38.90%
March	10-14	27 Feb - 2 Apr	385	0	385	115	0	115	29.80%
April	15 - 18	3 Apr - 30 Apr	75	0	75	33	1	34	45.00%
Season Total			627	0	627	200	1	201	32.10%

^{1/} Number of retained Chinook salmon sampled includes all retained Chinook salmon inspected for CWTs, from all sites sampled during the winter 2017-18 Area 8-1, 8-2 Chinook salmon MSFs (the sample-frame sites included in the creel estimates and the fish sampled as part of derbies and other baseline sampling in the Area).

Table 4.14 Fishery-total estimates of retained and released salmon (other than Chinook salmon) during the 2017-18 winter Chinook salmon MSFs in Marine Areas 8-1 and 8-2. AD = marked (adipose-clipped), UM = Unmarked, UK = unknown mark-status. Values may not add exactly due to rounding error.

Week	Start Date	End Date	8-1	8-2 Released			
			Released	Coho.AD	Coho.UM	Coho.UK	Unknown
45	1-Nov	5-Nov	24	5	4	1	7
46	6-Nov	12-Nov	0	6	0	12	91
7	16-Feb	18-Feb	0	0	0	0	0
8	19-Feb	25-Feb	0	0	0	0	0
9	26-Feb	4-Mar	0	0	0	0	0
10	5-Mar	11-Mar	0	0	0	0	2
11	12-Mar	18-Mar	0	0	0	0	0
12	19-Mar	25-Mar	0	0	0	0	0
13	26-Mar	1-Apr	0	6	0	0	2
14	2-Apr	8-Apr	0	0	0	0	0
15	9-Apr	15-Apr	0	0	0	0	0
16	16-Apr	22-Apr	0	0	0	0	0
17	23-Apr	29-Apr	0	0	0	0	0
18	30-Apr	30-Apr	0	0	0	0	0
Season Total:			24	17	4	13	103
Variance:			342	71	7	22	492
Standard Error:			18	8	3	5	22
CV (%):			78	49	62	36	22
95% CI:			0 - 60	1 - 34	0 - 10	4 - 22	60 - 146

Table 4.15 Summary of the total number of anglers intercepted during on-the-water surveys conducted for the 2017-18 winter Chinook salmon MSFs in Marine Areas 8-1 and 8-2. Bold sites indicate those included in the dockside sample frame.

Area		Total Anglers		Season Total (unadjusted) Size Measure	
		WD	WE	WD	WE
8-1	Camano Island State Park	6		0.5455	
8-1	Everett Ramp	3		0.2727	
8-1	Maplegrove Ramp	2		0.1818	
Area 8-1 Total Anglers		11		1	
8-2	Bayside Marina/Drystack	0	1	0.0000	0.0119
8-2	Camano Island State Park	5	21	0.4167	0.2500
8-2	Dagmar's Landing	2	1	0.1667	0.0119
8-2	Everett Marina	0	10	0.0000	0.1190
8-2	Everett Ramp	3	44	0.2500	0.5238
8-2	Kayak State Park Public Ramp	0	2	0.0000	0.0238
8-2	La Conner Moorage	0	2	0.0000	0.0238
8-2	Langley Marina/Ramp	0	1	0.0000	0.0119
8-2	Possession Waterfront Beach Park	0	2	0.0000	0.0238
8-2	Private	2	0	0.1667	0.0000
Area 8-2 Total Anglers		12	84	1	1

Table 4.16 Season-total estimates of Chinook salmon encounters by size/mark-status and total estimates of angler effort, summarized for all seasons to date of the Area 8-1 and 8-2 winter Chinook salmon MSFs. Values may not add exactly due to rounding error. LM = legal-sized marked, LU = legal-sized unmarked, SM = sublegal-sized marked, SU = sublegal-sized unmarked.

Area	Season Dates	Effort (Angler-trips)	Retained				Released Chinook				Total Encounters
			LM	LU	SM	SU	LM	LU	SM	SU	
8-1	Oct 1, 2005 - Apr 30, 2006	3,976	303	0	39	0	45	188	763	575	1,914
8-1	Oct 1, 2006 - Apr 30, 2007	3,454	278	8	37	4	42	118	1,437	857	2,781
8-1	Nov1, 2007 - Apr 30, 2008	3,288	638	5	36	0	95	304	1,345	577	3,000
8-1	Jan 1, 2009 - Apr 30, 2009	2,518	396	12	7	0	59	45	1,443	909	2,870
8-1	Nov 1, 2009 - Apr 30, 2010	3,192	273	0	11	0	41	45	595	269	1,234
8-1	Nov 1, 2010 - Apr 30, 2011	2,398	87	0	9	0	13	15	91	69	283
8-1	Nov 1, 2011 - Apr 30, 2012	2,767	284	0	7	0	42	136	1,027	272	1,768
8-1	Nov 1, 2012 - Apr 30,2013	2,046	268	0	14	0	40	88	955	793	2,158
8-1	Nov 1, 2013 - Apr 30, 2014	1,579	97	0	3	0	15	34	70	37	255
8-1	Nov 1, 2014 - Apr 30, 2015	1,927	151	0	0	0	23	35	416	658	1,282
8-1	Nov 01, 2015 - Apr 30, 2016	2,312	448	2	44	0	67	150	1764	594	3,069
8-1	Nov 01, 2016 - Apr 30, 2017	2774	452	0	17	0	68	243	295	104	1,179
8-1	Nov 1, 2017 - Apr 30, 2018	2325	470	19	0	0	70	51	610	192	1,411
8-2	Oct 1, 2005 - Apr 30, 2006	8,521	735	40	35	0	106	618	1,706	876	4,116
8-2	Oct 1, 2006 - Apr 30, 2007	7,848	766	18	95	3	113	183	10,486	5,407	17,071
8-2	Nov 1, 2007 - Apr 30, 2008	5,678	795	15	74	3	114	181	942	303	2,428
8-2	Jan 1, 2009 - Apr 30, 2009	5,946	495	15	14	0	74	18	1,557	468	2,641
8-2	Nov 1, 2009 - Apr 30, 2010	6,732	814	4	10	0	122	164	1,300	487	2,902
8-2	Nov 1, 2010 - Apr 30, 2011	3,505	111	0	5	0	17	20	122	88	363
8-2	Nov 1, 2011 - Apr 30, 2012	5,197	470	2	27	0	70	223	1,683	450	2,925
8-2	Nov 1, 2012 - Apr 30, 2013	4,260	346	0	17	0	52	113	1,231	1,021	2,780
8-2	Nov 1, 2013 - Apr 30, 2014	4,076	369	0	13	0	55	127	266	139	970
8-2	Nov 1, 2014 - Apr 30, 2015	3,953	186	0	2	0	28	43	510	810	1,578
8-2	Nov 01, 2015 - Apr 30, 2016	4,525	486	0	42	0	73	165	1920	645	3,331
8-2	Nov 01, 2016 - Apr 30, 2017	5850	823	0	27	0	123	149	1218	100	2,440
8-2	Nov 1, 2017 - Apr 30, 2018	4,467	599	0	48	0	89	89	729	244	1,799

5) Marine Area 9 Winter Mark-Selective Chinook Salmon Fishery

WDFW implemented an eleventh consecutive winter Chinook salmon MSF in Marine Area 9 from November 1-12, 2017 and February 16– April 15, 2018. Although the fishery was scheduled for the full month of November, and January 16, 2018 – February 15, 2018 the fishery was closed November 12, 2017 due to the presence of sub-legal fish observed in the Marine Area 9 test fishery. During the closure, WDFW continued to perform test-fishing, and the fishery was re-opened on February 16, 2018 when legal-mark proportions indicated less sub-legal fish would be encountered. The 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 dockside creel sampling, aerial effort surveys, test fishing and collection of 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 the following section we present results from our monitoring activities during the Area 9 winter Chinook salmon MSF from November 1-12, 2017 and February 16-April 15, 2018. In addition to the major components of the results described previously (page 3), we present the aerial survey and dockside data used to estimate the sample fraction in Area 9 (see WDFW 2012a, *Aerial-Access Design*). The four sites included in the Area 9 dockside sample frame are Port Townsend Ramp, Kingston Ramp, Everett Ramp and Edmonds Ramp, which are assumed to be the highest-use access sites for Area 9 anglers. The Olympic Peninsula Derby took place from March 9-11 over portions of Marine Areas 6 and 9. Total derby effort was allocated to each Marine Area using the proportion of effort that occurred in each area based on dockside sampling efforts at designated weigh-in stations during the derby. Total catch by Marine Area was obtained from the derby organizers.

Table 5.1 Sampling/estimation details on target parameters associated with the overall Area 9 winter Chinook salmon MSF 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.
Aerial Surveys	Fraction of Area 9 effort (boats) captured in the four-site sample frame via creel surveys (Sample Fraction, f_{ij}).	Total boat counts at assumed peak effort time interval (instantaneous count); spatial distribution of fishing boats in the area.	Boats	Month	The sample fraction was calculated for individual aerial survey dates (see Table 5.12 ; $n=12$ surveys conducted out of $N=69$ days available in the season). Since mean sample fractions were not similar between the Nov and Feb-Apr time strata, the total sample fraction for the Nov and Feb-April were calculated independently.
Test Fishing	Size (legal/sublegal) and mark-status (marked/unmarked) composition of encountered Chinook salmon	Chinook salmon length, age, and DNA-based ² stock composition; species composition of non-Chinook salmon encounters	Fish encounter	Season	We used the combined (p-value=.16) Nov, Feb-Apr test fishery data to estimate the size/mark-status proportions (LM = 32%, LU = 12%, SM = 48% and SU = 9%); see Table 5.10 / needed to produce encounter and mortality estimates.
Voluntary Trip Reports (VTRs)	Size (legal/sublegal) and mark-status (marked/unmarked) composition of encountered Chinook salmon	Encounter data for non-Chinook salmon species (e.g., Coho) that the angler may record on the VTR form	Fish encounter	Season	VTR data (Table 5.9) were not used for impact estimation steps due to the assumed higher data quality and sufficient sample size of the test fishery data. See comment in row above.
Overall Fishery Impacts Estimation	Total Chinook salmon encounters and mortalities, by size/mark-status group	Ratios of encounters and mortalities per kept Chinook salmon	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 5.2 Estimates of total fishing effort and total salmon catch (retained and released) during the 2017-18 winter Chinook salmon MSF in Marine Area 9. 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	
Nov	45	1-Nov	5-Nov	286	482	113	0	182	73	368
	46	6-Nov	12-Nov	464	881	247	0	398	158	803
Sub-Total:				751	1,363	360	0	580	231	1,171
Everett Derby				138	312	126	0	203	81	410
November 1 - 12 Total:				889	1,675	486	0	783	312	1,580
Feb	7	16-Feb	18-Feb	146	310	134	0	224	88	446
	8	19-Feb	25-Feb	110	210	76	0	126	50	251
	9	26-Feb	4-Mar	355	699	198	0	331	130	658
Mar	10	5-Mar	11-Mar	436	877	371	3	620	240	1234
	11	12-Mar	18-Mar	413	826	265	0	442	174	881
	12	19-Mar	25-Mar	368	671	161	0	269	106	536
	13	30-Mar	1-Apr	409	826	248	3	414	159	824
Apr	14	2-Apr	8-Apr	173	333	148	0	247	97	493
	15	9-Apr	15-Apr	361	745	279	0	467	183	929
Sub-Total:				2771	5,496	1,879	6	3,140	1,227	6,252
Olympic Peninsula Derby				273	665	383	0	640	251	1274
Everett Black Mouth Derby				64	118	130	0	217	85	432
February 16 - April 15 Total:				3,108	6,279	2,392	6	3,997	1,563	7,959
Season Total:				3,997	7,954	2,878	6	4,780	1,875	9,539
Variance:				312,487	1,158,033	161,830	6	1,264,532	134,751	2,733,963
SE:				559	1076	402	2	1125	367	1653
CV (%):				14%	14%	14%	41%	24%	20%	17%
95% CI:				2,901-5,093	5,845-10,063	2,090-3,666	1-11	2,576-6,984	1,156-2,594	6,298-12,780

Table 5.3 Summary of total length samples from retained Chinook salmon collected during dockside angler interviews in the during the 2017-18 winter Chinook salmon MSF in Area 9.

Mark Type	Number Sampled Nov 1 - 12		
	Legal-size	Sublegal-size	Total
Marked	66	6	72
Unmarked	0	0	0
Total	66	6	72
Number Sampled Feb 16- Apr 15			
Marked	631	42	673
Unmarked	2	0	2
Total	633	42	675
Total Season Sampled			
Marked	697	48	745
Unmarked	2	0	2
Total	699	48	747

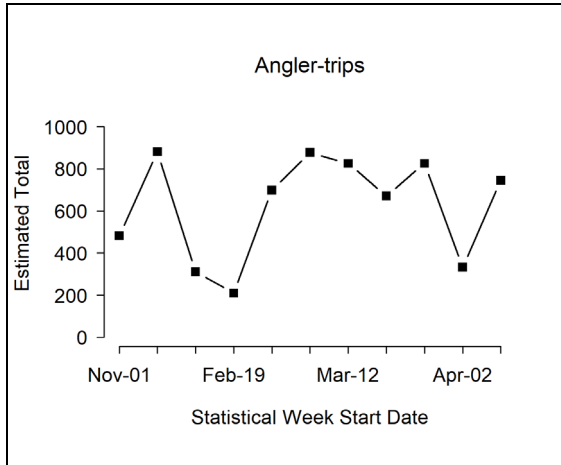


Figure 5.1 Temporal patterns in fishing effort during the 2017-18 winter Chinook salmon MSF in Marine Area 9.

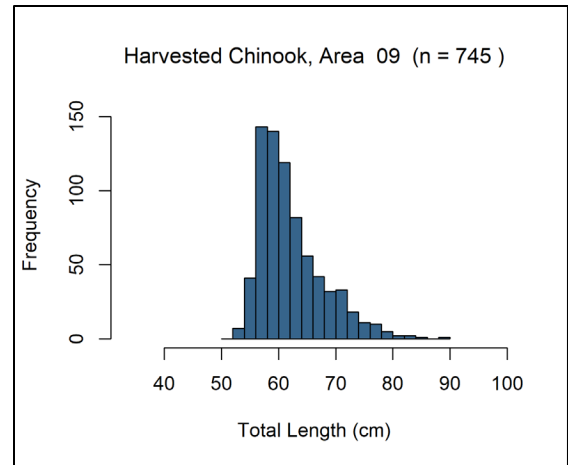


Figure 5.3 Length-frequency distribution of retained marked Chinook salmon sampled in dockside angler interviews during the 2017-18 winter Chinook salmon MSF in Marine Area 9. Note: displayed values are observations where lengths taken.

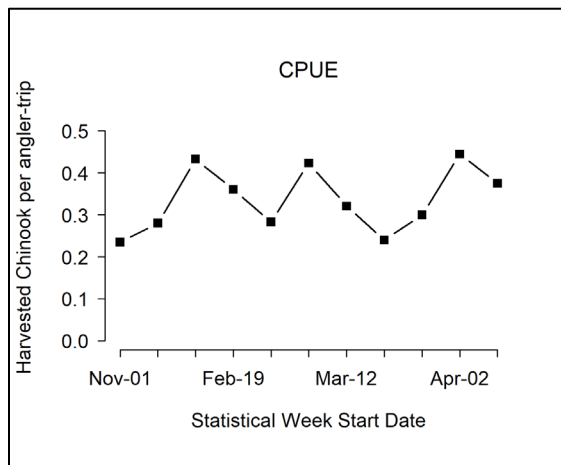


Figure 5.2 Temporal patterns in CPUE (number of Chinook salmon landed per angler trip) during the 2017-18 winter Chinook salmon MSF in Marine Area 9.

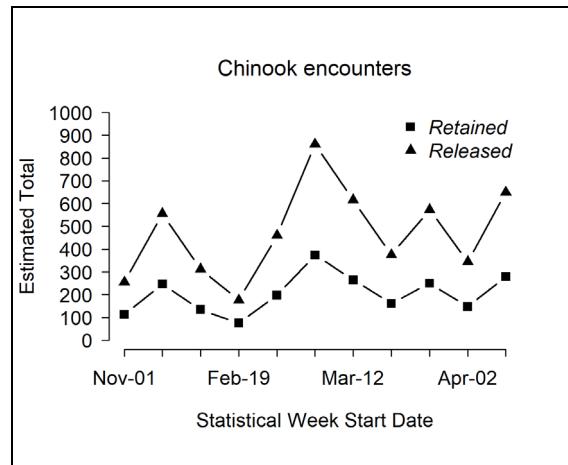


Figure 5.4 Temporal patterns in Chinook salmon encounters (number retained and released) during the 2017-18 winter Chinook salmon MSF in Marine Area 9.

Table 5.4 Summary of CWTs recovered from Chinook salmon retained during the 2017-18 winter Chinook salmon MSF in Marine Area 9. The field “Number DITs” indicates the number of tags that belonged to double-index tag groups.

Release Domain	Release Region	Release Site	Rearing Location	CWTs Recovered	No. DITs
WA	N Washington (2%)	Kendall Cr 01.0406	Kendall Cr Hatchery	1 (2%)	0
	Hood Canal (12.2%)	Finch Cr 16.0222	Hoodsport Hatchery	1 (2%)	0
		Purdy Cr 16.0005	George Adams Hatchery	5 (10.2%)	2
	N Puget Sound (8.2%)	Wallace R 07.0940	Wallace R Hatchery	3 (6.1%)	1
		Whitehorse Springs	Whitehorse Pond	1 (2%)	0
	Skagit River (10.2%)	Cascade R 03.1411	Marblemount Hatchery	5 (10.2%)	0
	Mid Puget Sound (59.2%)	Gorst Cr 15.0216	Gorst Cr Rearing Pnd	5 (10.2%)	0
		Clarks Crk Hatchery	Clarks Crk Hatchery	1 (2%)	0
		Grovers Cr Hatchery	Grovers Cr Hatchery	2 (4.1%)	2
		Voight Cr 10.0414	Voights Cr Hatchery	2 (4.1%)	0
		Grovers Cr 15.0299	Grovers Cr Hatchery	8 (16.3%)	8
		Portage Bay/Ship Cnl	Issaquah Hatchery	3 (6.1%)	0
		Big Soos Cr 09.0072	Soos Creek Hatchery	7 (14.3%)	0
		Icy Cr 09.0125	Icy Cr Hatchery	1 (2%)	0
	S Puget Sound (8.2%)	Minter Cr 15.0048	Minter Cr Hatchery	1 (2%)	0
		Clear Cr 11.0013C	Clear Creek Hatchery	3 (6.1%)	0
Total				49	13

Table 5.5 Summary of double-index tagged (DIT) Chinook salmon kept by anglers, and estimated total mortality of unmarked DIT Chinook salmon due to hook-and-release impacts resulting from the 2017-18 winter Chinook salmon MSF in Marine Area 9. AD = marked (adipose-clipped), UM = unmarked.

Hatchery	Brood Year	DITs Obs	Est.AD	var(Est.AD)	UM DIT Enc	Est.UM	var(Est.UM)	SE(Est.UM)
George Adams Hatchery	2014	2	7.1	18.14	7.1	0.7	0.182	0.6
Grovers Cr Hatchery	2014	1	6.7	38.8	6.9	0.7	0.41	0.64
Grovers Cr Hatchery	2015	9	31.6	102.3	34.9	6.7	10.08	5.72
Wallace R Hatchery	2014	1	3.6	9.07	3.6	0.4	0.092	0.3
Total		13	49	168.31	52.6	8.5	10.764	7.27

Table 5.6 Comparison of modeled (FRAM model run 2017) and estimated total Chinook salmon encounters for the 2017-18 winter Chinook salmon MSF in Marine Area 9. 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	2749	817	1932	8
	AD	8,304	3,008	5,296	2617
	Total	11,053	3,825	7,228	2625
	% Marked	75	79	73	100
Estimated (Creel) Encounters	UM	1,881	1142	739	6
	AD	7,658	3,090	4,568	2,878
	Total	9,539	4,232	5,307	2,884
	% Marked	80	73	86	100

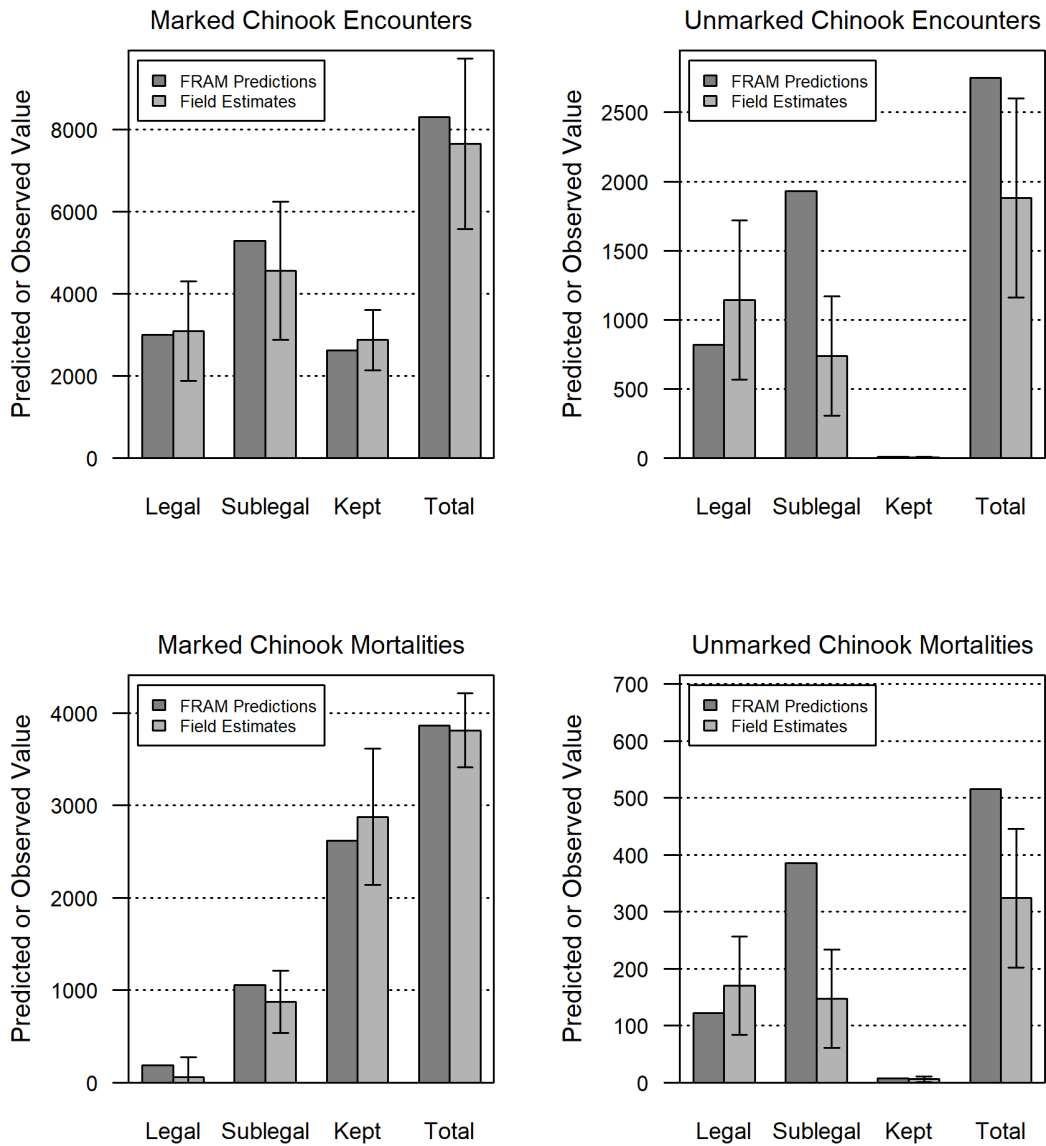


Figure 5.5 Comparison of modeled (FRAM model run 2017) and estimated total Chinook salmon encounters and mortalities for the 2017-18 winter Chinook salmon MSF in Marine Area 9. Error bars represent approximate 95% confidence intervals for field estimates

Table 5.7 Summary of season-wide fishery impact estimates for the 2017-18 winter Chinook salmon MSF in Marine Area 9. 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	3,090	2,688	402	60	2,749	151,554	389	1,986 - 3,512	14
Legal UM	1142	6	1136	170	176	1950	44	90 - 263	25
Sublegal AD	4,568	190	4,378	876	1065	30,810	176	721 - 1,410	16
Sublegal UM	739	0	739	148	148	1936	44	62 - 234	30
Total	9,539	2,884	6,655	1254	4,138	186,249	432	3,293 - 4,984	10

Table 5.8 Summary of double-index tagged (DIT) Chinook salmon kept by anglers, and estimated total mortality of unmarked DIT Chinook salmon due to hook-and-release impacts resulting from the 2017-18 winter Chinook salmon MSF in Marine Area 9. AD = marked (adipose-clipped), UM = unmarked.

Mortality Category	FRAM Chinook Mortalities			Estimated Chinook Mortalities		
	UM	AD	Total	UM	AD	Total
Total (Landed + Released)	516	3,865	4,381	324	3,814	4,138
Released Legal	122	189	311	170	60	231
Released Sublegal	386	1059	1445	148	876	1023
Landed Only	8	2,617	2625	6	2,878	2,884

Table 5.9 Total Chinook salmon encountered (retained and released) by private-boat and charter anglers logging their trips on VTRs, with estimates of legal-size and overall (legal and sublegal) mark rates during the 2017-18 winter Chinook salmon MSF in Marine Area 9. 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	54 1-trip VTRs, 73 Angler Trips	79	15	60	20	174	0.80	0.84
Size/mark-status composition:		0.45	0.09	0.34	0.11			
Variance:		(0.0014)	(0.0005)	(0.0013)	(0.0006)			
Charter VTR	8 1-trip VTRs, 30 Angler Trips	40	10	63	11	124	0.83	0.80
Size/mark-status composition:		0.32	0.08	0.51	0.09			
Variance:		(0.0018)	(0.0006)	(0.0020)	(0.0007)			

Table 5.10 Composition of test fishery Chinook salmon encounters and associated mark-rate and size/mark-status proportion estimates for the 2017-18 winter Chinook salmon MSF in Marine Area 9. AD = marked (adipose-clipped), UM = unmarked.

Stat Week	Fishing Effort		Legal		Sublegal		Total
	Days	Hrs Fished	AD	UM	AD	UM	
45	1	5.4	1	0	4	0	5
46	2	8.9	3	1	11	2	17
Total Nov 1 - 12	3	14.3	4	1	15	2	22
Size/mark-status composition:			0.18	0.05	0.68	0.09	1
Legal size mark rate:			0.80				
Overall mark rate:			0.86				
7	1	3.4	1	1	3	0	5
8	2	7.1	5	2	4	1	12
9	6	14.4	6	3	7	3	19
10	4	24.3	10	5	6	3	24
11	3	17.3	7	2	9	0	18
12	3	64.4	5	1	7	1	14
13	2	3.2	1	0	1	0	2
14	3	15.6	2	1	9	0	12
15	2	12.7	5	1	7	1	14
Total Feb 16 - Apr 15	26	162.4	42	16	53	9	120
Size/mark-status composition:			0.36	0.05	0.32	0.05	1
Legal size mark rate:			0.72				
Overall mark rate:			0.79				
Season	29	176.7	46	17	68	11	142
Size/mark-status composition:			0.32	0.12	0.48	0.08	1
Legal size mark rate:			0.73				
Overall mark rate:			0.80				

Table 5.11 Monthly sample rates (Total retained Chinook salmon sampled¹ / Estimated retained Chinook salmon) in the 2017-18 winter Chinook salmon MSF in Marine Area 9.

Month	Time period		Estimated Retained Chinook			Number of Chinook sampled			Sample Rate
	Stat Weeks	Dates	AD	UM	Total	AD	UM	Total	
November	45 - 46	1 Nov - 12 Nov	486	0	486	86	1	87	17.90%
February	7 - 8	16 Feb - 25 Feb	210	0	210	77	0	77	36.67%
March	9 - 13	26 Feb - 1 Apr	1,755	6	1,761	538	2	540	30.66%
April	14 - 15	2 Apr - 15 Apr	427	0	427	158	0	158	37.00%
Season Total			2,878	6	2,884	859	3	862	29.89%

^{1/} Number of retained Chinook salmon sampled includes all retained Chinook salmon inspected for CWTs, from all sites sampled during the winter 2017-18 Area 9 Chinook salmon MSF (the sample-frame sites included in the creel estimates and the fish sampled as part of derbies and other baseline sampling in the Area).

Table 5.12 Summary of aerial survey and dockside data used to estimate the fraction of effort captured in the four-site sample frame during the 2017-18 winter Chinook salmon MSF in Marine Area 9. See Methods Report (WDFW 2012a) for computational details and notation.

Survey Date	Stratum	Aerial Survey Details			Dockside Sampling Details			Sample Fraction, f_{ij}
		Start Time	End Time	Total Boats, m_{ij}	Sampled Boats	Active Boats, X_{ij}	Total Boats, $S_{y_{ijk}}$	
1-Nov	WD	9:15	9:43	93	63	41	143	0.441
7-Nov	WD	11:14	11:46	25	10	6	42	0.240
November 1 -12 Totals:				118	73	47	185	
Mean:				59	37	24	92	0.340
St Dev:				34	27	18	51	0.100
CV(%):				57.6%	72.6%	74.5%	54.8%	29.5%
20-Feb	WD	10:43	11:11	25	21	14	38	0.560
23-Feb	WE	10:00	10:35	2	2	1	4	0.500
1-Mar	WD	10:38	11:05	16	4	4	16	0.250
3-Mar	WE	10:12	10:35	108	77	67	124	0.620
20-Mar	WD	10:41	11:07	52	28	23	63	0.442
25-Mar	WE	9:53	10:18	112	82	67	137	0.598
30-Mar	WE	10:47	11:06	46	35	22	73	0.478
31-Mar	WE	9:31	9:50	154	107	83	199	0.539
3-Apr	WD	10:04	10:21	43	33	19	75	0.442
15-Apr	WE	10:38	11:07	135	95	81	158	0.600
Feb 16 - Apr 15 Totals:				693	484	381	887	
Mean:				69	48	38	89	0.503
St Dev:				51	36	31	61	0.104
CV(%):				73.1%	75.2%	80.9%	68.3%	20.7%

Table 5.13 Fishery-total estimates of retained and released salmon (*other than Chinook salmon*) during the 2017-18 winter Chinook salmon MSF in Marine Area 9. Values may not add exactly due to rounding error. AD = marked (adipose-clipped), UM = unmarked, UK = unknown mark-status

Week	Start Date	End Date	Kept Salmon	Released Salmon				
			Unknown	Coho AD	Coho UM	Coho UK	Chum	Unknown
45	1-Nov	5-Nov	0	9	9	44	1	170
46	6-Nov	12-Nov	0	24	18	88	3	511
7	16-Feb	18-Feb	0	0	0	0	0	0
8	19-Feb	25-Feb	0	0	0	0	0	0
9	26-Feb	4-Mar	0	0	0	0	0	0
10	5-Mar	11-Mar	0	0	0	0	0	15
11	12-Mar	18-Mar	0	0	0	0	0	0
12	19-Mar	25-Mar	0	0	0	0	0	15
13	30-Mar	1-Apr	3	0	0	0	0	15
14	2-Apr	8-Apr	0	0	0	3	0	0
15	9-Apr	15-Apr	0	0	0	0	0	0
Season Total:			3	32	26	135	4	726
Variance:			3	488	486	12164	7	66485
Standard Error:			2	22	22	110	3	258
CV (%):			58%	69%	85%	82%	66%	36%
95% CI:			3-6	32-75	26-69	135-351	4-6	221-1,231

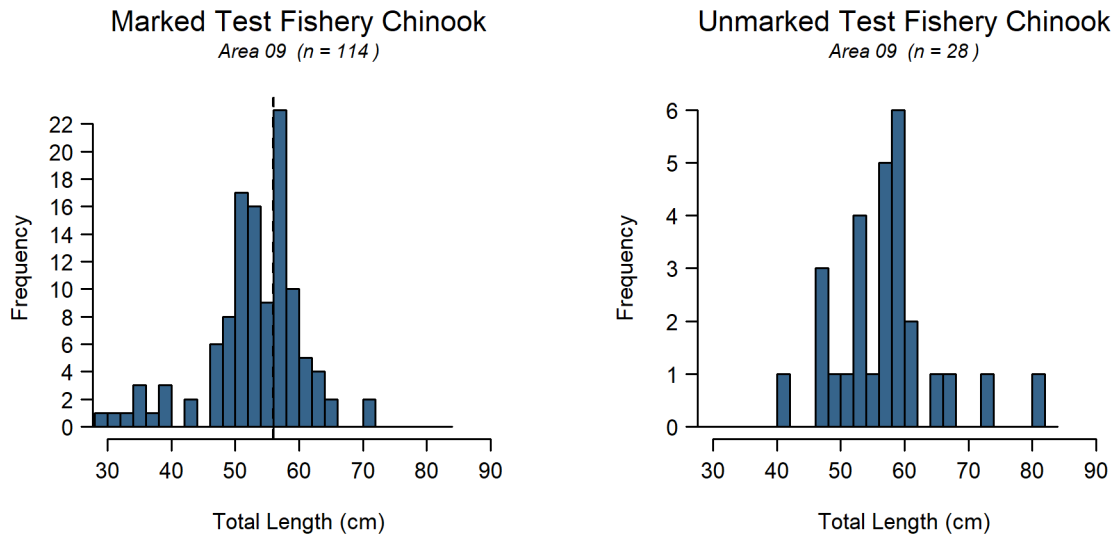


Figure 5.6 Length-frequency distributions of marked (*left panel*) and unmarked (*right panel*) Chinook salmon encountered by test fishers during the 2017-18 winter Chinook salmon MSF in Marine Area 9. The vertical dashed line in the left panel corresponds to the legal size limit (22 in or 56 cm)

Table 5.14 Season-total estimates of Chinook salmon encounters by size/mark-status and total estimates of angler effort, summarized for all seasons to date of the Area 9 Winter Chinook salmon MSF. Values may not add exactly due to rounding error. LM = legal-sized marked, LU = legal-sized unmarked, SM = sublegal-sized marked, SU = sublegal-sized unmarked.

Season Dates	Effort (Angler-trips)	Retained Chinook				Released Chinook				Total Encounters
		LM	LU	SM	SU	LM	LU	SM	SU	
Jan 16, 2007 - Apr 15, 2008	6,887	1,333	3	72	0	195	304	1,288	375	3,570
Nov 1-30, 2008 & Jan 16 - Apr 15, 2009	7,064	871	14	14	0	130	158	3,520	2,837	7,545
Nov 1-30, 2009 & Jan 16 - Apr 15, 2010	6,823	1,450	18	106	10	217	353	2,166	615	4,934
Nov 1-30, 2010 & Jan 16 - Apr 15, 2011	4,425	428	0	3	0	64	117	583	422	1,618
Nov 1-30, 2011 & Jan 16 - Apr 15, 2012	4,361	421	0	34	3	63	140	1,433	548	2,642
Nov 1-30, 2012 & Jan 16 - Apr 15, 2013	6,801	1,504	0	31	18	225	469	2,617	986	5,849
Nov 1-30, 2013 & Jan 16 - Apr 15, 2014	7,910	2,003	0	61	19	299	767	2,460	611	6,221
Nov 1-30, 2014 & Jan 16 - Apr 15, 2015	9,192	1,476	21	46	0	221	432	2,554	679	5,427
Jan 16, 2016 - Apr 15, 2016	9,330	1,894	0	95	0	283	371	4,444	1,204	8,290
Nov 1-12, 2017 & Feb 16 - Apr 15, 2018	7,954	2,688	6	189	0	402	1,136	4,378	739	9,539

6) Marine Area 10 Winter Mark-Selective Chinook Salmon Fishery

WDFW implemented an eleventh consecutive winter Chinook salmon MSF in Marine Area 10 from November 1, 2017 through February 28, 2018. The 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 dockside creel sampling, on-the-water effort surveys, test fishing and collection of VTRs from the angling public. **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 the following section we present results from our monitoring activities during the Area 10 winter Chinook salmon MSF from November 1, 2017 through February 28, 2018.

Table 6.1 Sampling/estimation details on target parameters associated with the overall Area 10 winter Chinook salmon MSF 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 5 boat surveys (Table 6.12) were conducted during the four month fishery. The results of these surveys were incorporated into multi-year site-weight averages.
Test Fishing	Size (legal/sublegal) and mark-status composition (marked, unmarked) of encountered Chinook salmon	Chinook salmon length, age, and DNA-based ² stock composition; species composition of non-Chinook salmon encounters	Fish encounter	Season (4 months)	Season-total size/mark-status proportions from the test fishery data were used to estimate total Chinook salmon encounters and associated impacts; LM=12%, LU=3%, SM=67%, SU=19%. (See Table 6.4).
Voluntary Trip Reports (VTRs)	Size (legal/sublegal) and mark-status composition (marked, unmarked) of encountered Chinook salmon	Encounter data for non-Chinook salmon species (e.g., Coho) that the angler may record on the VTR form	Fish encounter	Season (4 months)	VTR data (Table 6.9) were not used for impact estimation steps due to the assumed higher data quality of the test fishery data.
Overall Fishery Impacts Estimation	Total Chinook salmon encounters and mortalities, by size/mark-status group	Ratios of encounters and mortalities per kept Chinook salmon	N/A	Season (4 months)	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 (4 months)	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 6.2 Estimates of total fishing effort and total salmon catch (retained and released) during the 2017-18 winter Chinook salmon MSF in Marine Area 10. 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	
Nov	45	1-Nov	5-Nov	46	88	4	0	18	6	28
	46	6-Nov	12-Nov	213	345	17	0	75	25	117
	47	13-Nov	19-Nov	111	118	15	0	70	23	109
	48	20-Nov	26-Nov	21	21	0	0	0	0	0
	49	27-Nov	3-Dec	47	76	0	0	0	0	0
Dec	50	4-Dec	10-Dec	61	99	21	0	94	31	146
	51	11-Dec	17-Dec	48	94	9	0	43	14	67
	52	18-Dec	24-Dec	51	84	0	0	0	0	0
	53	25-Dec	31-Dec	83	183	12	0	55	18	85
Jan	1	1-Jan	7-Jan	37	82	53	0	242	80	375
	2	8-Jan	14-Jan	82	147	36	0	166	55	256
	3	15-Jan	21-Jan	0	0	0	0	0	0	0
	4	22-Jan	28-Jan	28	47	0	0	0	0	0
	5	29-Jan	4-Feb	54	91	18	0	83	27	129
Feb	6	5-Feb	11-Feb	152	222	44	0	201	66	311
	7	12-Feb	18-Feb	70	101	67	0	306	101	474
	8	19-Feb	25-Feb	14	14	12	0	53	17	82
	9	26-Feb	28-Feb	10	10	9	0	40	13	61
Sub Total:				1,129	1,822	317	0	1446	476	2,239
Everett Derby				7	14	0	0	0	0	0
Total				1,136	1,836	317	0	1446	476	2,239
Variance:				23,057	74,185	4,912	0	255,883	25,190	526,994
SE:				152	272	70	0	506	159	726
CV (%):				13	15	22	0	35	33	32
95% CI:				838 - 1,434	1,302 - 2,370	180 - 454	0 - 0	454 - 2,437	165 - 787	816 - 3,662

Table 6.3 Summary of total length samples from retained Chinook salmon collected during dockside angler interviews in the 2017-18 winter Chinook salmon MSF in Marine Area 10.

Mark Type	Number Sampled		
	Legal-size	Sublegal-size	Total
Marked	60	21	81
Unmarked	0	0	0
Total	60	21	81

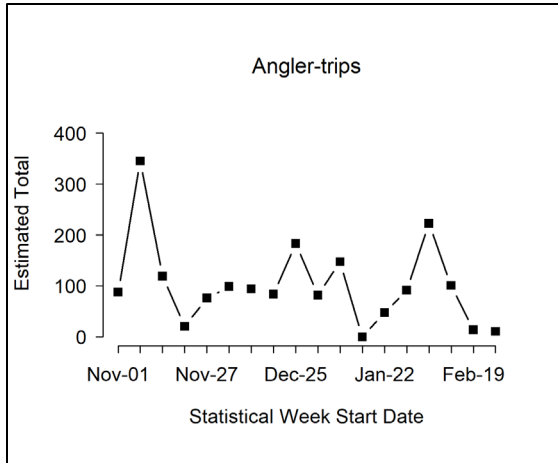


Figure 6.1 Temporal patterns in fishing effort during the 2017-18 winter Chinook salmon MSF in Marine Area 10.

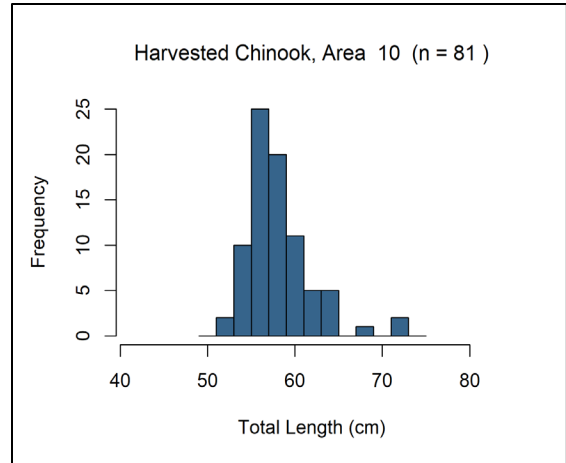


Figure 6.3 Length-frequency distribution of retained marked Chinook salmon sampled in dockside angler interviews during the 2017-18 winter Chinook salmon MSF in Marine Area 10. Note: displayed values are observations where lengths were taken.

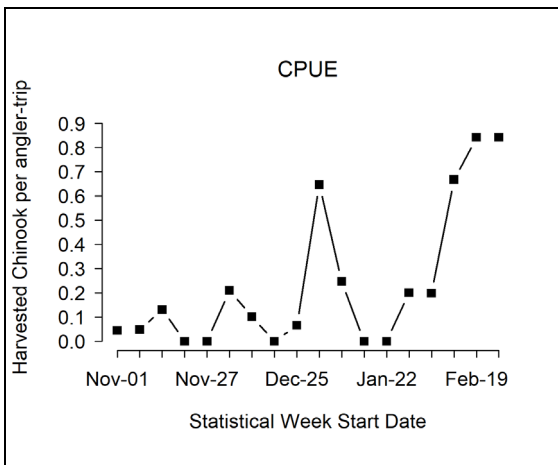


Figure 6.2 Temporal patterns in CPUE (number of Chinook salmon landed per angler trip) during the 2017-18 winter Chinook salmon MSF in Marine Area 10.

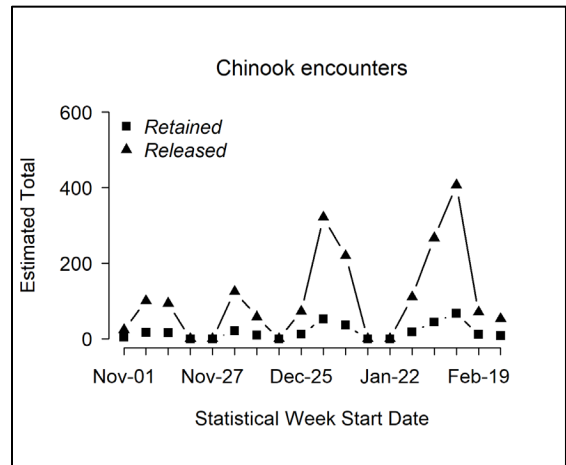


Figure 6.4 Temporal patterns in Chinook salmon encounters (number retained and released) during the 2017-18 winter Chinook salmon MSF in Marine Area 10.

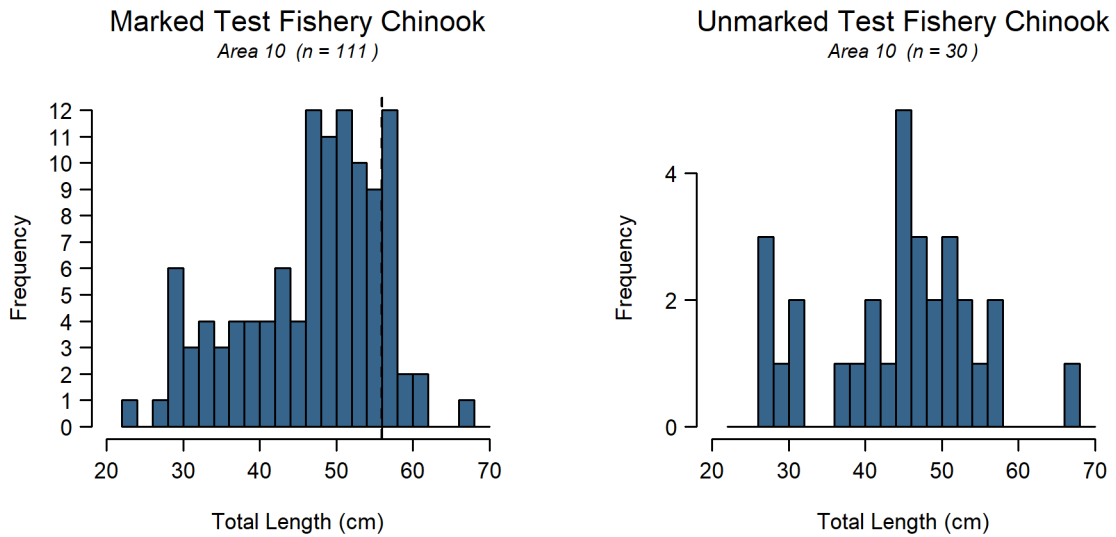


Figure 6.5 Length-frequency distributions of marked (*left panel*) and unmarked (*right panel*) Chinook salmon encountered by test fishers during the 2017-18 winter Chinook salmon MSF in Marine Area 10. The vertical dashed line in the left panel corresponds to the legal size limit (22 in or 56 cm).

Table 6.4 Composition of test fishery Chinook salmon encounters and associated mark-rate and size/mark-status proportion estimates for the 2017-18 winter Chinook salmon MSF in Marine Area 10. AD = marked (adipose-clipped), UM = unmarked.

Stat Week	Fishing Effort		Legal		Sublegal		Total
	Days	Hrs Fished	AD	UM	AD	UM	
46	2	9.6	1	0	6	2	9
47	1	5.8	0	1	2	2	5
48	3	12.3	2	0	10	1	13
49	5	30.2	2	0	2	0	4
50	3	9.3	0	0	10	2	12
51	3	15.1	0	1	0	3	4
52	4	18.5	2	0	9	5	16
53	1	5.9	0	0	11	4	15
1	3	8.5	2	0	5	4	11
2	1	5.3	4	1	13	2	20
4	2	8.3	3	0	12	2	17
5	1	3.2	1	0	14	0	15
Total	29	133.0	17	3	94	27	141
Size/mark-status composition:			0.12	0.02	0.67	0.19	1
Legal size mark rate:			0.85				
Overall mark rate:			0.79				

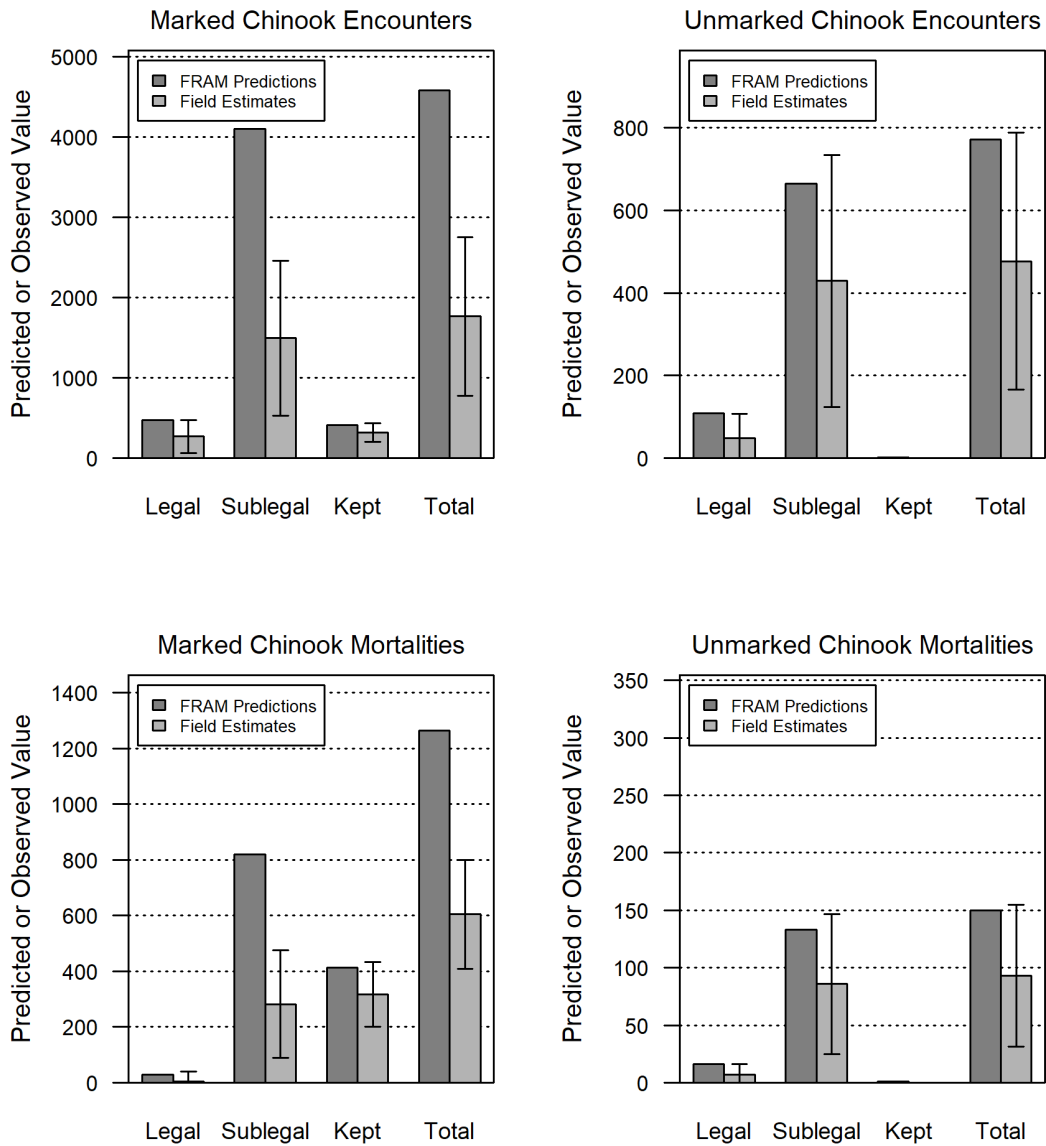


Figure 6.6 Comparison of modeled (FRAM model run 2017) and estimated total Chinook salmon encounters and mortalities for the 2017-18 winter Chinook salmon MSFs in Marine Area 10. Error bars represent approximate 95% confidence intervals for field estimates.

Table 6.5 Comparison of modeled (FRAM model run 2017) and estimated total Chinook salmon encounters for the 2017-18 winter Chinook salmon MSF in Marine Area 10. 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	772	108	664	1
	AD	4,577	476	4,101	414
	Total	5,349	584	4,765	415
	% Marked	86	82	86	100
Estimated (Creel) Encounters	UM	476	48	429	0
	AD	1,763	270	1,493	317
	Total	2,239	318	1,921	317
	% Marked	79	85	78	100

Table 6.6 Summary of season-wide fishery impact estimates for the 2017-18 winter Chinook salmon MSF in Marine Area 10. 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	270	235	35	5	240	3,239	57	129 - 352	24
Legal UM	48	0	48	7	7	20	5	0 - 16	63
Sublegal AD	1,493	82	1,410	282	364	10,236	101	166 - 563	28
Sublegal UM	429	0	429	86	86	971	31	25 - 147	36
Total	2,239	317	1,922	380	697	14,467	120	462 - 933	17

Table 6.7 Comparison of modeled (FRAM model run 2017) and estimated total Chinook salmon mortalities for the 2017-18 winter Chinook salmon MSF in Marine Area 10. 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)	150	1,264	1,414	93	604	697
Released Legal	16	30	46	7	5	12
Released Sublegal	133	820	953	86	282	368
Landed Only	1	414	415	0	317	317

Table 6.8 Monthly sample rates (Total retained Chinook salmon sampled¹ / Estimated retained Chinook salmon) in the 2017-18 winter Chinook salmon MSF in Marine Area 10.

Time period			Estimated Retained Chinook			Number of Chinook sampled			Sample Rate
Month	Stat Weeks	Dates	AD	UM	Total	AD	UM	Total	
November	45 - 49	1 Nov - 3 Dec	36	0	36	15	0	15	41.80%
December	50 - 53	4 Dec - 31 Dec	42	0	42	20	0	20	47.50%
January	1 - 4	1 Jan - 28 Jan	89	0	89	20	0	20	22.40%
February	5 - 9	29 Jan - 28 Feb	150	0	150	32	0	32	21.40%
Season Total			317	0	317	87	0	87	27.40%

¹ Number of retained Chinook salmon sampled includes all retained Chinook salmon inspected for CWTs, from all sites sampled during the winter 2017-18 Area 10 Chinook salmon MSF (the sample-frame sites included in the creel estimates and the fish sampled as part of derbies and other baseline sampling in the Area).

Table 6.9 Total Chinook salmon encountered (retained and released) by private-boat and charter boat anglers logging their trips on VTRs, with estimates of legal-size and overall (legal and sublegal) mark rates during the 2017-18 winter Chinook salmon MSF in Marine Area 10. 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	18 1-trip VTRs, 32 Angler Trips	13	1	51	8	73	0.88	0.93
Size/mark-status composition:		0.18	0.01	0.70	0.11			
Variance:		(0.0020)	(0.0002)	(0.0029)	(0.0014)			
Charter VTR	2 1-trip VTRs, 3 Angler Trips	13	1	14	5	33	0.82	0.93
Size/mark-status composition:		0.39	0.03	0.42	0.15			
Variance:		(0.0075)	(0.0009)	(0.0076)	(0.0040)			

Table 6.10 Summary of double-index tagged (DIT) Chinook salmon kept by anglers, and estimated total mortality of unmarked DIT Chinook salmon due to hook-and-release impacts resulting from the 2017-18 winter Chinook salmon MSF in Marine Area 10. AD = marked (adipose-clipped), UM = unmarked.

Hatchery	Brood Year	DITs Obs	Est.AD	var(Est.AD)	UM DIT Enc	Est.UM	var(Est.UM)	SE(Est.UM)
Grovers Cr Hatchery	2015	1	3.9	11.41	3.9	0.4	0.112	0.34
Total		1	3.9	11.41	3.9	0.4	0.112	0.34

Table 6.11 Summary of CWTs recovered from Chinook salmon retained during the 2017-18 winter Chinook salmon MSF in Marine Area 10. The field “Number DITs” indicates the number of tags that belonged to double-index tag groups.

Release Domain	Release Region	Release Site	Rearing Location	CWTs Recovered	No. DITs
BC	Thompson River (14.3%)	R-Harrison R	H-Chehalis River H	1 (14.3%)	0
WA	N Puget Sound (14.3%)	Wallace R 07.0940	Wallace R Hatchery	1 (14.3%)	0
	Skagit River (14.3%)	Co Line Pd2 03.1853B	Marblemount Hatchery	1 (14.3%)	0
	Mid Puget Sound (42.9%)	Clarks Crk Hatchery	Clarks Crk Hatchery	2 (28.6%)	0
		Grovers Cr 15.0299	Grovers Cr Hatchery	1 (14.3%)	1
	S Puget Sound (14.3%)	Clear Cr 11.0013C	Clear Creek Hatchery	1 (14.3%)	0
Total				7	1

Table 6.12 Summary of the total number of anglers intercepted during on-the-water surveys conducted for the 2017-18 winter Chinook salmon MSF in Marine Area 10. Bold sites indicate those included in the dockside sample frame.

Site Name	Total Anglers	Season Total (unadjusted) Size Measure
Armeni Public Ramp	30	0.1364
Bremerton Yacht Club	4	0.0182
Brownsville Marina/Dock/Ramp	1	0.0045
Camano Island State Park Public Ramp	6	0.0273
Dagmar's Landing, Forklift Launch	2	0.0091
Des Moines Marina (Moorage)	2	0.0091
Eagle Harbor Waterfront Park	5	0.0227
Edmonds Boat Basin (Public Sling)	12	0.0545
Edmonds Dry Storage	10	0.0455
Edmonds Marina	34	0.1545
Elliott Bay Marina	1	0.0045
Everett Marina	2	0.0091
Everett Ramp	7	0.0318
Kingston Marina	5	0.0227
Kingston Public Ramp	32	0.1455
Manchester Public Ramp	3	0.0136
Point Defiance Boathouse	1	0.0045
Port Orchard Public Ramp	6	0.0273
Private	14	0.0636
Shilshole Marina	22	0.1000
Shilshole Public Ramp	19	0.0864
Unknown	2	0.0091
Total Anglers	220	1

Table 6.13 Fishery-total estimates of retained and released salmon (*other than Chinook salmon*) during the 2017-18 winter Chinook salmon MSF in Marine Area 10. Values may not add exactly due to rounding error. AD = marked (adipose-clipped), UM = unmarked, UK = unknown mark-status

Week	Start Date	End Date	Released Salmon			
			Coho AD	Coho UM	Coho UK	Unknown
45	1-Nov	5-Nov	4	16	4	12
46	6-Nov	12-Nov	8	31	8	50
47	13-Nov	19-Nov	0	0	15	0
48	20-Nov	26-Nov	0	0	0	0
49	27-Nov	3-Dec	0	0	0	0
50	4-Dec	10-Dec	0	0	0	0
51	11-Dec	17-Dec	0	0	0	0
52	18-Dec	24-Dec	0	0	0	0
53	25-Dec	31-Dec	0	0	0	0
1	1-Jan	7-Jan	0	0	0	0
2	8-Jan	14-Jan	0	0	0	0
3	15-Jan	21-Jan	0	0	0	0
4	22-Jan	28-Jan	0	0	0	0
5	29-Jan	4-Feb	0	0	0	0
6	5-Feb	11-Feb	16	0	0	0
7	12-Feb	18-Feb	16	0	0	0
8	19-Feb	25-Feb	0	0	0	0
9	26-Feb	28-Feb	0	0	0	0
Season Total:			44	47	27	61
Variance:			1013	1784	219	1520
Standard Error:			32	42	15	39
CV (%):			73%	90%	54%	64%
95% CI:			0 - 106	0 - 130	0 - 56	0 - 138

Table 6.14 Season-total estimates of Chinook salmon encounters by size/mark-status and total estimates of angler effort, summarized for all seasons to date of the Area 10 Winter Chinook salmon MSF. Values may not add exactly due to rounding error. LM = legal-sized marked, LU = legal-sized unmarked, SM = sublegal-sized marked, SU = sublegal-sized unmarked.

Season Dates	Effort (Angler- trips)	Retained Chinook				Released Chinook				Total Encounters
		LM	LU	SM	SU	LM	LU	SM	SU	
Dec 1, 2007 - Jan 31, 2008	2,544	539	21	96	0	80	163	1,860	361	3,120
Dec 1, 2008 - Jan 31, 2009	2,029	247	0	4	0	37	36	1,010	462	1,796
Oct 1, 2009 - Jan 31 2010	5,560	354	2	42	0	53	83	2,531	898	3,962
Oct 1, 2010 - Jan 31, 2011	4,461	150	0	13	0	22	53	814	740	1,792
Oct 1, 2011 - Jan 31, 2012	4,615	227	5	15	9	34	183	2,870	1,230	4,573
Oct 1, 2012 - Jan 31, 2013	5,321	121	0	0	0	18	27	1,183	549	1,897
Oct 1, 2013 - Jan 31, 2014	6,216	328	4	22	4	49	122	1,852	584	2,964
Oct 1, 2014 - Jan 31, 2015	7,109	215	0	0	0	32	87	622	314	1,270
Oct 01, 2015 – Oct 18, 2016	4,110	63	0	55	25	9	29	1043	337	1,561
Nov 01, 2016 - Jan 23, 2017	1,841	225	0	5	0	34	86	1806	690	2,846
Nov 1, 2017 - Feb 28, 2018	1,836	235	0	82	0	35	48	1410	429	2,239

7) Marine Area 11 Winter Mark-Selective Chinook Salmon Fishery

WDFW implemented an eighth consecutive winter Chinook salmon MSF in Marine Area 11 from October 1, 2017 through April 30, 2018. Data collection methods used to monitor the Area 11 Chinook salmon MSF included dockside angler interviews (with catch sampling) and voluntary trip reports provided by private anglers. From these activities, we were able to estimate catch rates (CPUE), mark rates (based on VTRs), and landed-catch composition (age, length, and CWT). Additionally, we described relative catch and effort patterns throughout the season based on the assumption that baseline-sampling observations of these parameters are good indicators of associated fishery-wide trends.

WDFW dockside samplers conducted “Baseline Sampling” at selected access sites during the 2017-18 winter Chinook salmon MSF in Area 11. Complete details of these methods are presented in a separate Methods Report (WDFW 2012a). Briefly, Baseline Sampling is opportunistic in nature, with overall sampling effort allocated across space and time in a manner that maximizes the number of angler interviews obtained per sample effort. The Area 11 baseline sample frame included 10 different access sites (**Table 7.3**), and a total of 430 site visits during the seven-month season. Site visits ranged from short (e.g., “no effort” samples) to full-day (8+ hours) sampling events. When present, samplers interviewed all anglers exiting the Area 11 fishery at the selected access site. The interview and catch-sampling procedures employed were identical to those used in other MSFs. Area 11 samplers acquired information about: 1) angling effort (boat and angler trips, trip length), 2) encounters composition (retained and/or released) by species and mark status (marked vs. unmarked, Chinook and Coho salmon only), and 3) landed Chinook salmon size (fork and total length) and age (scales were collected and ultimately read) composition. Samplers also inspected landed Chinook and Coho salmon for CWTs using wand detectors and acquired snouts when tags were present; resulting tag data were used to estimate the CWT-based composition (unexpanded) of landed catch.

In contrast to the intensive “Murthy” survey design employed in other areas, Area 11 sampling results could not be used to produce fishery-total estimates of effort, encounters (retained catch + releases), and unmarked-DIT Chinook salmon impacts. However, Area 11 baseline sampling observations will ultimately be combined with Catch Record Card (CRC) data, once they become available, to estimate catch and effort at the fishery-total level. While these descriptors of MSF impacts are not presented in this document, they will be available at a later date. In the following section we present results from our monitoring activities during the Area 11 winter 2017-18 Chinook salmon MSF.

Table 7.1 Observations of fishing effort, Chinook salmon retained, and reported Chinook salmon releases, by week, for the winter Chinook salmon MSF in Marine Area 11. 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, UD = undetermined mark-status.

Stat Week	Start	End	Effort		Retained Fish				Released Fish		
			Boats	Anglers	Chin AD	Chin UM	Chin UD	Chin UK	Chin AD	Chin UM	Chin UK
40	1-Oct	1-Oct	62	122	3	0	0	0	73	33	205
41	2-Oct	8-Oct	64	107	3	0	0	0	27	23	109
42	9-Oct	15-Oct	45	67	3	0	0	0	18	7	32
43	16-Oct	22-Oct	53	60	2	0	0	0	23	5	16
44	23-Oct	29-Oct	69	97	13	2	0	1	81	20	137
45	30-Oct	5-Nov	50	64	7	0	0	0	28	3	124
46	6-Nov	12-Nov	67	90	34	0	0	0	58	16	71
47	13-Nov	19-Nov	67	95	21	0	0	0	90	21	86
48	20-Nov	26-Nov	26	32	7	0	0	0	71	15	14
49	27-Nov	3-Dec	77	107	35	0	0	0	86	10	55
50	4-Dec	10-Dec	82	119	18	0	0	0	101	9	97
51	11-Dec	17-Dec	84	111	22	0	0	0	85	11	85
52	18-Dec	24-Dec	23	28	3	0	0	0	14	3	16
53	25-Dec	31-Dec	44	62	4	0	0	0	29	3	11
1	1-Jan	7-Jan	37	44	2	0	0	0	19	4	10
2	8-Jan	14-Jan	56	82	8	0	0	0	44	4	29
3	15-Jan	21-Jan	28	42	6	0	0	0	22	4	17
4	22-Jan	28-Jan	19	27	6	0	0	0	11	15	0
5	29-Jan	4-Feb	35	48	2	0	0	0	28	11	8
6	5-Feb	11-Feb	69	102	9	0	1	0	53	12	13
7	12-Feb	18-Feb	31	32	3	0	0	0	12	10	0
8	19-Feb	25-Feb	31	43	11	0	0	0	28	8	4
9	26-Feb	4-Mar	80	107	32	0	0	0	25	14	9
10	5-Mar	11-Mar	139	204	46	0	2	0	83	23	18
11	12-Mar	18-Mar	114	163	22	0	0	0	50	10	25
12	19-Mar	25-Mar	97	144	34	1	0	0	45	16	29
13	26-Mar	1-Apr	84	124	28	0	0	0	47	8	3
14	2-Apr	8-Apr	58	81	18	0	0	0	22	7	16
15	9-Apr	15-Apr	71	108	20	0	0	0	15	11	9
16	16-Apr	22-Apr	112	170	46	0	0	1	61	14	7
17	23-Apr	29-Apr	146	210	72	0	0	0	76	16	27
18	30-Apr	30-Apr	4	4	1	0	0	0	0	0	0
Season Total			2,024	2,896	541	3	3	2	1,425	366	1,282

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Table 7.2 Observations of fishing effort, other than Chinook salmon retained, and reported other than Chinook salmon releases, by week, for the winter Chinook salmon MSF in Marine Area 11. 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, UD = undetermined mark-status.

Stat Week	Start	End	Effort		Retained Fish		Released Fish					
			Boats	Anglers	Coho AD	Coho UM	Coho AD	Coho UM	Coho UK	Cutthroat UK	Pink UK	Unknown
40	1-Oct	1-Oct	62	122	14	3	0	20	0	0	0	50
41	2-Oct	8-Oct	64	107	5	4	0	2	20	0	0	83
42	9-Oct	15-Oct	45	67	5	5	28	6	8	0	0	89
43	16-Oct	22-Oct	53	60	0	1	7	0	0	0	0	25
44	23-Oct	29-Oct	69	97	1	4	0	0	5	23	0	26
45	30-Oct	5-Nov	50	64	0	0	0	0	2	2	0	19
46	6-Nov	12-Nov	67	90	2	0	1	1	0	2	0	12
47	13-Nov	19-Nov	67	95	0	0	0	1	0	0	0	1
48	20-Nov	26-Nov	26	32	0	0	2	0	1	0	0	0
49	27-Nov	3-Dec	77	107	0	0	1	0	0	0	0	0
50	4-Dec	10-Dec	82	119	0	0	0	0	2	0	0	0
51	11-Dec	17-Dec	84	111	0	0	1	1	0	7	0	0
52	18-Dec	24-Dec	23	28	0	0	0	0	0	0	0	0
53	25-Dec	31-Dec	44	62	0	0	0	0	1	0	0	0
1	1-Jan	7-Jan	37	44	0	0	1	0	0	2	0	0
2	8-Jan	14-Jan	56	82	1	0	1	0	6	0	0	0
3	15-Jan	21-Jan	28	42	0	0	4	0	0	0	0	0
4	22-Jan	28-Jan	19	27	0	0	0	0	0	0	0	0
5	29-Jan	4-Feb	35	48	0	0	35	0	0	0	0	0
6	5-Feb	11-Feb	69	102	1	0	3	1	1	6	0	4
7	12-Feb	18-Feb	31	32	0	0	21	3	1	3	0	0
8	19-Feb	25-Feb	31	43	0	0	0	0	0	0	0	0
9	26-Feb	4-Mar	80	107	0	0	1	2	0	0	0	0
10	5-Mar	11-Mar	139	204	1	0	1	1	0	6	0	0
11	12-Mar	18-Mar	114	163	0	0	2	0	0	1	0	5
12	19-Mar	25-Mar	97	144	0	0	0	0	0	0	9	0
13	26-Mar	1-Apr	84	124	0	0	0	0	0	7	0	0
14	2-Apr	8-Apr	58	81	0	0	0	0	0	0	0	0
15	9-Apr	15-Apr	71	108	0	0	0	0	0	0	0	0
16	16-Apr	22-Apr	112	170	0	0	1	0	0	0	0	0
17	23-Apr	29-Apr	146	210	1	0	0	0	0	6	0	0
18	30-Apr	30-Apr	4	4	0	0	0	0	0	0	0	0
Season Total			2,024	2,896	31	17	110	38	47	65	9	314

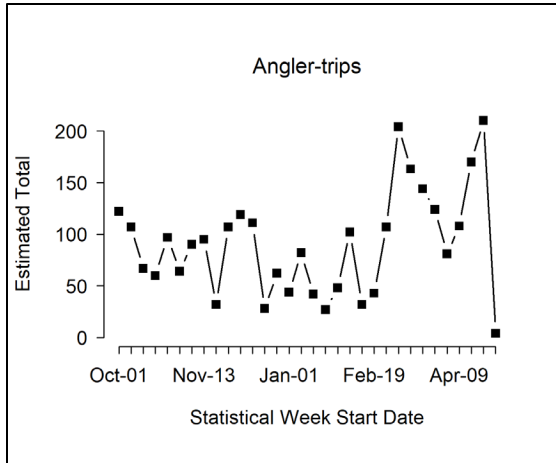


Figure 7.1 Temporal patterns in fishing effort during the 2017-18 winter Chinook salmon MSF in Marine Area 11. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates.

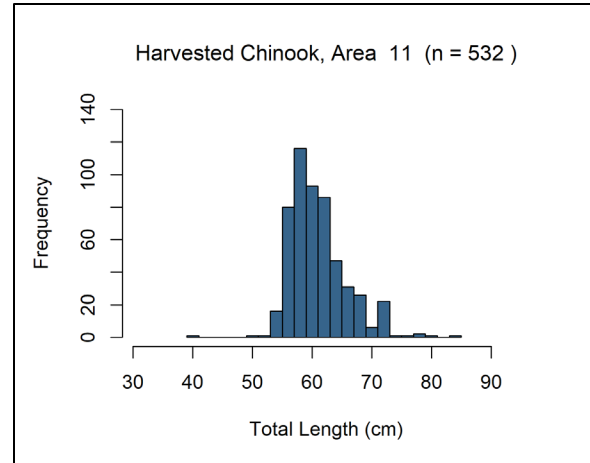


Figure 7.3 Length-frequency distributions of retained marked Chinook salmon sampled in dockside angler interviews during the 2017-18 winter Chinook salmon MSF in Marine Area 11. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates.

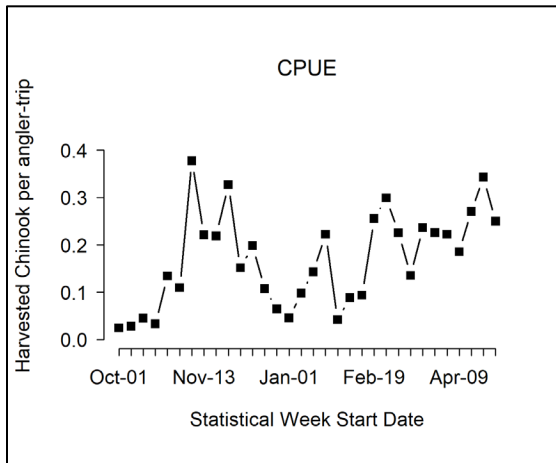


Figure 7.2 Temporal patterns in CPUE (number of Chinook salmon landed per angler trip) during the 2017-18 winter Chinook salmon MSF in Marine Area 11. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates

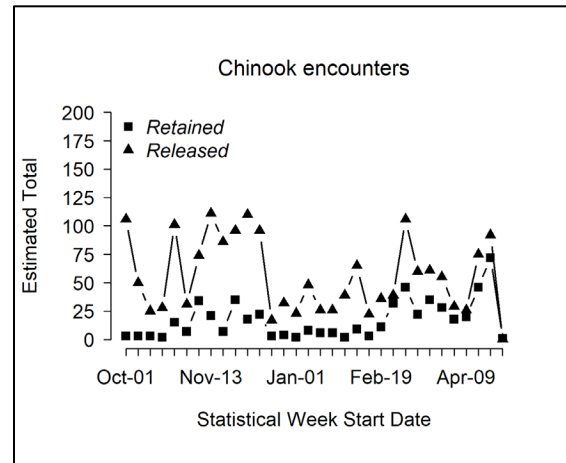


Figure 7.4 Temporal patterns in Chinook salmon encounters (number retained and released) during the 2017-18 winter Chinook salmon MSF in Marine Area 11. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates.

Table 7.3 List of sites sampled with the number of sampling events (site-days) during the winter Chinook salmon MSF in Marine Area 11.

Location Name	Number of Site Days Sampled Per Month							Total Site-Days	% of Total
	October	November	December	January	February	March	April		
Browns Point Ramp	0	1	0	0	0	0	1	2	0.47%
Dash Point Dock	4	0	0	0	0	0	1	5	1.16%
Gig Harbor Ramp	2	8	8	4	12	5	13	52	12.09%
Les Davis Pier	0	0	0	1	1	0	0	2	0.47%
Olalla Public Ramp	0	4	5	2	7	1	5	24	5.58%
Point Defiance Boathouse Dock	3	7	1	1	1	0	1	14	3.26%
Point Defiance Boathouse	20	26	27	22	24	29	26	174	40.47%
Point Defiance Public Ramp	13	18	22	22	22	26	21	144	33.49%
Redondo Pier	1	1	0	0	0	0	0	2	0.47%
Redondo Ramp	10	1	0	0	0	0	0	11	2.56%
Grand Total	53	66	63	52	67	61	68	430	100.00%

Table 7.4 Summary of CWTs recovered from Chinook salmon retained during the 2017-18 winter Chinook salmon MSF in Marine Area 11. The field “Number DITs” indicates the number of tags that belonged to double-index tag groups.

Release Domain	Release Region	Release Site	Rearing Location	CWTs Recovered	No. DITs
Washington	Hood Canal (4.2%)	Finch Cr 16.0222	Hoodport Hatchery	1 (4.2%)	0
	N Puget Sound (12.5%)	Stillaguamish R -Sf	Brenner Hatchery	1 (4.2%)	0
		Tulalip Cr 07.0001	Bernie Gobin Hatch	1 (4.2%)	1
		Whitehorse Springs	Whitehorse Pond	1 (4.2%)	0
	Mid Puget Sound (66.7%)	Big Soos Cr 09.0072	Soos Creek Hatchery	1 (4.2%)	0
		Clarks Crk Hatchery	Clarks Crk Hatchery	3 (12.5%)	0
		Icy Cr 09.0125	Icy Cr Hatchery	2 (8.3%)	0
		Gorst Cr 15.0216	Gorst Cr Rearing Pnd	2 (8.3%)	0
		Grovers Cr 15.0299	Grovers Cr Hatchery	6 (25%)	6
		Issaquah Cr 08.0178	Issaquah Hatchery	1 (4.2%)	0
		Portage Bay/Ship Cnl	Issaquah Hatchery	1 (4.2%)	0
	S Puget Sound (16.7%)	Clear Cr 11.0013C	Clear Creek Hatchery	3 (12.5%)	1
		Minter Cr Tr 15.0051	Hupp Springs Rearing	1 (4.2%)	0
	Total				24

Table 7.5 Summary of total length samples from retained Chinook salmon collected during dockside angler interviews in the 2017-18 winter Chinook salmon MSF in Marine Area 11.

Mark Type	Number Sampled		Total
	Legal-size	Sublegal-size	
Marked	478	54	532
Unmarked	2	1	3
Total	480	55	535

Table 7.6 Total Chinook salmon encountered (retained and released) by private-boat anglers logging their trips on VTRs during the 2017-18 winter Chinook salmon MSF in Marine Area 11, 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	3 1-trip VTRs, 3 Angler Trips	2	0	6	2	10	0.80	1.00
Size/mark-status composition:		0.20	0.00	0.60	0.20			
Variance:		(0.0178)	(0.0000)	(0.0267)	(0.0178)			

8) Marine Area 12 Winter Mark-Selective Chinook Fishery

WDFW implemented an eighth consecutive winter Chinook salmon MSF in Marine Area 12 from October 1, 2017 through April 30, 2018. Data collection methods used to monitor the Area 12 Chinook salmon MSF included dockside angler interviews (with catch sampling) and voluntary trip reports provided by private anglers. From these activities, we were able to estimate catch rates (CPUE), mark rates (based on VTRs), and landed-catch composition (age, length, and CWT). Additionally, we described relative catch and effort patterns throughout the season based on the assumption that baseline-sampling observations of these parameters are good indicators of associated fishery-wide trends.

WDFW dockside samplers conducted “Baseline Sampling” at selected access sites during the 2017-18 winter Chinook salmon MSF in Area 12. Complete details of these methods are presented in a separate Methods Report (WDFW 2012a). Briefly, Baseline Sampling is opportunistic in nature, with overall sampling effort allocated across space and time in a manner that maximizes the number of angler interviews obtained per sample effort. The Area 12 baseline sample frame included 17 different access sites (**Table 8.2**), and a total of 496 site visits during the six-month season. Site visits ranged from short (e.g., “no effort” samples) to full-day (8+ hours) sampling events. When present, samplers interviewed all anglers exiting the Area 12 fishery at the selected access site. The interview and catch-sampling procedures employed were identical to those used in other MSFs. Area 12 samplers acquired information about: 1) angling effort (boat and angler trips, trip length), 2) encounters composition (retained and/or released) by species and mark status (marked vs. unmarked, Chinook and Coho salmon only), and 3) landed Chinook salmon size (fork and total length) and age (scales were collected and ultimately read) composition. Samplers also inspected landed Chinook and Coho salmon for CWTs using wand detectors and acquired snouts when tags were present. Resulting tag data were used to estimate the CWT-based composition (unexpanded) of landed catch.

In contrast to the intensive “Murthy” survey design employed in other areas, Area 12 sampling results could not be used to produce fishery-total estimates of effort, encounters (retained catch + releases), and unmarked-DIT Chinook salmon impacts. However, Area 12 baseline sampling observations will ultimately be combined with Catch Record Card (CRC) data, once they become available, to estimate catch and effort at the fishery-total level. While these descriptors of MSF impacts are not presented in this document, they will be available at a later date. In the following section we present results from our monitoring activities during the Area 12 winter 2017-18 Chinook salmon MSF.

Table 8.1 Observations of fishing effort, salmon retained, and reported salmon releases, by week, for the 2017-18 winter Chinook salmon MSF in Marine Area 12. 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.

Stat Week	Start	End	Effort		Retained Fish		Released Fish		
			Boats	Anglers	Chin AD	Chin UM	Chin AD	Chin UM	Chin UK
40	1-Oct	1-Oct	9	12	0	0	0	0	5
41	2-Oct	8-Oct	26	42	0	0	2	0	1
42	9-Oct	15-Oct	19	28	9	0	0	0	0
43	16-Oct	22-Oct	4	6	0	0	0	0	0
44	23-Oct	29-Oct	13	17	0	0	5	0	4
45	30-Oct	5-Nov	0	0	0	0	0	0	0
46	6-Nov	12-Nov	1	1	0	0	0	0	0
47	13-Nov	19-Nov	19	25	0	0	0	0	0
48	20-Nov	26-Nov	1	1	0	0	0	0	0
49	27-Nov	3-Dec	0	0	0	0	0	0	0
50	4-Dec	10-Dec	2	4	4	0	5	0	0
51	11-Dec	17-Dec	4	8	2	0	22	5	0
52	18-Dec	24-Dec	0	0	0	0	0	0	0
53	25-Dec	31-Dec	10	21	4	0	37	8	0
1	1-Jan	7-Jan	10	19	1	0	21	4	3
2	8-Jan	14-Jan	10	21	5	0	49	1	0
3	15-Jan	21-Jan	2	4	1	0	5	0	0
4	22-Jan	28-Jan	3	5	0	0	8	0	0
5	29-Jan	4-Feb	10	17	4	0	10	2	0
6	5-Feb	11-Feb	14	26	4	0	4	1	11
7	12-Feb	18-Feb	3	5	1	0	2	9	6
8	19-Feb	25-Feb	11	20	2	0	24	13	0
9	26-Feb	4-Mar	29	20	1	0	14	2	3
10	5-Mar	11-Mar	7	14	4	0	4	1	7
11	12-Mar	18-Mar	17	34	6	0	25	6	5
12	19-Mar	25-Mar	13	22	7	0	15	3	2
13	26-Mar	1-Apr	19	28	8	0	19	6	7
14	2-Apr	8-Apr	6	8	0	0	6	1	0
15	9-Apr	15-Apr	16	27	0	0	10	5	0
16	16-Apr	22-Apr	12	25	3	0	7	2	3
17	23-Apr	29-Apr	21	19	1	0	0	0	0
18	30-Apr	30-Apr	1	1	0	0	0	0	0
Season Total			312	480	67	0	294	69	57

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Table 8.2 Observations of fishing effort, other than Chinook salmon retained, and reported other than Chinook salmon releases, by week, for the winter Chinook salmon MSF in Marine Area 12. 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, UD = undetermined mark-status.

Stat Week	Start	End	Effort		Retained Fish			Released Fish					
			Boats	Anglers	Coho AD	Coho UM	Chum UK	Coho AD	Coho UM	Coho UK	Cutthroat UK	Chum UK	Unknown
40	1-Oct	1-Oct	9	12	0	0	0	2	1	10	0	0	0
41	2-Oct	8-Oct	26	42	1	0	0	0	0	4	6	0	0
42	9-Oct	15-Oct	19	28	0	0	0	0	0	0	1	15	0
43	16-Oct	22-Oct	4	6	0	0	1	0	0	0	0	0	0
44	23-Oct	29-Oct	13	17	0	1	0	0	0	0	16	0	6
45	30-Oct	5-Nov	0	0	0	0	0	0	0	0	0	0	0
46	6-Nov	12-Nov	1	1	0	0	0	0	0	0	0	0	0
47	13-Nov	19-Nov	19	25	0	0	55	0	0	0	0	120	0
48	20-Nov	26-Nov	1	1	0	0	0	0	0	0	2	0	0
49	27-Nov	3-Dec	0	0	0	0	0	0	0	0	0	0	0
50	4-Dec	10-Dec	2	4	0	0	0	0	0	0	0	0	0
51	11-Dec	17-Dec	4	8	0	0	0	0	0	0	0	0	0
52	18-Dec	24-Dec	0	0	0	0	0	0	0	0	0	0	0
53	25-Dec	31-Dec	10	21	0	0	0	0	0	0	1	0	0
1	1-Jan	7-Jan	10	19	0	0	0	1	0	0	20	0	0
2	8-Jan	14-Jan	10	21	0	0	0	0	0	0	0	0	0
3	15-Jan	21-Jan	2	4	0	0	0	0	0	0	0	0	0
4	22-Jan	28-Jan	3	5	0	0	0	0	0	0	0	0	0
5	29-Jan	4-Feb	10	17	2	0	0	2	0	0	9	0	2
6	5-Feb	11-Feb	14	26	0	0	0	0	0	0	0	0	0
7	12-Feb	18-Feb	3	5	0	0	0	0	0	0	0	0	0
8	19-Feb	25-Feb	11	20	0	0	0	0	0	0	1	0	0
9	26-Feb	4-Mar	29	20	0	0	0	0	0	0	0	0	0
10	5-Mar	11-Mar	7	14	0	0	0	0	0	0	2	0	0
11	12-Mar	18-Mar	17	34	0	0	0	0	0	0	0	0	0
12	19-Mar	25-Mar	13	22	0	0	0	0	0	0	0	0	0
13	26-Mar	1-Apr	19	28	0	0	0	0	0	0	0	0	0
14	2-Apr	8-Apr	6	8	0	0	0	0	0	0	0	0	0
15	9-Apr	15-Apr	16	27	0	0	0	0	0	0	8	0	0
16	16-Apr	22-Apr	12	25	0	0	0	0	0	0	20	0	0
17	23-Apr	29-Apr	21	19	0	0	0	0	0	0	7	0	0
18	30-Apr	30-Apr	1	1	0	0	0	0	0	0	0	0	0
Season Total			312	480	3	1	56	5	1	14	93	135	8

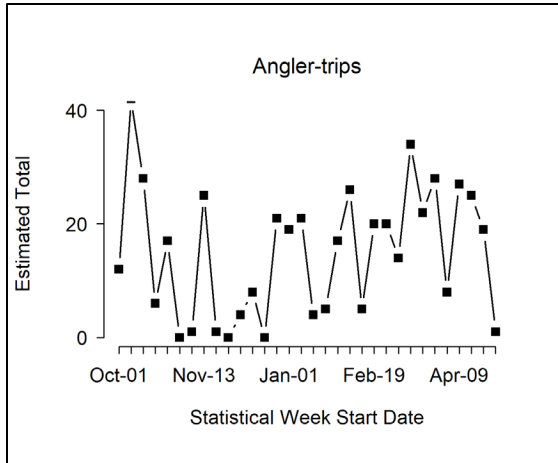


Figure 8.1 Temporal patterns in fishing effort during the 2017-18 winter Chinook salmon MSF in Marine Area 12. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates.

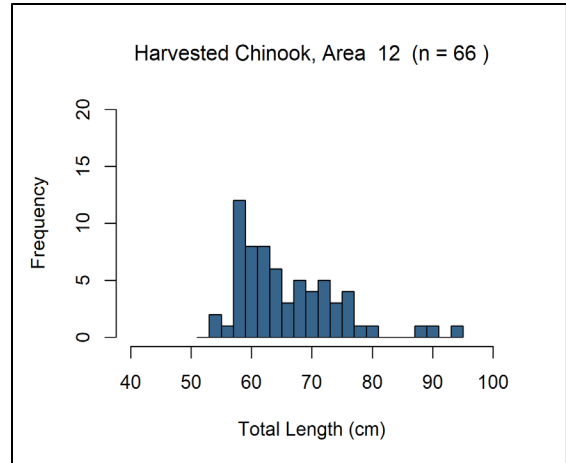


Figure 8.3 Length-frequency distributions of retained marked Chinook salmon sampled in dockside angler interviews during the 2017-18 winter Chinook salmon MSF in Marine Area 12.

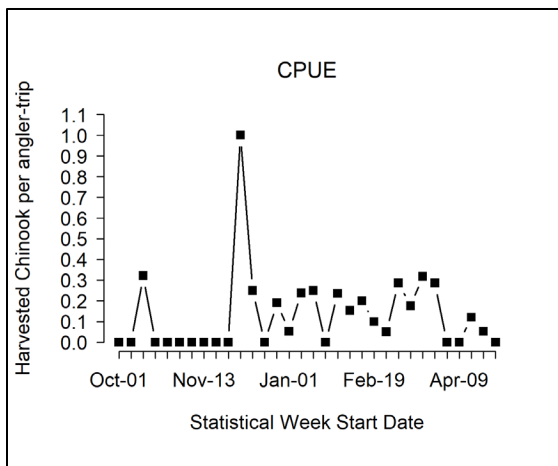


Figure 8.2 Temporal patterns in CPUE (number of Chinook salmon landed per angler trip) during the 2017-18 winter Chinook salmon MSF in Marine Area 12. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates

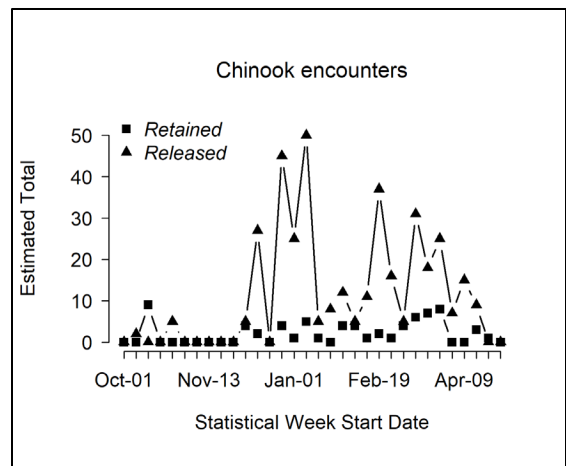


Figure 8.4 Temporal patterns in Chinook salmon encounters (number retained and released) during the 2017-18 winter Chinook salmon MSF in Marine Area 12. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates.

Table 8.3 List of sites sampled with the number of sampling events (site-days) during the 2017-18 winter Chinook salmon MSF in Marine Area 12.

Location Name	Number of Site Days Sampled Per Month							Total Site-Days	% of Total
	October	November	December	January	February	March	April		
Belfair Park	0	0	0	0	0	0	1	1	0.20%
Big Beef Beach	9	1	2	0	0	0	1	13	2.62%
Dewatto Creek Watch	2	1	0	0	0	0	0	3	0.60%
Hoodsport Shore	20	10	1	0	0	0	0	31	6.25%
Lilliwaup Beach Launch	0	0	2	1	0	1	0	4	0.81%
Misery Point Ramp	18	5	14	16	17	14	17	101	20.36%
Pleasant Harbor Boat Ramp	3	1	15	6	8	13	9	55	11.09%
Pleasant Harbor Marina	5	2	0	4	3	0	3	17	3.43%
Point Whitney Ramp	0	0	0	1	2	0	0	3	0.60%
Potlatch State Park	0	1	0	0	0	0	0	1	0.20%
Quilcene Bay Ramp	7	6	6	4	4	1	2	30	6.05%
Saltwater Park Ramp	16	8	11	12	13	12	14	86	17.34%
Summertide Resort	0	0	0	1	0	0	1	2	0.40%
Tahuya Ramp	2	3	1	3	6	0	3	18	3.63%
Triton Cove State Park	1	1	13	9	7	11	11	53	10.69%
Twanoh State Park	1	1	4	7	7	5	5	30	6.05%
Union Ramp	2	7	4	10	9	7	9	48	9.68%
Grand Total	86	47	73	74	76	64	76	496	100.00%

Table 8.4 Summary of total length samples from retained Chinook salmon collected during dockside angler interviews in the 2017-18 winter Chinook salmon MSF in Marine Area 12.

Mark Type	Number Sampled		Total
	Legal-size	Sublegal-size	
Marked	64	2	66
Unmarked	0	0	0
Total	64	2	66

Table 8.5 Summary of CWTs recovered from Chinook salmon retained during the 2017-18 winter Chinook salmon MSF in Marine Area 12. The field “Number DITs” indicates the number of tags that belonged to double-index tag groups.

Release Domain	Release Region	Release Site	Rearing Location	CWTs Recovered	No. DITs
WA	Hood Canal (50%)	Finch Cr 16.0222	Hoodsport Hatchery	2 (33.3%)	0
		Nf Skokomish Dam #2 Pool	Nf Skokomish Hatchery	1 (16.7%)	0
	N Puget Sound (16.7%)	Tulalip Cr 07.0001	Bernie Gobin Hatchery	1 (16.7%)	1
	S Puget Sound (33.3%)	Clear Cr 11.0013C	Clear Creek Hatchery	2 (33.3%)	0
		Total		6	1

Table 8.6 Total Chinook salmon encountered (retained and released) by private-boat anglers logging their trips on VTRs during the 2017-18 winter Chinook salmon MSF in Marine Area 12, 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	2 1-trip VTRs, 5 Angler Trips	2	0	8	0	10	1.00	1.00
Size/mark-status composition:		0.20	0.00	0.80	0.00			
Variance:		(0.0178)	(0.0000)	(0.0178)	(0.0000)			

9) Marine Area 13 Winter Mark-Selective Chinook Salmon Fishery

The Washington Department of Fish and Wildlife (WDFW) implemented the third winter Chinook salmon MSF in Marine Area 13 from October 1, 2017 – April 30, 2018. Data collection methods used to monitor the Area 13 Chinook salmon MSF included dockside angler interviews (with catch sampling) and voluntary trip reports provided by private anglers. From these activities, we were able to estimate catch rates (CPUE) and mark rates (based on VTRs). Additionally, we described relative catch and effort patterns throughout the season based on the assumption that baseline-sampling observations of these parameters are good indicators of associated fishery-wide trends.

WDFW dockside samplers conducted “Baseline Sampling” at selected access sites during the 2017-18 winter Chinook salmon MSF in Area 13. Complete details of these methods are presented in a separate Methods Report (WDFW 2012a). Briefly, Baseline Sampling is opportunistic in nature, with overall sampling effort allocated across space and time in a manner that maximizes the number of angler interviews obtained per sample effort. The Area 13 baseline sample frame included 39 different access sites (**Table 9.2**), and a total of 907 site visits during the six-month season. Site visits ranged from short (e.g., “no effort” samples) to full-day (8+ hours) sampling events. When present, samplers interviewed all anglers exiting the Area 13 fishery at the selected access site. The interview and catch-sampling procedures employed were identical to those used in other MSFs. Area 13 samplers acquired information about: 1) angling effort (boat and angler trips, trip length), 2) encounters composition (retained and/or released) by species and mark status (marked vs. unmarked, Chinook and Coho salmon only), and 3) landed Chinook salmon size (fork and total length) and age (scales were collected and ultimately read) composition. Samplers also inspected landed Chinook and Coho salmon for CWTs using wand detectors and acquired snouts when tags were present. Resulting tag data were used to estimate the CWT-based composition (unexpanded) of landed catch.

In contrast to the intensive “Murthy” survey design employed in other areas, Area 13 sampling results could not be used to produce fishery-total estimates of effort, encounters (retained catch + releases), and unmarked-DIT Chinook salmon impacts. However, Area 13 Baseline Sampling observations will ultimately be combined with Catch Record Card (CRC) data, once they become available, to estimate catch and effort at the fishery-total level. While these descriptors of MSF impacts are not presented in this document, they will be available at a later date. In the following section we present results from our monitoring activities during the Area 13 winter 2017-18 Chinook salmon MSF.

Table 9.1 Observations of fishing effort, salmon retention, and reported salmon releases, by week, for the 2017-18 winter Chinook salmon MSF in Marine Area 13. 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.

Stat Week	Start	End	Effort		Retained Fish		Released Fish		
			Boats	Anglers	Chin AD	Chin UM	Chin AD	Chin UM	Chin UK
40	1-Oct	1-Oct	5	11	0	0	3	0	12
41	2-Oct	8-Oct	12	20	1	0	2	0	4
42	9-Oct	15-Oct	12	19	0	0	0	0	0
43	16-Oct	22-Oct	9	10	0	0	0	0	0
44	23-Oct	29-Oct	22	31	0	0	0	0	0
45	30-Oct	5-Nov	20	30	0	0	0	0	0
46	6-Nov	12-Nov	27	37	0	0	5	0	2
47	13-Nov	19-Nov	40	53	0	0	0	1	10
48	20-Nov	26-Nov	6	9	0	0	0	0	0
49	27-Nov	3-Dec	13	13	0	0	0	0	0
50	4-Dec	10-Dec	6	7	0	0	0	0	0
51	11-Dec	17-Dec	18	21	0	0	10	0	3
52	18-Dec	24-Dec	12	16	0	0	4	0	0
53	25-Dec	31-Dec	4	4	0	0	0	0	0
1	1-Jan	7-Jan	4	5	0	0	0	0	7
2	8-Jan	14-Jan	12	19	0	0	3	0	0
3	15-Jan	21-Jan	17	19	0	0	1	0	0
4	22-Jan	28-Jan	18	29	1	0	8	7	2
5	29-Jan	4-Feb	26	36	0	0	5	0	29
6	5-Feb	11-Feb	18	26	0	0	1	0	4
7	12-Feb	18-Feb	33	37	1	0	0	1	10
8	19-Feb	25-Feb	9	13	0	0	1	0	0
9	26-Feb	4-Mar	19	26	1	0	13	2	0
10	5-Mar	11-Mar	21	31	0	0	8	1	13
11	12-Mar	18-Mar	7	12	0	0	7	0	0
12	19-Mar	25-Mar	16	24	0	0	19	9	0
13	26-Mar	1-Apr	12	14	1	0	2	1	1
14	2-Apr	8-Apr	7	10	3	0	4	0	3
15	9-Apr	15-Apr	14	16	3	0	11	0	0
16	16-Apr	22-Apr	23	29	2	0	4	0	0
17	23-Apr	29-Apr	10	15	2	0	4	0	0
18	30-Apr	30-Apr	0	0	0	0	0	0	0
Season Total			472	642	15	0	115	22	100

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Table 9.2 Observations of fishing effort, other than Chinook salmon retained, and reported other than Chinook salmon releases, by week, for the winter Chinook salmon MSF in Marine Area 13. 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, UD = undetermined mark-status.

Stat Week	Start	End	Effort		Retained Fish			Released Fish					
			Boats	Anglers	Coho AD	Coho UM	Chum UK	Coho AD	Coho UM	Coho UK	Cutthroat UK	Chum UK	Unknown
40	1-Oct	1-Oct	9	12	0	0	0	0	0	0	0	0	0
41	2-Oct	8-Oct	26	42	1	0	0	2	1	0	0	0	0
42	9-Oct	15-Oct	19	28	0	0	0	0	0	0	2	0	0
43	16-Oct	22-Oct	4	6	0	0	1	0	0	0	0	2	0
44	23-Oct	29-Oct	13	17	0	0	1	12	0	0	2	14	0
45	30-Oct	5-Nov	0	0	0	0	15	4	0	0	14	7	0
46	6-Nov	12-Nov	1	1	0	0	17	1	0	3	21	13	0
47	13-Nov	19-Nov	19	25	0	0	13	0	0	0	3	11	0
48	20-Nov	26-Nov	1	1	0	0	0	0	0	0	4	1	0
49	27-Nov	3-Dec	0	0	0	0	0	0	0	0	0	0	0
50	4-Dec	10-Dec	2	4	0	0	0	0	0	0	0	0	0
51	11-Dec	17-Dec	4	8	0	0	0	1	1	2	10	0	0
52	18-Dec	24-Dec	0	0	0	0	0	0	0	0	0	0	0
53	25-Dec	31-Dec	10	21	0	0	0	2	0	0	0	0	5
1	1-Jan	7-Jan	10	19	0	0	0	0	0	0	2	0	0
2	8-Jan	14-Jan	10	21	1	0	0	23	0	0	2	0	0
3	15-Jan	21-Jan	2	4	1	0	0	9	2	0	0	0	0
4	22-Jan	28-Jan	3	5	0	0	0	17	4	4	1	0	0
5	29-Jan	4-Feb	10	17	8	1	0	71	19	17	0	0	1
6	5-Feb	11-Feb	14	26	0	0	0	12	1	8	2	0	0
7	12-Feb	18-Feb	3	5	4	0	0	22	3	12	0	0	0
8	19-Feb	25-Feb	11	20	8	0	0	15	10	2	0	0	0
9	26-Feb	4-Mar	29	20	2	0	0	10	7	0	0	0	0
10	5-Mar	11-Mar	7	14	0	0	0	5	1	1	0	0	0
11	12-Mar	18-Mar	17	34	0	0	0	2	0	2	0	0	1
12	19-Mar	25-Mar	13	22	0	0	0	1	0	0	0	0	0
13	26-Mar	1-Apr	19	28	0	0	0	0	0	1	4	0	0
14	2-Apr	8-Apr	6	8	0	0	0	0	0	0	0	0	0
15	9-Apr	15-Apr	16	27	2	0	0	1	0	0	4	0	0
16	16-Apr	22-Apr	12	25	2	0	0	11	1	0	20	0	0
17	23-Apr	29-Apr	21	19	0	0	0	3	0	0	0	0	0
18	30-Apr	30-Apr	1	1	0	0	0	0	0	0	0	0	0
Season Total			312	480	29	1	47	224	50	52	91	48	7

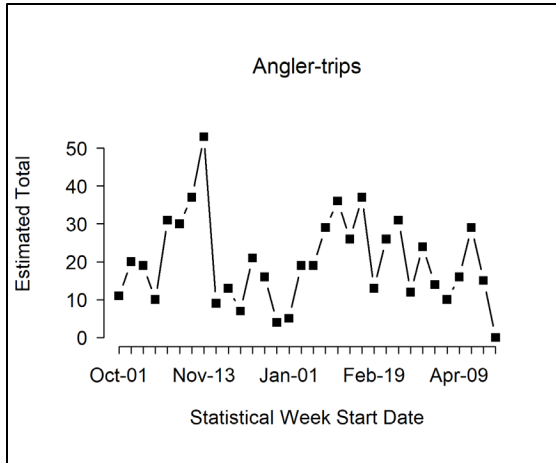


Figure 9.1 Temporal patterns in fishing effort during the 2017-18 winter Chinook salmon MSF in Marine Area 13. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates.

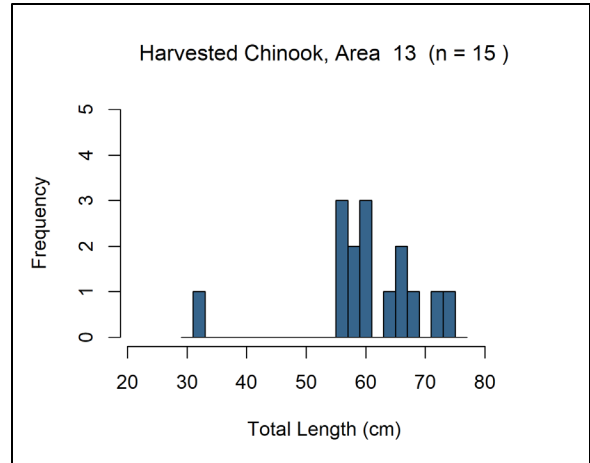


Figure 9.3 Length-frequency distributions of retained marked Chinook salmon sampled in dockside angler interviews during the 2017-18 winter Chinook salmon MSF in Marine Area 13.

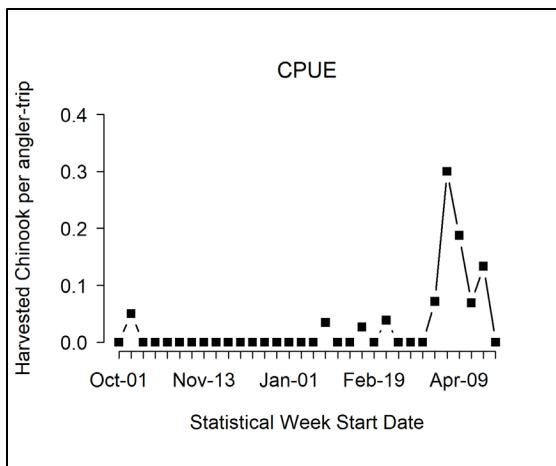


Figure 9.2 Temporal patterns in CPUE (number of Chinook salmon landed per angler trip) during the 2017-18 winter Chinook salmon MSF in Marine Area 13. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates.

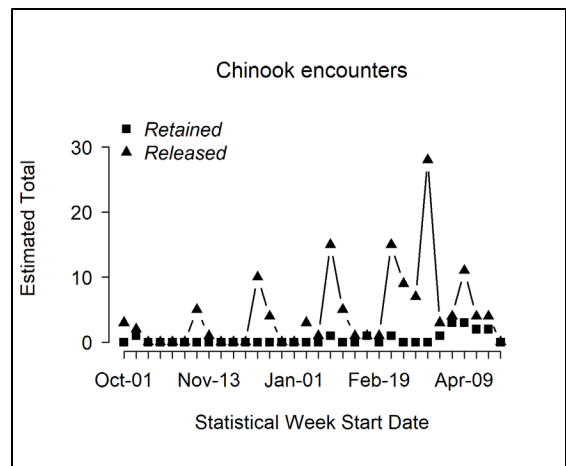


Figure 9.4 Length-frequency distributions of retained marked Chinook salmon sampled in dockside angler interviews during the 2017-18 winter Chinook salmon MSF in Marine Area 13.

Table 9.3 List of sites sampled with the number of sampling events (site-days) during the 2017-18 winter Chinook salmon MSF in Marine Area 13.

Location Name	Number of Site Days Sampled Per Month							Total Site-Days	% of Total
	October	November	December	January	February	March	April		
Allyn Dock/Pier	0	0	1	0	1	0	1	3	0.33%
Allyn Public Ramp	1	4	4	6	8	2	3	28	3.09%
Arcadia Ramp	1	0	3	2	5	1	4	16	1.76%
Boston Harbor Ramp	15	4	13	12	10	10	15	79	8.71%
Concrete Dock	1	0	5	1	6	4	4	21	2.32%
East Bay Marina/Ramp	5	2	14	12	10	10	14	67	7.39%
Evergreen, Sunset Beach	0	0	0	0	1	1	2	4	0.44%
Fox Island Public Ramp	1	3	8	4	10	5	5	36	3.97%
Fox Island Sand Spit	0	0	1	0	7	3	3	14	1.54%
Fox Island Shore	0	0	0	0	0	0	1	1	0.11%
Grapeview Public Ramp	1	1	1	1	3	0	0	7	0.77%
Hartstene Is. Ramp	4	3	5	9	13	3	10	47	5.18%
Home Public Ramp	0	2	3	1	3	2	5	16	1.76%
Horsehead Bay Ramp	0	1	2	1	2	0	2	8	0.88%
Joemma Beach Ramp	0	0	0	0	0	0	1	1	0.11%
John's Creek	3	2	0	0	0	0	0	5	0.55%
Kennedy Creek Mouth	5	9	1	0	0	0	0	15	1.65%
Landover	0	4	0	0	2	2	0	8	0.88%
Longbranch Public Ramp	0	1	3	1	3	2	5	15	1.65%
Luhr Beach Ramp	14	4	13	10	17	16	20	94	10.36%
Luhr Beach Shore	0	0	0	0	1	2	0	3	0.33%
McLane Creek Shore	0	1	0	0	0	0	0	1	0.11%
Narrows Marina	6	10	10	7	6	13	11	63	6.95%
Narrows Park	1	8	7	14	13	8	6	57	6.28%
Narrows Ramp	0	7	1	0	0	0	0	8	0.88%
Perry Creek	1	7	6	0	0	0	0	14	1.54%
Priest Point Park	2	0	0	0	0	0	0	2	0.22%
Shorecrest Mason Ramp	1	0	0	0	1	0	0	2	0.22%
Solo Point	8	5	13	12	8	11	12	69	7.61%
Solo Point Shore	1	0	0	1	1	1	0	4	0.44%
South Allyn Shore	0	2	0	0	0	0	0	2	0.22%
Steamboat Island Bridge	1	2	0	0	1	0	0	4	0.44%
Steilacoom Public Ramp	1	9	1	4	3	4	5	27	2.98%
Tolmie State Park	3	0	0	0	0	0	0	3	0.33%
Vaughn Public Ramp	0	5	3	1	3	2	5	19	2.09%
Wauna Ramp	0	4	2	0	2	0	0	8	0.88%
Wauna Shore	0	7	11	3	8	6	9	44	4.85%
Wollochet Public Ramp	0	1	7	1	4	1	3	17	1.87%
Zittels Marina	13	2	10	9	12	13	16	75	8.27%
Grand Total	89	110	148	112	164	122	162	907	100.00%

Table 9.4 Summary of total length samples from retained Chinook salmon collected during dockside angler interviews in the 2017-18 winter Chinook salmon MSF in Marine Area 13.

Mark Type	Number Sampled		
	Legal-size	Sublegal-size	Total
Marked	14	1	15
Unmarked	0	0	0
Total	14	1	15

Table 9.5 Summary of CWTs recovered from Chinook salmon retained during the 2017-18 winter Chinook salmon MSF in Marine Area 13. The field “Number DITs” indicates the number of tags that belonged to double-index tag groups.

Release Domain	Release Region	Release Site	Rearing Location	CWTs Recovered	No. DITs
WA	Mid Puget Sound (100%)	Grovers Cr 15.0299	Grovers Cr Hatchery	1 (100%)	1
Total				1	1

Table 9.6 Total Chinook salmon encountered (retained and released) by private-boat anglers logging their trips on VTRs during the 2017-18 winter Chinook salmon MSF in Marine Area 13, 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	18 1-trip VTRs, 27 Angler Trips	8	5	35	3	51	0.84	0.62
Size/mark-status composition:		0.16	0.10	0.69	0.06			
Variance:		(0.0026)	(0.0018)	(0.0043)	(0.0011)			

ACKNOWLEDGEMENTS

This review of the 2017-18 winter mark-selective Chinook salmon fisheries in Areas 5, 6, 7, 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 winter 2017-18 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 MSF evaluations. In particular, from Central Sound, we thank Slim Simpson (Central Sound Sampling Supervisor), Jeff McKee, Kathy Young-Berg, Sue Kraemer, Pete Sergeeff, Toby Black, Mary Raymond and Courtney Adkins. From the Strait of Juan de Fuca/Peninsula area, we thank Larry Bennett (Peninsula Sampling Supervisor), Connie Konopaski, Lorena McGovern, Ryan Ollerman and Brandon Kraynak. From North Sound, we thank Chad Paul (North Sampling Supervisor), Samantha Bund, Marcus Thompson, Dean Toba, Patrick Morrison, Jim Repoz, Lynn Stricker, Mary Mureau, Angela Foster, Dyanne Dalrymple, John Edwards, and Area 7 test fishers Nathan Layman and Trevor James. From South Sound as well as Hood Canal and the Kitsap Peninsula, we thank Justin Terry (South Sound Supervisor), Will Jasper, John Moore, Scott Walker, Cara Crowley, Maria Garcia-Rojas, Nancy Franco-Bowman, John Pahutski and Sharyn Wolfenbarger. Additionally, we thank WDFW pilots Marty Kimbrel, Stephen Lindberg and Kevin Nelsen and samplers Brant Boelts, Karen Kloempken, Lea Ronne, Marisa Litz, Anja Huff, for their time surveying Areas 6, 7 and 9 from the sky.

At the WDFW Headquarters in Olympia, we thank Gil Lensegrav and the CWT Lab staff for their help and expertise in providing decoded CWT data. Lea Ronne, Brant Boelts and Ellie Heikkila provided substantial help with quality control and flow of data, in addition to personnel logistics and support services for the winter 2017-18 MSF sampling projects. Ann Stephenson and Karen Kloempken supervised the sampling unit activities, provided timely in-season creel estimates, scheduled all boat surveys and aerial surveys, and worked with the WDFW Selective Fisheries Biologist, Ty Garber, to produce post-season analyses and reports. Also, Karen Kloempken managed the WDFW sampling databases and provided finalized post-season data. Are Strom completed “R” programming updates and database development to enable efficient analyses of selective fishery data and produce tables and figures for our post-season selective fishery reports.

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.

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APPENDICIES

1) SITE WEIGHTS

Appendix 1.1 Size measures by sample date, for sites sampled during dockside creel surveys for the 2017-18 winter Chinook MSF in Marine Area 8-1.

Sample Date	Week	Location #1	Site Size	Location #2	Site Size
11/1/2017	45	Camano Island State Park Public Ramp	0.2661	Maple Grove Ramp; Camano Is	0.2956
11/3/2017	45	Camano Island State Park Public Ramp	0.2661	Maple Grove Ramp; Camano Is	0.2956
11/5/2017	45	Camano Island State Park Public Ramp	0.2661	Oak Harbor Marina & Public Ramp	0.2775
11/7/2017	46	Camano Island State Park Public Ramp	0.2661	Maple Grove Ramp; Camano Is	0.2956
11/10/2017	46	Camano Island State Park Public Ramp	0.2661	Oak Harbor Marina & Public Ramp	0.2775
11/12/2017	46	Camano Island State Park Public Ramp	0.2661	Maple Grove Ramp; Camano Is	0.2956
2/16/2018	7	Camano Island State Park Public Ramp	0.3887	Maple Grove Ramp; Camano Is	0.2982
2/17/2018	7	Camano Island State Park Public Ramp	0.3887	Oak Harbor Marina & Public Ramp	0.1441
2/20/2018	8	Maple Grove Ramp; Camano Is	0.2982	Camano Island State Park Public Ramp	0.3887
2/23/2018	8	Maple Grove Ramp; Camano Is	0.2982	Camano Island State Park Public Ramp	0.3887
2/25/2018	8	Norton Street (Everett) Ramp	0.0692	Camano Island State Park Public Ramp	0.3887
3/1/2018	9	Oak Harbor Marina & Public Ramp	0.0656	Camano Island State Park Public Ramp	0.5363
3/2/2018	9	Norton Street (Everett) Ramp	0.1634	Camano Island State Park Public Ramp	0.5363
3/3/2018	9	Maple Grove Ramp; Camano Is	0.1761	Camano Island State Park Public Ramp	0.5363
3/7/2018	10	Camano Island State Park Public Ramp	0.5363	Norton Street (Everett) Ramp	0.1634
3/9/2018	10	Camano Island State Park Public Ramp	0.5363	Norton Street (Everett) Ramp	0.1634
3/11/2018	10	Camano Island State Park Public Ramp	0.5363	Norton Street (Everett) Ramp	0.1634
3/15/2018	11	Camano Island State Park Public Ramp	0.5363	Norton Street (Everett) Ramp	0.1634
3/17/2018	11	Camano Island State Park Public Ramp	0.5363	Maple Grove Ramp; Camano Is	0.1761
3/18/2018	11	Camano Island State Park Public Ramp	0.5363	Norton Street (Everett) Ramp	0.1634
3/20/2018	12	Camano Island State Park Public Ramp	0.5363	Norton Street (Everett) Ramp	0.1634
3/23/2018	12	Camano Island State Park Public Ramp	0.5363	Norton Street (Everett) Ramp	0.1634
3/25/2018	12	Camano Island State Park Public Ramp	0.5363	Norton Street (Everett) Ramp	0.1634
3/29/2018	13	Camano Island State Park Public Ramp	0.5363	Maple Grove Ramp; Camano Is	0.1761
3/30/2018	13	Camano Island State Park Public Ramp	0.5363	Norton Street (Everett) Ramp	0.1634
3/31/2018	13	Camano Island State Park Public Ramp	0.5363	Maple Grove Ramp; Camano Is	0.1761
4/3/2018	14	Camano Island State Park Public Ramp	0.5363	Norton Street (Everett) Ramp	0.1634
4/7/2018	14	Camano Island State Park Public Ramp	0.5363	Norton Street (Everett) Ramp	0.1634
4/8/2018	14	Camano Island State Park Public Ramp	0.5363	Norton Street (Everett) Ramp	0.1634
4/10/2018	15	Camano Island State Park Public Ramp	0.5363	Maple Grove Ramp; Camano Is	0.1761
4/13/2018	15	Camano Island State Park Public Ramp	0.5363	Norton Street (Everett) Ramp	0.1634
4/15/2018	15	Camano Island State Park Public Ramp	0.5363	Norton Street (Everett) Ramp	0.1634
4/19/2018	16	Camano Island State Park Public Ramp	0.5363	Maple Grove Ramp; Camano Is	0.1761
4/20/2018	16	Camano Island State Park Public Ramp	0.5363	Norton Street (Everett) Ramp	0.1634
4/21/2018	16	Camano Island State Park Public Ramp	0.5363	Maple Grove Ramp; Camano Is	0.1761
4/25/2018	17	Camano Island State Park Public Ramp	0.5363	Norton Street (Everett) Ramp	0.1634
4/27/2018	17	Camano Island State Park Public Ramp	0.5363	Maple Grove Ramp; Camano Is	0.1761
4/29/2018	17	Camano Island State Park Public Ramp	0.5363	Norton Street (Everett) Ramp	0.1634
4/30/2018	18	Camano Island State Park Public Ramp	0.5363	Maple Grove Ramp; Camano Is	0.1761

Appendix 1.2 Size measures by sample date, for sites sampled during dockside creel surveys for the 2017-18 winter Chinook MSF in Marine Area 8-2.

Sample Date	Week	Location #1	Site Size	Location #2	Site Size
11/1/2017	45	Norton Street (Everett) Ramp	0.566	Camano Island State Park Public Ramp	0.3107
11/3/2017	45	Norton Street (Everett) Ramp	0.566	Camano Island State Park Public Ramp	0.3107
11/5/2017	45	Norton Street (Everett) Ramp	0.566	Camano Island State Park Public Ramp	0.3107
11/7/2017	46	Norton Street (Everett) Ramp	0.566	Camano Island State Park Public Ramp	0.3107
11/10/2017	46	Norton Street (Everett) Ramp	0.566	Camano Island State Park Public Ramp	0.3107
11/12/2017	46	Norton Street (Everett) Ramp	0.566	Camano Island State Park Public Ramp	0.3107
2/16/2018	7	Norton Street (Everett) Ramp	0.6973	Camano Island State Park Public Ramp	0.1406
2/17/2018	7	Norton Street (Everett) Ramp	0.6973	Camano Island State Park Public Ramp	0.1406
2/20/2018	8	Camano Island State Park Public Ramp	0.1406	Norton Street (Everett) Ramp	0.6973
2/23/2018	8	Camano Island State Park Public Ramp	0.1406	Norton Street (Everett) Ramp	0.6973
2/25/2018	8	Camano Island State Park Public Ramp	0.1406	Norton Street (Everett) Ramp	0.6973
3/1/2018	9	Camano Island State Park Public Ramp	0.1561	Norton Street (Everett) Ramp	0.6276
3/2/2018	9	Camano Island State Park Public Ramp	0.1561	Norton Street (Everett) Ramp	0.6276
3/3/2018	9	Camano Island State Park Public Ramp	0.1561	Norton Street (Everett) Ramp	0.6276
3/7/2018	10	Norton Street (Everett) Ramp	0.6276	Camano Island State Park Public Ramp	0.1561
3/9/2018	10	Norton Street (Everett) Ramp	0.6276	Camano Island State Park Public Ramp	0.1561
3/11/2018	10	Norton Street (Everett) Ramp	0.6276	Camano Island State Park Public Ramp	0.1561
3/15/2018	11	Norton Street (Everett) Ramp	0.6276	Camano Island State Park Public Ramp	0.1561
3/17/2018	11	Norton Street (Everett) Ramp	0.6276	Camano Island State Park Public Ramp	0.1561
3/18/2018	11	Norton Street (Everett) Ramp	0.6276	Camano Island State Park Public Ramp	0.1561
3/20/2018	12	Norton Street (Everett) Ramp	0.6276	Camano Island State Park Public Ramp	0.1561
3/23/2018	12	Norton Street (Everett) Ramp	0.6276	Camano Island State Park Public Ramp	0.1561
3/25/2018	12	Norton Street (Everett) Ramp	0.6276	Camano Island State Park Public Ramp	0.1561
3/29/2018	13	Norton Street (Everett) Ramp	0.6276	Camano Island State Park Public Ramp	0.1561
3/30/2018	13	Norton Street (Everett) Ramp	0.6276	Camano Island State Park Public Ramp	0.1561
3/31/2018	13	Norton Street (Everett) Ramp	0.6276	Camano Island State Park Public Ramp	0.1561
4/3/2018	14	Norton Street (Everett) Ramp	0.6276	Camano Island State Park Public Ramp	0.1561
4/7/2018	14	Norton Street (Everett) Ramp	0.6276	Camano Island State Park Public Ramp	0.1561
4/8/2018	14	Norton Street (Everett) Ramp	0.6276	Camano Island State Park Public Ramp	0.1561
4/10/2018	15	Norton Street (Everett) Ramp	0.6276	Camano Island State Park Public Ramp	0.1561
4/13/2018	15	Norton Street (Everett) Ramp	0.6276	Camano Island State Park Public Ramp	0.1561
4/15/2018	15	Norton Street (Everett) Ramp	0.6276	Camano Island State Park Public Ramp	0.1561
4/19/2018	16	Norton Street (Everett) Ramp	0.6276	Camano Island State Park Public Ramp	0.1561
4/20/2018	16	Norton Street (Everett) Ramp	0.6276	Camano Island State Park Public Ramp	0.1561
4/21/2018	16	Norton Street (Everett) Ramp	0.6276	Camano Island State Park Public Ramp	0.1561
4/25/2018	17	Norton Street (Everett) Ramp	0.6276	Camano Island State Park Public Ramp	0.1561
4/27/2018	17	Norton Street (Everett) Ramp	0.6276	Camano Island State Park Public Ramp	0.1561
4/29/2018	17	Norton Street (Everett) Ramp	0.6276	Camano Island State Park Public Ramp	0.1561
4/30/2018	18	Camano Island State Park Public Ramp	0.1561	Norton Street (Everett) Ramp	0.6276

Appendix 1.3 Size measures by sample date, for sites sampled during dockside creel surveys for the 2017-18 winter Chinook MSF in Marine Area 10.

Sample Date	Week	Location #1	Site Size	Location #2	Site Size
11/1/2017	45	Shilshole Public Ramp	0.5733	Kingston Public Ramp	0.1945
11/3/2017	45	Shilshole Public Ramp	0.5733	Kingston Public Ramp	0.1945
11/5/2017	45	Shilshole Public Ramp	0.0992	Kingston Public Ramp	0.0187
11/7/2017	46	Shilshole Public Ramp	0.5733	Kingston Public Ramp	0.1945
11/10/2017	46	Kingston Public Ramp	0.1945	Armeni Public Ramp	0.136
11/12/2017	46	Shilshole Public Ramp	0.0992	Kingston Public Ramp	0.0187
11/14/2017	47	Shilshole Public Ramp	0.5733	Manchester Public Ramp	0.0818
11/18/2017	47	Shilshole Public Ramp	0.5733	Kingston Public Ramp	0.1945
11/19/2017	47	Shilshole Public Ramp	0.0992	Kingston Public Ramp	0.0187
11/20/2017	48	Shilshole Public Ramp	0.5733	Kingston Public Ramp	0.1945
11/26/2017	48	Shilshole Public Ramp	0.0992	Manchester Public Ramp	0.0145
11/30/2017	49	Shilshole Public Ramp	0.5733	Kingston Public Ramp	0.1945
12/1/2017	49	Shilshole Public Ramp	0.3146	Manchester Public Ramp	0.0957
12/2/2017	49	Shilshole Public Ramp	0.3146	Kingston Public Ramp	0.2096
12/6/2017	50	Shilshole Public Ramp	0.3146	Kingston Public Ramp	0.2096
12/8/2017	50	Edmonds Boat Loft (Priv. fork lift)	0.2311	Kingston Public Ramp	0.2096
12/10/2017	50	Armeni Public Ramp	0.6907	Manchester Public Ramp	0.0764
12/13/2017	51	Shilshole Public Ramp	0.3146	Kingston Public Ramp	0.2096
12/15/2017	51	Shilshole Public Ramp	0.3146	Kingston Public Ramp	0.2096
12/17/2017	51	Armeni Public Ramp	0.6907	Manchester Public Ramp	0.0764
12/19/2017	52	Shilshole Public Ramp	0.2959	Manchester Public Ramp	0.0957
12/22/2017	52	Shilshole Public Ramp	0.3146	Kingston Public Ramp	0.2096
12/23/2017	52	Shilshole Public Ramp	0.3146	Manchester Public Ramp	0.0957
12/28/2017	53	Edmonds Boat Loft (Priv. fork lift)	0.2311	Kingston Public Ramp	0.2096
12/29/2017	53	Shilshole Public Ramp	0.3146	Kingston Public Ramp	0.2096
12/30/2017	53	Shilshole Public Ramp	0.3146	Kingston Public Ramp	0.2096
1/2/2018	1	Shilshole Public Ramp	0.357	Kingston Public Ramp	0.1725
1/5/2018	1	Edmonds Boat Loft (Priv. fork lift)	0.1407	Kingston Public Ramp	0.1725
1/6/2018	1	Shilshole Public Ramp	0.357	Armeni Public Ramp	0.1386
1/11/2018	2	Shilshole Public Ramp	0.357	Kingston Public Ramp	0.1725
1/12/2018	2	Armeni Public Ramp	0.1386	Kingston Public Ramp	0.1725
1/13/2018	2	Shilshole Public Ramp	0.357	Kingston Public Ramp	0.1725
1/16/2018	3	Shilshole Public Ramp	0.357	Kingston Public Ramp	0.1725
1/19/2018	3	Armeni Public Ramp	0.1386	Manchester Public Ramp	0.1912
1/21/2018	3	Shilshole Public Ramp	0.357	Manchester Public Ramp	0.1912
1/24/2018	4	Shilshole Public Ramp	0.357	Kingston Public Ramp	0.1725
1/27/2018	4	Shilshole Public Ramp	0.357	Edmonds Boat Loft (Priv. fork lift)	0.1407
1/28/2018	4	Shilshole Public Ramp	0.357	Kingston Public Ramp	0.1725
1/30/2018	5	Shilshole Public Ramp	0.357	Kingston Public Ramp	0.1725
2/2/2018	5	Shilshole Public Ramp	0.3601	Edmonds Boat Loft (Priv. fork lift)	0.0955
2/3/2018	5	Shilshole Public Ramp	0.3601	Edmonds Boat Loft (Priv. fork lift)	0.0955
2/7/2018	6	Edmonds Boat Loft (Priv. fork lift)	0.0955	Kingston Public Ramp	0.2097
2/9/2018	6	Edmonds Boat Loft (Priv. fork lift)	0.0955	Shilshole Public Ramp	0.3601
2/11/2018	6	Edmonds Boat Loft (Priv. fork lift)	0.0955	Manchester Public Ramp	0.1908
2/15/2018	7	Shilshole Public Ramp	0.3601	Kingston Public Ramp	0.2097
2/16/2018	7	Shilshole Public Ramp	0.3601	Manchester Public Ramp	0.1908
2/17/2018	7	Armeni Public Ramp	0.1439	Kingston Public Ramp	0.2097
2/20/2018	8	Manchester Public Ramp	0.1908	Shilshole Public Ramp	0.3601

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2/23/2018	8	Edmonds Boat Loft (Priv. fork lift)	0.0955	Shilshole Public Ramp	0.3601
2/25/2018	8	Manchester Public Ramp	0.1908	Shilshole Public Ramp	0.3601
2/28/2018	9	Shilshole Public Ramp	0.3601	Kingston Public Ramp	0.2097

2) CWT RECOVERIES

Appendix 2.1 Coded-wire tag (CWT) recoveries from the 2017-18 winter Chinook MSF in Marine Area 5.

Area	Recovery Date	Tag Code	Brood Year	Release Site	Rearing Hatchery	Release Agency	DIT Codes	FL(cm)	Label	Recovery Mark
5	18-Mar-18	211155	2015	Tulalip Cr 07.0001	Bernie Gobin Hatch	TULA	211156	54	OSP07285	AD Fin Clp
5	24-Mar-18	636813	2014	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		63	CWT00012022	AD Fin Clp
5	31-Mar-18	200119	2014	Similkameen R 490325	Similkameen Hatchery	WDFW		71	CWT00012023	AD Fin Clp
5	31-Mar-18	636781	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW		76	CWT00012024	AD Fin Clp
5	31-Mar-18	636669	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	636670	71	CWT00012025	AD Fin Clp
5	8-Apr-18	636894	2014	East Sound Bay (San)	Glenwood Springs	COOP		66	CWT00012026	AD Fin Clp
5	14-Apr-18	636813	2014	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		57	CWT00012027	AD Fin Clp
5	20-Apr-18	90928	2014	Willamette R M Fk-1	Dexter Ponds (Willam	ODFW		68	CWT00012028	AD Fin Clp
5	20-Apr-18	55964	2015	Coleman Nfh	Coleman Nfh	USFWS		56	CWT00012029	AD Fin Clp
5	22-Apr-18	60766	2015	Golden Gate Bridge	Mok R Fish Ins	CDFW		55	CWT00012030	AD Fin Clp
5	26-Apr-18	636897	2015	Kendall Cr 01.0406	Kendall Cr Hatchery	WDFW		56	CWT00012031	AD Fin Clp
5	27-Apr-18	60762	2015	San Joaq Shrm Isl Net Pen	Mok R Fish Ins	CDFW		62	CWT00012032	AD Fin Clp
5	29-Apr-18	211134	2014	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636815	57	CWT00012033	AD Fin Clp

Appendix 2.2 Coded-wire tag (CWT) recoveries from the 2017-18 winter Chinook MSF in Marine Area 6.

Area	Recovery Date	Tag Code	Brood Year	Release Site	Rearing Hatchery	Release Agency	DIT Codes	FL(cm)	Label	Recovery Mark
6	1-Mar-18	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	61	CWT00020175	AD Fin Clp
6	1-Mar-18	636813	2014	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		56	CWT00020176	AD Fin Clp
6	1-Mar-18	636916	2015	Gorst Cr 15.0216	Gorst Cr Rearing Pnd	SUQ		52	CWT00020177	AD Fin Clp
6	1-Mar-18	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	55	CWT00020178	AD Fin Clp
6	2-Mar-18	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		66	CWT00019940	AD Fin Clp
6	2-Mar-18	637047	2015	East Sound Bay (San)	Glenwood Springs	COOP		54	CWT00020179	AD Fin Clp
6	3-Mar-18	636960	2015	Purdy Cr 16.0005	George Adams Hatchery	WDFW		60	CWT00019941	AD Fin Clp
6	3-Mar-18	636789	2014	Icy Cr 09.0125	Icy Cr Hatchery	WDFW		57	CWT00019942	AD Fin Clp
6	3-Mar-18	211169	2015	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636943	63	CWT00019943	AD Fin Clp
6	3-Mar-18	636813	2014	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		61	CWT00020180	AD Fin Clp
6	4-Mar-18	636813	2014	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		59	CWT00019944	AD Fin Clp
6	4-Mar-18	636950	2015	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		56	CWT00019945	AD Fin Clp
6	4-Mar-18	636950	2015	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		56	CWT00019946	AD Fin Clp
6	4-Mar-18	636822	2014	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW		67	CWT00020302	AD Fin Clp
6	4-Mar-18	636822	2014	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW		59	CWT00020303	AD Fin Clp
6	4-Mar-18	636813	2014	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		60	CWT00020304	AD Fin Clp
6	4-Mar-18	636819	2014	Friday Cr 03.0017	Samish Hatchery	WDFW		63	CWT00020308	AD Fin Clp
6	4-Mar-18	636810	2014	Minter Cr 15.0048	Minter Cr Hatchery	WDFW		60	CWT00020309	AD Fin Clp
6	8-Mar-18	211133	2014	Co Line Pd2 03.1853B	Marblemount Hatchery	WDFW		68	CWT00020307	AD Fin Clp
6	9-Mar-18	211134	2014	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636815		85357	AD Fin Clp
6	9-Mar-18	636813	2014	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		63	CWT00019947	AD Fin Clp
6	9-Mar-18	211170	2015	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ		55	CWT00019948	AD Fin Clp
6	9-Mar-18	636917	2015	Gorst Cr 15.0216	Gorst Cr Rearing Pnd	SUQ		58	CWT00020181	AD Fin Clp
6	10-Mar-18	211134	2014	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636815	66	56898	AD Fin Clp
6	10-Mar-18	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW		63	56899	AD Fin Clp
6	10-Mar-18	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	69	85419	AD Fin Clp
6	10-Mar-18	636945	2015	Cascade R 03.1411	Marblemount Hatchery	WDFW		60	85420	AD Fin Clp
6	10-Mar-18	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		71	85421	AD Fin Clp
6	10-Mar-18	636958	2015	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW		63	CWT00019949	AD Fin Clp
6	10-Mar-18	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		58	CWT00020306	AD Fin Clp
6	11-Mar-18	636813	2014	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		70	80327	AD Fin Clp
6	11-Mar-18	211123	2014	Tulalip Cr 07.0001	Bernie Gobin Hatch	TULA	211122	71	80328	AD Fin Clp

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Area	Recovery Date	Tag Code	Brood Year	Release Site	Rearing Hatchery	Release Agency	DIT Codes	FL(cm)	Label	Recovery Mark
6	11-Mar-18	636813	2014	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		66	85422	AD Fin Clp
6	11-Mar-18	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	63	85423	AD Fin Clp
6	11-Mar-18	211133	2014	Co Line Pd2 03.1853B	Marblemount Hatchery	WDFW		74	CWT00011106	AD Fin Clp
6	11-Mar-18	636960	2015	Purdy Cr 16.0005	George Adams Hatchery	WDFW		61	CWT00011107	AD Fin Clp
6	11-Mar-18	636917	2015	Gorst Cr 15.0216	Gorst Cr Rearing Pnd	SUQ		57	CWT00020182	AD Fin Clp
6	11-Mar-18	636827	2014	Purdy Cr 16.0005	George Adams Hatchery	WDFW	636828	55	CWT00020183	AD Fin Clp
6	11-Mar-18	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		62	CWT00020313	AD Fin Clp
6	15-Mar-18	636813	2014	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		69	CWT00020184	AD Fin Clp
6	15-Mar-18	636946	2015	Friday Cr 03.0017	Samish Hatchery	WDFW		56	CWT00020185	AD Fin Clp
6	16-Mar-18	636824	2014	Wallace R 07.0940	Wallace R Hatchery	WDFW	636825	69	CWT00020310	AD Fin Clp
6	17-Mar-18	636810	2014	Minter Cr 15.0048	Minter Cr Hatchery	WDFW		70	CWT00011616	AD Fin Clp
6	17-Mar-18	636827	2014	Purdy Cr 16.0005	George Adams Hatchery	WDFW	636828	64	CWT00011617	AD Fin Clp
6	17-Mar-18	636781	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW		72	CWT00020142	AD Fin Clp
6	17-Mar-18	636960	2015	Purdy Cr 16.0005	George Adams Hatchery	WDFW		62	CWT00020186	AD Fin Clp
6	17-Mar-18	637024	2015	Lk Washington (King)	Issaquah Hatchery	WDFW		53	CWT00020187	AD Fin Clp
6	17-Mar-18	636963	2015	Elwha R 18.0272	Elwha Hatchery	WDFW		56	CWT00020188	AD Fin Clp
6	17-Mar-18	211187	2015	Clarks Crk Hatchery	Clarks Crk Hatchery	PUYA		55	CWT00020189	AD Fin Clp
6	18-Mar-18	636822	2014	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW		62	CWT00019950	AD Fin Clp
6	18-Mar-18	636945	2015	Cascade R 03.1411	Marblemount Hatchery	WDFW		57	CWT00020190	AD Fin Clp
6	18-Mar-18	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	55	CWT00020191	AD Fin Clp
6	18-Mar-18	211187	2015	Clarks Crk Hatchery	Clarks Crk Hatchery	PUYA		60	CWT00020239	AD Fin Clp
6	18-Mar-18	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		64	CWT00020311	AD Fin Clp
6	18-Mar-18	636813	2014	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		66	CWT00020312	AD Fin Clp
6	23-Mar-18	211123	2014	Tulalip Cr 07.0001	Bernie Gobin Hatch	TULA	211122	64	CWT00020192	AD Fin Clp
6	23-Mar-18	636960	2015	Purdy Cr 16.0005	George Adams Hatchery	WDFW		58	CWT00020193	AD Fin Clp
6	24-Mar-18	636822	2014	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW		61	CWT00020194	AD Fin Clp
6	30-Mar-18	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW		73	CWT00012205	AD Fin Clp
6	30-Mar-18	636827	2014	Purdy Cr 16.0005	George Adams Hatchery	WDFW	636828	66	CWT00019951	AD Fin Clp
6	31-Mar-18	90913	2014	Bull Run R	Sandy Hatchery	ODFW		81	CWT00011110	AD Fin Clp
6	31-Mar-18	636819	2014	Friday Cr 03.0017	Samish Hatchery	WDFW		67	CWT00012206	AD Fin Clp
6	31-Mar-18	211163	2015	Mcallister Springs Hatch	Clear Creek Hatchery	NISQ		63	CWT00012207	AD Fin Clp
6	31-Mar-18	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW		80	CWT00012208	AD Fin Clp
6	3-Apr-18	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	66	CWT00020195	AD Fin Clp

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Area	Recovery Date	Tag Code	Brood Year	Release Site	Rearing Hatchery	Release Agency	DIT Codes	FL(cm)	Label	Recovery Mark
6	6-Apr-18	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	67	CWT00012209	AD Fin Clp
6	7-Apr-18	636960	2015	Purdy Cr 16.0005	George Adams Hatchery	WDFW		55	CWT00020196	AD Fin Clp
6	8-Apr-18	211169	2015	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636943	53	CWT00020197	AD Fin Clp

Appendix 2.3 Coded-wire tag (CWT) recoveries from the 2017-18 winter Chinook MSF in Marine Area 7.

Area	Recovery Date	Tag Code	Brood Year	Release Site	Rearing Hatchery	Release Agency	DIT Codes	FL(cm)	Label	Recovery Mark
7	2-Jan-18	636814	2014	Kendall Cr 01.0406	Kendall Cr Hatchery	WDFW		72	CWT00011307	AD Fin Clp
7	2-Jan-18	211123	2014	Tulalip Cr 07.0001	Bernie Gobin Hatch	TULA	211122	63	CWT00011308	AD Fin Clp
7	2-Jan-18	636789	2014	Icy Cr 09.0125	Icy Cr Hatchery	WDFW		62	CWT00016612	AD Fin Clp
7	2-Jan-18	636822	2014	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW		60	CWT00016613	AD Fin Clp
7	2-Jan-18	636824	2014	Wallace R 07.0940	Wallace R Hatchery	WDFW	636825	67	CWT00016614	AD Fin Clp
7	3-Jan-18	211162	2015	Whitehorse Springs	Whitehorse Pond	STIL		55	CWT00016615	AD Fin Clp
7	3-Jan-18	636945	2015	Cascade R 03.1411	Marblemount Hatchery	WDFW		55	CWT00016616	AD Fin Clp
7	6-Jan-18	636781	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW		73	84810	AD Fin Clp
7	6-Jan-18	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW		80	84811	AD Fin Clp
7	6-Jan-18	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW		61	84812	AD Fin Clp
7	6-Jan-18	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW		68	84813	AD Fin Clp
7	6-Jan-18	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW		69	84814	AD Fin Clp
7	6-Jan-18	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW		61	84815	AD Fin Clp
7	6-Jan-18	636781	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW		56	CWT00011103	AD Fin Clp
7	6-Jan-18	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW		75	CWT00011104	AD Fin Clp
7	6-Jan-18	211169	2015	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636943	57	CWT00011309	AD Fin Clp
7	6-Jan-18	636781	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW		78	CWT00011310	AD Fin Clp
7	7-Jan-18	211123	2014	Tulalip Cr 07.0001	Bernie Gobin Hatch	TULA	211122	67	84816	AD Fin Clp
7	10-Jan-18	636822	2014	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW		61	CWT00016618	AD Fin Clp
7	12-Jan-18	636822	2014	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW		61	CWT00011611	AD Fin Clp
7	12-Jan-18	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW		63	CWT00016603	AD Fin Clp
7	13-Jan-18	183285	2014	R-Cowichan R	H-Cowichan River H	CDFO		67	CWT00011311	AD Fin Clp
7	13-Jan-18	636824	2014	Wallace R 07.0940	Wallace R Hatchery	WDFW	636825	67	CWT00011312	AD Fin Clp
7	13-Jan-18	211133	2014	Co Line Pd2 03.1853B	Marblemount Hatchery	WDFW		72	CWT00011313	AD Fin Clp
7	13-Jan-18	636794	2014	Wallace R 07.0940	Wallace R Hatchery	WDFW		64	CWT00016619	AD Fin Clp
7	14-Jan-18	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		61	CWT00011612	AD Fin Clp
7	14-Jan-18	636813	2014	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		74	CWT00011614	AD Fin Clp
7	19-Jan-18	636814	2014	Kendall Cr 01.0406	Kendall Cr Hatchery	WDFW		78	84556	AD Fin Clp
7	19-Jan-18	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW		75	84656	AD Fin Clp
7	19-Jan-18	211162	2015	Whitehorse Springs	Whitehorse Pond	STIL		62	84817	AD Fin Clp
7	19-Jan-18	636824	2014	Wallace R 07.0940	Wallace R Hatchery	WDFW	636825	65	84818	AD Fin Clp

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Area	Recovery Date	Tag Code	Brood Year	Release Site	Rearing Hatchery	Release Agency	DIT Codes	FL(cm)	Label	Recovery Mark
7	19-Jan-18	636813	2014	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		61	84819	AD Fin Clp
7	19-Jan-18	211145	2014	Stillaguamish R -Sf	Brenner Hatchery	STIL		72	84820	AD Fin Clp
7	19-Jan-18	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW		72	84821	AD Fin Clp
7	19-Jan-18	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		59	84822	AD Fin Clp
7	19-Jan-18	211133	2014	Co Line Pd2 03.1853B	Marblemount Hatchery	WDFW		76	84823	AD Fin Clp
7	19-Jan-18	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW		73	84824	AD Fin Clp
7	19-Jan-18	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW		73	84825	AD Fin Clp
7	19-Jan-18	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW		72	84839	AD Fin Clp
7	19-Jan-18	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW		71	84840	AD Fin Clp
7	19-Jan-18	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW		67	84841	AD Fin Clp
7	19-Jan-18	183668	2014	R-Cowichan R	H-Cowichan River H	CDFO		67	84842	AD Fin Clp
7	19-Jan-18	636814	2014	Kendall Cr 01.0406	Kendall Cr Hatchery	WDFW		73	84843	AD Fin Clp
7	19-Jan-18	636960	2015	Purdy Cr 16.0005	George Adams Hatchery	WDFW		53	84844	AD Fin Clp
7	19-Jan-18	636794	2014	Wallace R 07.0940	Wallace R Hatchery	WDFW		59	84845	AD Fin Clp
7	20-Jan-18	211123	2014	Tulalip Cr 07.0001	Bernie Gobin Hatch	TULA	211122	69	84555	AD Fin Clp
7	20-Jan-18	211123	2014	Tulalip Cr 07.0001	Bernie Gobin Hatch	TULA	211122	71	84561	AD Fin Clp
7	20-Jan-18	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW		70	84563	AD Fin Clp
7	20-Jan-18	636946	2015	Friday Cr 03.0017	Samish Hatchery	WDFW		59	84564	AD Fin Clp
7	20-Jan-18	636946	2015	Friday Cr 03.0017	Samish Hatchery	WDFW		57	84657	AD Fin Clp
7	20-Jan-18	636781	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW		69	84658	AD Fin Clp
7	20-Jan-18	637047	2015	East Sound Bay (San)	Glenwood Springs	COOP		56	84660	AD Fin Clp
7	20-Jan-18	636958	2015	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW		56	84951	AD Fin Clp
7	20-Jan-18	636813	2014	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		69	84952	AD Fin Clp
7	20-Jan-18	636632	2013	Cascade R 03.1411	Marblemount Hatchery	WDFW		77	84953	AD Fin Clp
7	20-Jan-18	636897	2015	Kendall Cr 01.0406	Kendall Cr Hatchery	WDFW		59	84954	AD Fin Clp
7	20-Jan-18	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW		71	84956	AD Fin Clp
7	20-Jan-18	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW		68	84959	AD Fin Clp
7	28-Jan-18	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW			57945	AD Fin Clp
7	28-Jan-18	636781	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW			57946	AD Fin Clp
7	2-Feb-18	211162	2015	Whitehorse Springs	Whitehorse Pond	STIL		60	CWT00011105	AD Fin Clp
7	3-Feb-18	211169	2015	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636943	64	CWT00016620	AD Fin Clp
7	5-Feb-18	636958	2015	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW		60	CWT00016621	AD Fin Clp

Area	Recovery Date	Tag Code	Brood Year	Release Site	Rearing Hatchery	Release Agency	DIT Codes	FL(cm)	Label	Recovery Mark
7	9-Feb-18	636945	2015	Cascade R 03.1411	Marblemount Hatchery	WDFW		56	84553	AD Fin Clp
7	9-Feb-18	211148	2014	Kalama Cr 11.0017	Kalama Cr Hatchery	NISQ		61	84554	AD Fin Clp
7	9-Feb-18	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW		83	84557	AD Fin Clp
7	9-Feb-18	636814	2014	Kendall Cr 01.0406	Kendall Cr Hatchery	WDFW		77	84559	AD Fin Clp
7	9-Feb-18	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW		71	84562	AD Fin Clp
7	9-Feb-18	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW		74	84663	AD Fin Clp
7	9-Feb-18	636789	2014	Icy Cr 09.0125	Icy Cr Hatchery	WDFW		71	84664	AD Fin Clp
7	9-Feb-18	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW		69	84836	AD Fin Clp
7	9-Feb-18	636659	2013	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW	636660	65	84837	AD Fin Clp
7	9-Feb-18	636781	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW		74	84838	AD Fin Clp
7	9-Feb-18	211132	2014	Whitehorse Springs	Whitehorse Pond	STIL		71	84847	AD Fin Clp
7	9-Feb-18	636781	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW		80	84848	AD Fin Clp
7	10-Feb-18	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW		82	84831	AD Fin Clp
7	10-Feb-18	211133	2014	Co Line Pd2 03.1853B	Marblemount Hatchery	WDFW		75	84832	AD Fin Clp
7	10-Feb-18	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW		73	84833	AD Fin Clp
7	10-Feb-18	211162	2015	Whitehorse Springs	Whitehorse Pond	STIL		59	84834	AD Fin Clp
7	10-Feb-18	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW		75	84835	AD Fin Clp
7	10-Feb-18	211162	2015	Whitehorse Springs	Whitehorse Pond	STIL		52	CWT00016622	AD Fin Clp
7	11-Feb-18	636794	2014	Wallace R 07.0940	Wallace R Hatchery	WDFW		69	CWT00011314	AD Fin Clp
7	11-Feb-18	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		64	CWT00016504	AD Fin Clp
7	11-Feb-18	211162	2015	Whitehorse Springs	Whitehorse Pond	STIL		55	CWT00016505	AD Fin Clp
7	3-Mar-18	636945	2015	Cascade R 03.1411	Marblemount Hatchery	WDFW		55	CWT00016507	AD Fin Clp
7	7-Mar-18	636824	2014	Wallace R 07.0940	Wallace R Hatchery	WDFW	636825	58	CWT00011315	AD Fin Clp
7	11-Mar-18	636960	2015	Purdy Cr 16.0005	George Adams Hatchery	WDFW		58	CWT00011108	AD Fin Clp
7	17-Mar-18	211170	2015	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ		60	CWT00011316	AD Fin Clp
7	17-Mar-18	636816	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	211137	56	CWT00011618	AD Fin Clp
7	17-Mar-18	636813	2014	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		67	CWT00011619	AD Fin Clp
7	18-Mar-18	636822	2014	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW		58	CWT00016902	AD Fin Clp
7	18-Mar-18	636794	2014	Wallace R 07.0940	Wallace R Hatchery	WDFW		55	CWT00016903	AD Fin Clp
7	20-Mar-18	636897	2015	Kendall Cr 01.0406	Kendall Cr Hatchery	WDFW		60	CWT00017002	AD Fin Clp
7	23-Mar-18	636820	2014	Friday Cr 03.0017	Samish Hatchery	WDFW			97751	
7	24-Mar-18	636781	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW		64	CWT00011109	AD Fin Clp

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7	31-Mar-18	636822	2014	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW		64	CWT00011417	AD Fin Clp
7	15-Apr-18	211133	2014	Co Line Pd2 03.1853B	Marblemount Hatchery	WDFW		74	CWT00011112	AD Fin Clp
7	21-Apr-18	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW		77	CWT00011317	AD Fin Clp
7	25-Apr-18	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		67	CWT00011318	AD Fin Clp
7	29-Apr-18	636945	2015	Cascade R 03.1411	Marblemount Hatchery	WDFW		57	CWT00011113	AD Fin Clp

Appendix 2.4 Coded-wire tag (CWT) recoveries from the 2017-18 winter Chinook MSF in Marine Area 8-1.

Area	Recovery Date	Tag Code	Brood Year	Release Site	Rearing Hatchery	Release Agency	DIT Codes	FL(cm)	Label	Recovery Mark
81	4-Nov-17	636794	2014	Wallace R 07.0940	Wallace R Hatchery	WDFW		61	80651	AD Fin Clp
81	4-Nov-17	636789	2014	Icy Cr 09.0125	Icy Cr Hatchery	WDFW		54	80653	AD Fin Clp
81	4-Nov-17	636789	2014	Icy Cr 09.0125	Icy Cr Hatchery	WDFW		57	CWT00016805	AD Fin Clp
81	4-Nov-17	211187	2015	Clarks Crk Hatchery	Clarks Crk Hatchery	PUYA		63	CWT00016809	AD Fin Clp
81	5-Nov-17	211170	2015	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ		57	81305	AD Fin Clp
81	16-Feb-18	211187	2015	Clarks Crk Hatchery	Clarks Crk Hatchery	PUYA		63	CWT00016623	AD Fin Clp
81	11-Mar-18	636794	2014	Wallace R 07.0940	Wallace R Hatchery	WDFW		67	CWT00016508	AD Fin Clp
81	12-Mar-18	636912	2015	Cascade R 03.1411	Marblemount Hatchery	WDFW		57	CWT00009132	AD Fin Clp
81	12-Mar-18	211169	2015	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636943	53	CWT00009133	AD Fin Clp
81	16-Mar-18	211169	2015	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636943	61	CWT00016509	AD Fin Clp
81	17-Mar-18	211162	2015	Whitehorse Springs	Whitehorse Pond	STIL		72	81308	AD Fin Clp
81	17-Mar-18	636794	2014	Wallace R 07.0940	Wallace R Hatchery	WDFW		71	81310	AD Fin Clp
81	17-Mar-18	211163	2015	Mcallister Springs Hatch	Clear Creek Hatchery	NISQ		57	81344	AD Fin Clp
81	20-Mar-18	637023	2015	Portage Bay/Ship Cnl	Issaquah Hatchery	WDFW		64	CWT00016511	AD Fin Clp
81	24-Mar-18	211187	2015	Clarks Crk Hatchery	Clarks Crk Hatchery	PUYA		66	84827	AD Fin Clp
81	24-Mar-18	636945	2015	Cascade R 03.1411	Marblemount Hatchery	WDFW		64	84828	AD Fin Clp
81	24-Mar-18	636958	2015	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW		59	84829	AD Fin Clp
81	24-Mar-18	636912	2015	Cascade R 03.1411	Marblemount Hatchery	WDFW		73	84955	AD Fin Clp
81	25-Mar-18	636827	2014	Purdy Cr 16.0005	George Adams Hatchery	WDFW	636828	84	CWT00016513	AD Fin Clp
81	29-Mar-18	636955	2015	Wallace R 07.0940	Wallace R Hatchery	WDFW		54	CWT00016516	Unmarked
81	29-Mar-18	636924	2015	Wallace R 07.0940	Wallace R Hatchery	WDFW		57	CWT00016517	AD Fin Clp
81	3-Apr-18	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW		78	CWT00016519	AD Fin Clp
81	21-Apr-18	211170	2015	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ		64	74330	AD Fin Clp
81	21-Apr-18	211187	2015	Clarks Crk Hatchery	Clarks Crk Hatchery	PUYA		63	74331	AD Fin Clp
81	21-Apr-18	636958	2015	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW		75	74332	AD Fin Clp
81	22-Apr-18	636813	2014	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		71	74333	AD Fin Clp

Appendix 2.5 Coded-wire tag (CWT) recoveries from the 2017-18 winter Chinook MSF in Marine Area 8-2.

Area	Recovery Date	Tag Code	Brood Year	Release Site	Rearing Hatchery	Release Agency	DIT Codes	FL(cm)	Label	Recovery Mark
82	3-Nov-17	636917	2015	Gorst Cr 15.0216	Gorst Cr Rearing Pnd	SUQ		54	CWT00011505	AD Fin Clp
82	7-Nov-17	637023	2015	Portage Bay/Ship Cnl	Issaquah Hatchery	WDFW		56	CWT00011506	AD Fin Clp
82	16-Feb-18	636945	2015	Cascade R 03.1411	Marblemount Hatchery	WDFW		57	CWT00009129	AD Fin Clp
82	1-Mar-18	636924	2015	Wallace R 07.0940	Wallace R Hatchery	WDFW		54	CWT00016506	AD Fin Clp
82	3-Mar-18	637024	2015	Lk Washington (King)	Issaquah Hatchery	WDFW		54	CWT00008984	AD Fin Clp
82	3-Mar-18	211170	2015	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ		55	CWT00008985	AD Fin Clp
82	3-Mar-18	636789	2014	Icy Cr 09.0125	Icy Cr Hatchery	WDFW		80	CWT00016624	AD Fin Clp
82	11-Mar-18	636794	2014	Wallace R 07.0940	Wallace R Hatchery	WDFW		62	CWT00008990	AD Fin Clp
82	16-Mar-18	183470	2015	R-Chilliwack R	H-Chilliwack River H	CDFO		63	CWT00016510	AD Fin Clp
82	17-Mar-18	637024	2015	Lk Washington (King)	Issaquah Hatchery	WDFW		59	81307	AD Fin Clp
82	17-Mar-18	211170	2015	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ		55	CWT00009136	AD Fin Clp
82	18-Mar-18	211187	2015	Clarks Crk Hatchery	Clarks Crk Hatchery	PUYA		54	81311	AD Fin Clp
82	18-Mar-18	636794	2014	Wallace R 07.0940	Wallace R Hatchery	WDFW		71	CWT00016625	AD Fin Clp
82	20-Mar-18	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		71	CWT00016512	AD Fin Clp
82	25-Mar-18	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		82	CWT00009139	AD Fin Clp
82	25-Mar-18	211162	2015	Whitehorse Springs	Whitehorse Pond	STIL		61	CWT00016515	AD Fin Clp
82	31-Mar-18	636912	2015	Cascade R 03.1411	Marblemount Hatchery	WDFW		61	CWT00016518	AD Fin Clp
82	15-Apr-18	636789	2014	Icy Cr 09.0125	Icy Cr Hatchery	WDFW		62	CWT00008993	AD Fin Clp
82	30-Apr-18	636958	2015	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW		59	CWT00009141	AD Fin Clp
82	30-Apr-18	636916	2015	Gorst Cr 15.0216	Gorst Cr Rearing Pnd	SUQ		54	CWT00009142	AD Fin Clp

Appendix 2.6 Coded-wire tag (CWT) recoveries from the 2017-18 winter Chinook MSF in Marine Area 9.

Area	Recovery Date	Tag Code	Brood Year	Release Site	Rearing Hatchery	Release Agency	DIT Codes	FL(cm)	Label	Recovery Mark
9	4-Nov-17	636960	2015	Purdy Cr 16.0005	George Adams Hatchery	WDFW		53	80652	AD Fin Clp
9	4-Nov-17	636813	2014	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		60	80654	AD Fin Clp
9	4-Nov-17	211169	2015	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636943	52	80655	AD Fin Clp
9	4-Nov-17	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW		79	CWT00020236	AD Fin Clp
9	5-Nov-17	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW		70	81304	AD Fin Clp
9	9-Nov-17	211134	2014	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636815	63	CWT00020141	AD Fin Clp
9	10-Nov-17	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW		60	CWT00020139	AD Fin Clp
9	16-Feb-18	211162	2015	Whitehorse Springs	Whitehorse Pond	STIL		56	CWT00008754	AD Fin Clp
9	16-Feb-18	636822	2014	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW		66	CWT00013492	AD Fin Clp
9	16-Feb-18	636810	2014	Minter Cr 15.0048	Minter Cr Hatchery	WDFW		61	CWT00020137	AD Fin Clp
9	20-Feb-18	636912	2015	Cascade R 03.1411	Marblemount Hatchery	WDFW		60	CWT00009130	AD Fin Clp
9	28-Feb-18	636943	2015	Grovers Cr Hatchery	Grovers Cr Hatchery	SUQ	211169		82101	Unmarked
9	2-Mar-18	636827	2014	Purdy Cr 16.0005	George Adams Hatchery	WDFW	636828	60	CWT00008983	AD Fin Clp
9	3-Mar-18	636954	2015	Wallace R 07.0940	Wallace R Hatchery	WDFW		64	CWT00020143	AD Fin Clp
9	3-Mar-18	636960	2015	Purdy Cr 16.0005	George Adams Hatchery	WDFW		67	CWT00020237	AD Fin Clp
9	4-Mar-18	636958	2015	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW		58	CWT00013345	AD Fin Clp
9	6-Mar-18	211169	2015	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636943	54	CWT00009131	AD Fin Clp
9	10-Mar-18	211169	2015	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636943	55	CWT00008986	AD Fin Clp
9	10-Mar-18	211187	2015	Clarks Crk Hatchery	Clarks Crk Hatchery	PUYA		57	CWT00008987	AD Fin Clp
9	11-Mar-18	211169	2015	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636943	54	CWT00008988	AD Fin Clp
9	11-Mar-18	636917	2015	Gorst Cr 15.0216	Gorst Cr Rearing Pnd	SUQ		58	CWT00008989	AD Fin Clp
9	17-Mar-18	636958	2015	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW		58	81306	AD Fin Clp
9	17-Mar-18	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		70	81309	AD Fin Clp
9	17-Mar-18	636917	2015	Gorst Cr 15.0216	Gorst Cr Rearing Pnd	SUQ		53	81343	AD Fin Clp
9	17-Mar-18	636917	2015	Gorst Cr 15.0216	Gorst Cr Rearing Pnd	SUQ		56	CWT00009134	AD Fin Clp
9	17-Mar-18	636958	2015	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW		52	CWT00009135	AD Fin Clp
9	17-Mar-18	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		59	CWT00009137	AD Fin Clp
9	18-Mar-18	637023	2015	Portage Bay/Ship Cnl	Issaquah Hatchery	WDFW		57	81345	AD Fin Clp
9	18-Mar-18	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW		74	CWT00009138	AD Fin Clp
9	20-Mar-18	636897	2015	Kendall Cr 01.0406	Kendall Cr Hatchery	WDFW		62	CWT00020240	AD Fin Clp
9	25-Mar-18	636917	2015	Gorst Cr 15.0216	Gorst Cr Rearing Pnd	SUQ		55	CWT00009023	AD Fin Clp
9	30-Mar-18	636958	2015	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW		53	CWT00009140	AD Fin Clp
9	31-Mar-18	636959	2015	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW		54	CWT00008852	Unmarked
9	31-Mar-18	211169	2015	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636943	58	CWT00008853	AD Fin Clp
9	31-Mar-18	636824	2014	Wallace R 07.0940	Wallace R Hatchery	WDFW	636825	58	CWT00008854	AD Fin Clp
9	31-Mar-18	211170	2015	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ		56	CWT00008991	AD Fin Clp

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Area	Recovery Date	Tag Code	Brood Year	Release Site	Rearing Hatchery	Release Agency	DIT Codes	FL(cm)	Label	Recovery Mark
9	31-Mar-18	637023	2015	Portage Bay/Ship Cnl	Issaquah Hatchery	WDFW		60	CWT00008992	AD Fin Clp
9	31-Mar-18	636960	2015	Purdy Cr 16.0005	George Adams Hatchery	WDFW		54	CWT00009024	AD Fin Clp
9	31-Mar-18	211170	2015	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ		60	CWT00009025	AD Fin Clp
9	31-Mar-18	211170	2015	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ		62	CWT00020241	AD Fin Clp
9	3-Apr-18	636827	2014	Purdy Cr 16.0005	George Adams Hatchery	WDFW	636828	60	CWT00008756	AD Fin Clp
9	3-Apr-18	636943	2015	Grovers Cr Hatchery	Grovers Cr Hatchery	SUQ	211169	53	CWT00008856	AD Fin Clp
9	3-Apr-18	636822	2014	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW		74	CWT00020243	AD Fin Clp
9	3-Apr-18	636916	2015	Gorst Cr 15.0216	Gorst Cr Rearing Pnd	SUQ		59	CWT00020244	AD Fin Clp
9	6-Apr-18	211169	2015	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636943	60	CWT00020245	AD Fin Clp
9	14-Apr-18	211169	2015	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636943	59	CWT00013347	AD Fin Clp
9	14-Apr-18	636636	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW		85	CWT00020246	AD Fin Clp
9	15-Apr-18	637023	2015	Portage Bay/Ship Cnl	Issaquah Hatchery	WDFW		70	CWT00009026	AD Fin Clp
9	15-Apr-18	636957	2015	Icy Cr 09.0125	Icy Cr Hatchery	WDFW		55	CWT00020247	AD Fin Clp

Appendix 2.7 Coded-wire tag (CWT) recoveries from the 2017-18 winter Chinook MSF in Marine Area 10.

Area	Recovery Date	Tag Code	Brood Year	Release Site	Rearing Hatchery	Release Agency	DIT Codes	FL(cm)	Label	Recovery Mark
10	4-Nov-17	183965	2015	R-Harrison R	H-Chehalis River H	CDFO		53	CWT00013342	AD Fin Clp
10	14-Dec-17	211170	2015	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ		51	CWT00013343	AD Fin Clp
10	15-Dec-17	636954	2015	Wallace R 07.0940	Wallace R Hatchery	WDFW		51	CWT00008981	AD Fin Clp
10	17-Dec-17	211187	2015	Clarks Crk Hatchery	Clarks Crk Hatchery	PUYA		53	CWT00008982	AD Fin Clp
10	22-Dec-17	211187	2015	Clarks Crk Hatchery	Clarks Crk Hatchery	PUYA		52	CWT00009128	AD Fin Clp
10	5-Jan-18	211169	2015	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636943	52	CWT00013344	AD Fin Clp
10	14-Jan-18	211133	2014	Co Line Pd2 03.1853B	Marblemount Hatchery	WDFW		77	CWT00011613	AD Fin Clp

Appendix 2.8 Coded-wire tag (CWT) recoveries from the 2017-18 winter Chinook MSF in Marine Area 11.

Area	Recovery Date	Tag Code	Brood Year	Release Site	Rearing Hatchery	Release Agency	DIT Codes	FL(cm)	Label	Recovery Mark
11	24-Oct-17	636635	2013	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		60	CWT00013793	AD Fin Clp
11	24-Oct-17	636789	2014	Icy Cr 09.0125	Icy Cr Hatchery	WDFW		68	CWT00013794	AD Fin Clp
11	28-Oct-17	211156	2015	Tulalip Cr 07.0001	Bernie Gobin Hatch	TULA	211155	53	CWT00013795	Unmarked
11	9-Nov-17	211187	2015	Clarks Crk Hatchery	Clarks Crk Hatchery	PUYA		60	CWT00013751	AD Fin Clp
11	11-Nov-17	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	64	CWT00027302	AD Fin Clp
11	11-Nov-17	637023	2015	Portage Bay/Ship Cnl	Issaquah Hatchery	WDFW		53	CWT00027303	AD Fin Clp
11	11-Nov-17	211183	2015	Stillaguamish R -Sf	Brenner Hatchery	STIL		53	CWT00027304	AD Fin Clp
11	26-Nov-17	636917	2015	Gorst Cr 15.0216	Gorst Cr Rearing Pnd	SUQ		54	CWT00017207	AD Fin Clp
11	26-Nov-17	211169	2015	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636943	54	CWT00017208	AD Fin Clp
11	27-Nov-17	636789	2014	Icy Cr 09.0125	Icy Cr Hatchery	WDFW		56	CWT00017206	AD Fin Clp
11	29-Nov-17	211170	2015	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ		58	CWT00013739	AD Fin Clp
11	30-Nov-17	637022	2015	Issaquah Cr 08.0178	Issaquah Hatchery	WDFW		52	CWT00014853	AD Fin Clp
11	14-Dec-17	211162	2015	Whitehorse Springs	Whitehorse Pond	STIL		56	CWT00013740	AD Fin Clp
11	20-Jan-18	211169	2015	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636943	57	CWT00013796	AD Fin Clp
11	28-Jan-18	211187	2015	Clarks Crk Hatchery	Clarks Crk Hatchery	PUYA		50	CWT00010002	AD Fin Clp
11	21-Feb-18	211169	2015	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636943	66	CWT00013781	AD Fin Clp
11	3-Mar-18	211170	2015	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ		53	CWT00013737	AD Fin Clp
11	22-Mar-18	636927	2015	Minter Cr Tr 15.0051	Hupp Springs Rearing	WDFW		47	CWT00017257	Unmarked
11	11-Apr-18	211169	2015	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636943	65	CWT00013797	AD Fin Clp
11	12-Apr-18	211169	2015	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636943	54	CWT00013736	AD Fin Clp
11	21-Apr-18	211169	2015	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636943	55	CWT00013798	AD Fin Clp
11	22-Apr-18	636917	2015	Gorst Cr 15.0216	Gorst Cr Rearing Pnd	SUQ		58	CWT00013799	AD Fin Clp
11	22-Apr-18	211187	2015	Clarks Crk Hatchery	Clarks Crk Hatchery	PUYA		54	CWT00014739	AD Fin Clp
11	28-Apr-18	636822	2014	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW		63	CWT00013732	AD Fin Clp

Appendix 2.9 Coded-wire tag (CWT) recoveries from the 2017-18 winter Chinook MSF in Marine Area 12.

Area	Recovery Date	Tag Code	Brood Year	Release Site	Rearing Hatchery	Release Agency	DIT Codes	FL(cm)	Label	Recovery Mark
12	16-Oct-17	636813	2014	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		67	CWT00014740	AD Fin Clp
12	29-Dec-17	211123	2014	Tulalip Cr 07.0001	Bernie Gobin Hatch	TULA	211122	56	CWT00017236	AD Fin Clp
12	3-Mar-18	636950	2015	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		53	41728	AD Fin Clp
12	3-Mar-18	211170	2015	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ		57	51687	AD Fin Clp
12	10-Mar-18	211170	2015	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ		55	CWT00017226	AD Fin Clp
12	31-Mar-18	211189	2014	Nf Skokomish Dam #2 Pool	Nf Skokomish Hatchery	SKOK		63	CWT00014742	AD Fin Clp

Appendix 2.10 Coded-wire tag (CWT) recoveries from the 2017-18 winter Chinook MSF in Marine Area 13.

Area	Recovery Date	Tag Code	Brood Year	Release Site	Rearing Hatchery	Release Agency	DIT Codes	FL(cm)	Label	Recovery Mark
13	4-Mar-18	211169	2015	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636943	57	CWT00017111	AD Fin Clp