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**2016-17 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

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INTRODUCTION

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

Since the Washington Department of Fish and Wildlife (WDFW) implemented the first marine mark-selective Chinook 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. As of the close of the summer 2016 fishing season, *summer* Chinook MSFs have occurred in Areas 5 and 6 for fourteen consecutive seasons, in Areas 9, 10, 11, and 13 for ten consecutive seasons and in Area 12 for five consecutive seasons. Additionally, *winter* Chinook MSFs have occurred in Areas 8-1 and 8-2 for eleven consecutive seasons, in Areas 7, 9 and 10 for nine consecutive seasons, in Areas 11 and 12 for seven consecutive seasons, in Area 6 for four seasons, and the second seasons for both Area 5 and Area 13².

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.

² For information regarding effort, harvest and impacts estimates related to these fisheries, see the references listed at the end of this report, or visit: <http://wdfw.wa.gov/publications/search.php?Cat=Fishing / Shellfishing&SubCat=Selective Fishing>. The 2014 summer mark-selective fisheries report is currently in preparation.

During the 2016-17 winter season (October 2015 through April 2016), WDFW implemented ten Chinook 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 February 16, 2017 through April 30, 2017;
- Area 6 from December 1, 2016 through April 15, 2017;
- Area 7 from October 1-31, 2016 and December 1, 2016 through April 30, 2017;
- Areas 8-1 and 8-2 from November 1, 2016 through April 30, 2017;
- Area 9 from November 1-30, 2016 and January 16 – April 15, 2017;
- Area 10 from November 1, 2016 through February 28, 2017;
- Area 11 from February 1, 2017 - April 30, 2017;
- Area 12 from October 1 – December 31, 2016 and February 1 - April 30, 2017
- Area 13 from October 1, 2016 – April 30, 2017.[GTJ(1)]

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

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 Chinook MSF and its impact on unmarked salmon. Through state-tribal agreement (WDFW and NWIFC 2014), we developed area-specific sampling plans consisting of several comprehensive and complementary sampling components, including dockside creel sampling, test fishing, on-water or aerial effort surveys, and angler-completed voluntary trip reports (VTRs). We tailored area-specific sampling plans so that we could reliably estimate the following critical parameters needed for evaluating MSFs:

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

v) the total mortality of marked and unmarked double index tag (DIT) CWT stocks

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

Reporting Efficiencies

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

Thus, 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 (details available in a WDFW memo dated August 16, 2010 summarizing the July 2010 meeting), we began implementing reporting efficiencies starting with the 2009-10 winter Chinook MSF post-season report and continuing thereafter.

At the July 2010 meeting we also agreed that a key efficiency in the annual reporting process would be for WDFW staff to produce a centralized Methods Report. The Methods Report would be a stand-alone document that includes the details of each area's Chinook MSF study design (for both winter and summer fisheries), sampling procedures, data analysis methods, and all equations used to generate estimates and variances. Thus, we refer the reader to our Methods Report (WDFW 2012a) for detailed descriptions of the diverse study designs and protocols used to monitor and evaluate the Chinook MSFs in Areas 5, 6, 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 2016-17 winter Chinook MSFs. We report results based on our more efficient reporting format agreed-to between state and tribal technical representatives, in which we focus on presenting data tables and figures rather than interpretive text (unless text is needed to specify noteworthy in-season adjustments or other circumstances unique to the particular season). We present 2016-17 winter Chinook MSF results in separate chapters (1 through 7) by area, and within each chapter the data are presented in a series of tables and figures generally according to

the following sequence: i) estimates of fishery characteristics obtained from the dockside creel survey data, including catch and effort total estimates, Chinook length-frequency data, and CWT recovery results; ii) results from our recreational test fishery (where applicable); iii) results from our VTR collection efforts; iv) total mortality estimates of marked and unmarked DIT CWT stocks by hatchery and brood year; v) total fishery Chinook encounters and impacts—estimated based on creel survey and test fishery or VTR data—which we compare with pre-season expectations (based on Fishery Regulation Assessment Model [FRAM] predictions); vi) sample rate information based on dockside sampling of harvested Chinook; and vii) historical Chinook encounters estimates for each area’s winter Chinook MSF.

RESULTS

1) Marine Area 5 Winter Mark-Selective Chinook Fishery

The Washington Department of Fish and Wildlife (WDFW) implemented the second winter Chinook MSF in Marine Area 5 from February 16, 2017 – April 30, 2017. 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 2016-17 winter Chinook 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 eight access sites (**Table 1.2**), and a total of 43 site visits during the four-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. Thus, 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 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 CWT-based composition (unexpanded) 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 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. Thus, 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 2016-17 Chinook MSF.

Table 1.1 Observations of fishing effort, salmon harvest, and reported salmon releases, by week, for the February 16, 2017 – April 30, 2017 winter Chinook 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.

StatWk	Start	End	Effort		Retained Fish						Released Fish						
			Boats	Anglers	Chin.AD	Chin.UM	Chin. UD	Coho.AD	Coho.UM	Coho.UD	Chin.AD	Chin.UM	Chin.UK	Coho.AD	Coho.UM	Coho.UK	Unk.
8	16-Feb	19-Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	20-Feb	26-Feb	17	39	24	0	0	0	0	0	6	24	0	0	0	0	0
10	27-Feb	5-Mar	5	13	8	0	0	0	0	0	5	7	0	0	0	0	0
11	6-Mar	12-Mar	9	28	12	0	0	0	0	0	9	2	0	0	0	0	0
12	13-Mar	19-Mar	21	52	38	0	0	0	0	0	29	17	0	0	0	0	0
13	20-Mar	26-Mar	16	35	25	1	0	0	0	0	21	17	0	0	0	0	0
14	27-Mar	2-Apr	41	76	96	0	0	0	0	0	34	61	5	0	0	0	0
15	3-Apr	9-Apr	37	90	31	0	0	2	0	0	24	17	0	0	0	0	0
16	10-Apr	16-Apr	41	89	41	0	0	0	0	0	38	17	0	1	2	2	0
17	17-Apr	23-Apr	25	45	23	0	0	0	0	0	13	17	0	0	0	0	0
18	24-Apr	30-Apr	23	49	16	1	0	0	0	0	11	6	7	0	0	0	5
Season Total			235	516	314	2	0	2	0	0	190	185	12	1	2	2	5

Table 1.2 List of sites sampled with the number of sampling events (site-days) during the 2016-17 winter Chinook MSF in Marine Area 5.

Location Name	Number of Site Days Sampled Per Month			Total Site-Days	% of Total
	February	March	April		
Olson's Resort	4	19	20	43	100.00%
Grand Total	4	19	20	43	100.00%

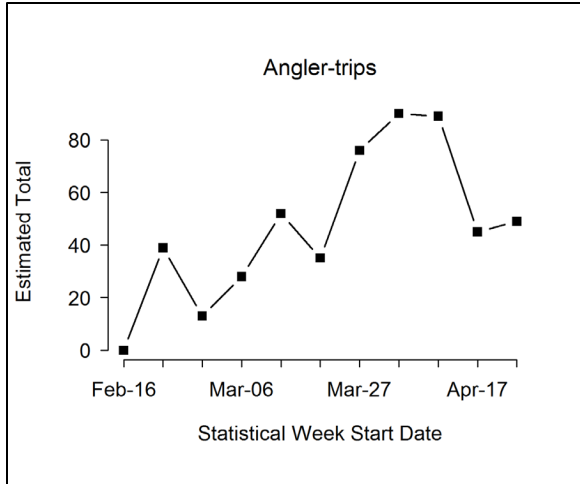


Figure 1.1 Temporal patterns in fishing effort during the 2016-17 winter Chinook MSF in Marine Area 5. Note: displayed values are sample observations (summed across sampled sites)

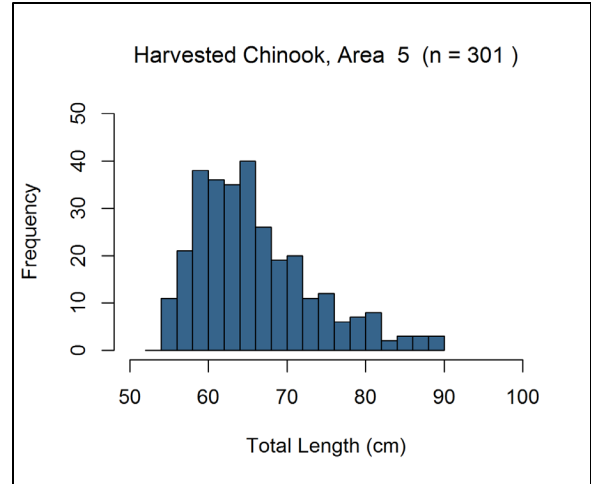


Figure 1.3 Length-frequency distributions of retained marked Chinook sampled in dockside angler interviews during the 2016-17 winter Chinook MSF in Marine Area 5.

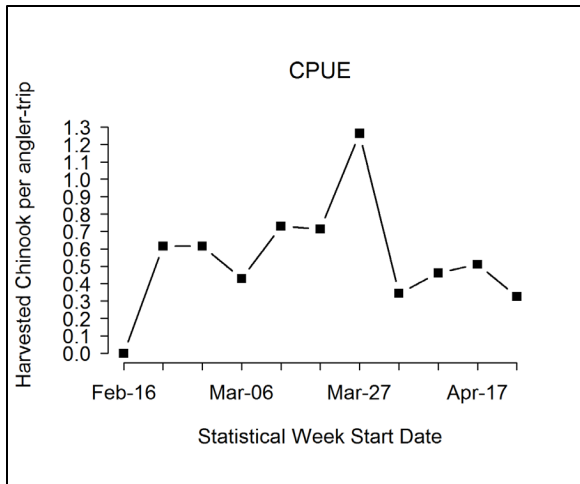


Figure 1.2 Temporal patterns in Chinook encounters (number retained and released) during the 2016-17 winter Chinook MSF in Marine Area 5. Note: displayed values are sample observations (summed across sampled sites)

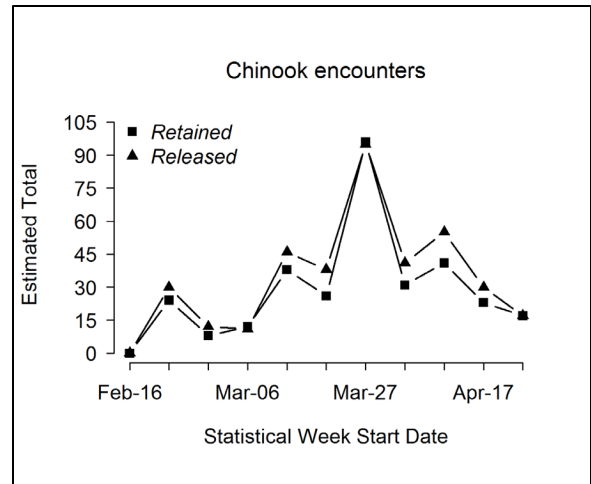


Figure 1.4 Temporal patterns in Chinook encounters (number retained and released) during the 2016-17 winter Chinook MSF in Marine Area 5. Note: displayed values are sample observations (summed across sampled sites)

Table 1.3 Summary of CWTs recovered from Chinook salmon harvested during the 2016-2017 winter Chinook 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. WA (15.8%)	Friday Cr 03.0017	Samish Hatchery	1 (5.3%)	1
		Kendall Cr 01.0406	Kendall Cr Hatchery	2 (10.5%)	0
	Hood Canal (10.5%)	Purdy Cr 16.0005	George Adams Hatchery	2 (10.5%)	1
	Skagit River (10.5%)	CascadeR 03.1411	Marblemount Hatchery	1 (5.3%)	0
		Co Line Pd2 03.1853B	Marblemount Hatchery	1 (5.3%)	0
	Mid Puget Sound (10.5%)	Grovers Cr15.0299	Grovers Cr Hatchery	2 (10.5%)	2
	S Puget Sound (5.3%)	Clear Cr 11.0013C	Clear Creek Hatchery	1 (5.3%)	1
Central Col Riv (5.3%)	Spring Cr29.0159	Spring Cr Nfh	1 (5.3%)	0	
Col. Riv	L. Col Riv	Mckenzie R 1	Mckenzie Hatchery	1 (5.3%)	0
		Gobar Cr 27.0073	Gobar Pond (27)	1 (5.3%)	0
		Santiam R & N Fk-1	Marion Forks Hatch	1 (5.3%)	0
		Fallert Cr 27.0017	Fallert Cr Hatchery	1 (5.3%)	0
		Tanner Cr (Bnville)	Bonneville Hatchery	1 (5.3%)	0
		Willamette R Cst Fk	Mckenzie Hatchery	1 (5.3%)	0
		Willamette R M Fk-1	Dexter Ponds (Willam	1 (5.3%)	0
N/A	N/A (5.3%)	N/A	N/A	1 (5.3%)	0
Total				19	5

Table 1.4 Summary of total length samples from retained Chinook salmon collected during dockside angler interviews in the 2016-17 winter Chinook MSF in Marine Area 5.

Mark Type	Legal	Sublegal	Total
Marked	290	11	301
Unmarked	1	1	2
Total	291	12	303

2) Marine Area 6 Winter Mark-Selective Chinook Fishery

The Washington Department of Fish and Wildlife (WDFW) implemented a winter Chinook MSF in Marine Area 6 for the fifth time from December 1, 2016 through April 15, 2017. WDFW's Puget Sound Sampling Unit (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 MSF from December 1, 2016 through April 15, 2017. 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 Coronet Ramp, which are assumed to be the highest-use access sites for Area 6 anglers. The Olympic Peninsula Derby took place from February 18-19 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 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 2.12; $n=15$ surveys conducted out of $N=135$ days [GTJ(2)] available in the season). Season-wide sample fraction was calculated as the average sample fraction over the 15 individual aerial surveys.
Voluntary Trip Reports (VTRs)	Size (legal/sublegal) and mark-status (marked/unmarked) composition of encountered Chinook	Encounter data for non-Chinook species (e.g., Coho) that the angler may record on the VTR form	Fish encounter	Season	VTR data (Table 2.5) were used to estimate the size/mark-status proportions (LM = 72%, LU = 8%, SM = 17%, SU = 3%) needed to produce encounter and mortality estimates. [GTJ(3)]
Overall Fishery Impacts Estimation	Total Chinook encounters and mortalities, by size/mark-status group	Ratios of encounters and mortalities per kept Chinook	N/A	Season	Estimated on a monthly time step but considered at the season-total level.
Coded-wire tag (CWT) Impacts Estimation	Marked/unmarked double-index tag (DIT) encounters and mortalities	N/A	N/A	Season	The temporal resolution of DIT impacts is constrained by the total number of tags recovered.

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

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

Table 2.2 Estimates of total fishing effort and total salmon catch (harvest and releases) during the 2016-17 winter Chinook 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	
Dec	49	1-Dec	4-Dec	37	52	38	0	15	6	60
	50	5-Dec	10-Dec	31	49	31	0	12	5	48
	51	12-Dec	18-Dec	57	101	48	0	19	8	76
	52	19-Dec	25-Dec	44	83	41	0	16	7	64
	53	26-Dec	31-Dec	80	174	71	0	28	12	112
Jan	1/2	1-Jan	8-Jan	14	31	8	0	3	1	12
	3	9-Jan	15-Jan	75	133	82	0	32	14	128
	4	16-Jan	22-Jan	42	87	36	0	14	6	56
	5	23-Jan	29-Jan	259	440	375	0	147	64	586
	6	30-Jan	5-Feb	167	302	230	0	90	39	359
Feb	7	6-Feb	12-Feb	247	512	302	3	118	49	471
	8	13-Feb	19-Feb	81	159	92	0	36	16	143
	9	20-Feb	26-Feb	170	316	88	0	34	15	137
	10	27-Feb	5-Mar	111	175	57	0	22	10	89
Mar	11	6-Mar	12-Mar	141	245	105	0	41	18	163
	12	13-Mar	19-Mar	228	426	122	0	48	21	191
	13	20-Mar	26-Mar	94	171	56	0	22	10	88
	14	27-Mar	2-Apr	69	144	77	0	30	13	121
Apr	15	3-Apr	9-Apr	188	334	104	0	41	18	162
	16	10-Apr	15-Apr	214	399	137	0	54	23	213
Subtotal				2348	4,331	2099	3	824	353	3278
Olympic Peninsula Derby				183	549	149	0	58	25	233
Season Total:				2,531	4,880	2248	3	882	378	3,511
Variance:				55,943	211,559	55,037	3	146,334	4,694	148,771
SE:				237	460	235	2	383	69	386
CV (%):				9	9	10	65	43	18	11
95% CI:				2,068 - 2,995	3,978 - 5,781	1,788 - 2,707	0 - 6	133 - 1,632	244 - 513	2,755 - 4,267

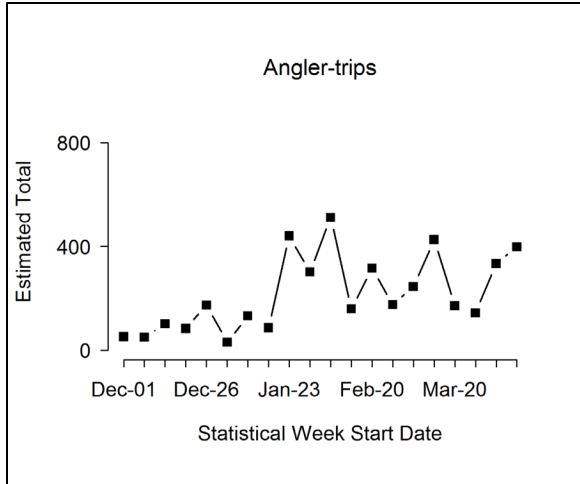


Figure 2.1 Temporal patterns in fishing effort during the 2016-17 winter Chinook MSF in Marine Area 6.

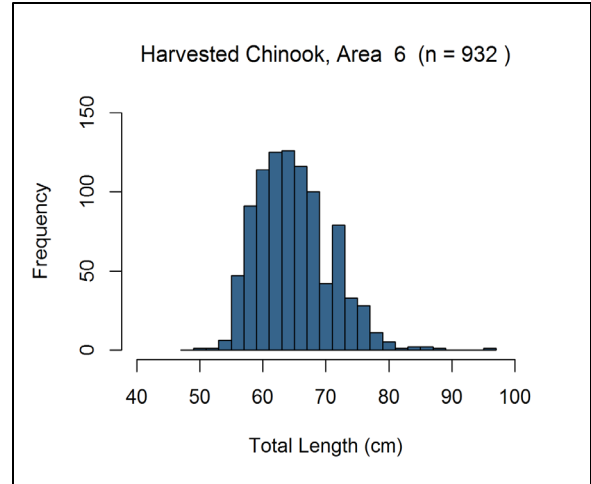


Figure 2.3 Length-frequency distribution of retained marked Chinook sampled in dockside angler interviews during the 2016-17 winter Chinook MSF in Marine Area 6.

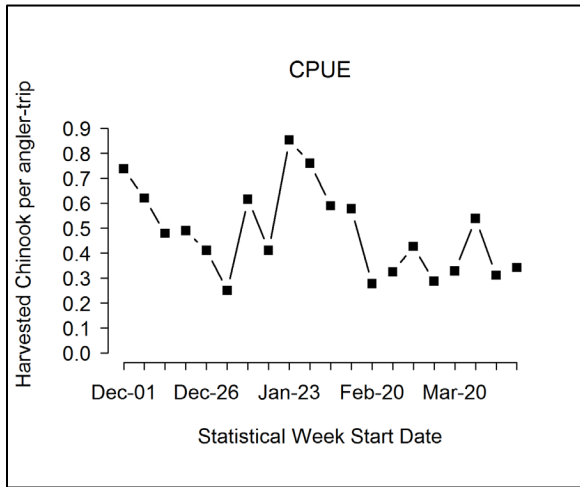


Figure 2.2 Temporal patterns in CPUE (number of Chinook landed per angler trip) during the 2016-17 winter Chinook MSF in Marine Area 6.

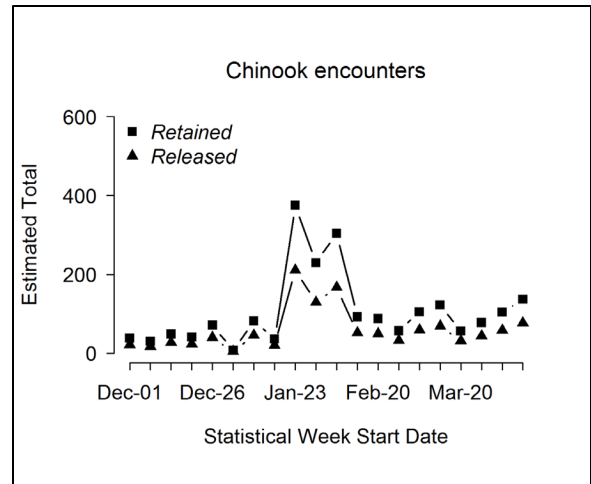


Figure 2.4 Temporal patterns in Chinook encounters (number retained and released) during the 2016-17 winter Chinook MSF in Marine Area 6.

Table 2.3 Summary of total length samples from retained Chinook salmon collected during dockside angler interviews in the 2016-17 winter Chinook MSF in Marine Area 6.

Mark Type	Number Sampled		
	Legal-size	Sublegal-size	Total
Marked	910	22	932
Unmarked	1	0	1
Total	911	22	933

Table 2.4 Summary of CWTs recovered from Chinook salmon harvested during the 2016-17 winter Chinook 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
BC	Georgia Strait (2.1%)	R-Capilano R	H-Capilano River H	1 (1%)	0
		R-Cowichan R	H-Cowichan River H	1 (1%)	0
WA	N. Washington (6.2%)	Friday Cr 03.0017	Samish Hatchery	1 (1%)	1
		Kendall Cr 01.0406	Kendall Cr Hatchery	4 (4.1%)	0
		East Sound Bay (San)	Glenwood Springs	1 (1%)	0
	N. Washington Coast (1%)	Sol Duc R 20.0096	Lonesome Cr Hatchery	1 (1%)	0
	Strait of Juan De Fuca (1%)	Elwha R 18.0272	Elwha Hatchery	1 (1%)	0
	Hood Canal (29.9%)	Purdy Cr 16.0005	George Adams Hatchery	12 (12.4%)	2
		Finch Cr 16.0222	Hoodsport Hatchery	17 (17.5%)	0
	N. Puget Sound (20.6%)	Wallace R 07.0940	Wallace R Hatchery	12 (12.4%)	8
		Whitehorse Springs	Whitehorse Pond	5 (5.2%)	0
		Tulalip Cr 07.0001	Bernie Gobin Hatch	3 (3.1%)	3
	Skagit River (3.1%)	Co Line Pd2 03.1853B	Marblemount Hatchery	1 (1%)	0
		Cascade R 03.1411	Marblemount Hatchery	2 (2.1%)	2
	Mid Puget Sound (15.5%)	Big Soos Cr 09.0072	Soos Creek Hatchery	9 (9.3%)	8
		Grovers Cr 15.0299	Grovers Cr Hatchery	3 (3.1%)	3
		Icy Cr 09.0125	Icy Cr Hatchery	1 (1%)	0
		Voight Cr 10.0414	Voights Cr Hatchery	2 (2.1%)	0
	S. Puget Sound (17.5%)	Clear Cr 11.0013C	Clear Creek Hatchery	9 (9.3%)	9
Minter Cr 15.0048		Minter Cr Hatchery	2 (2.1%)	0	
Kalama Cr 11.0017		Kalama Cr Hatchery	2 (2.1%)	0	
Minter Cr Tr 15.0051		Hupp Springs Rearing	4 (4.1%)	0	
Col Riv	Upper Columbia	Methow R 48.0002	Winthrop Nfh	1 (1%)	0
CA	Central California Coast (1%)	Moss Landing Min. Pt	Mok R Fish Ins	1 (1%)	0
	San Joaquin River (1%)	San Joaq Shrm Isl Net Pen	Mok R Fish Ins	1 (1%)	0

Total	97	36
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Table 2.5 Total Chinook 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 2015-2016 winter Chinook 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.

Time Frame	Data Source	Effort and Sample Size	Legal		Sublegal		Totals	Mark Rate	
			AD	UM	AD	UM		Overall	Legal
Dec-Apr	Private VTR	118 1-trip VTRs, 202 Angler Trips	245	27	59	10	341	0.89	0.90
	Size/mark-status composition:		0.72	0.08	0.17	0.03			
Variance:			(0.0006)	(0.0002)	(0.0004)	(0.0001)			

Table 2.6 Summary of season-wide fishery impact estimates for the 2016-17 winter Chinook 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	2,522	2,194	328	49	2,244	55,651	236	1,781 - 2,706	11
Legal UM	278	3	275	41	44	83	9	26 - 62	21
Sublegal AD	607	53	554	111	164	527	23	119 - 209	14
Sublegal UM	103	0	103	21	21	46	7	7 - 34	33
Total	3,511	2,250	1,261	222	2,472	56,307	237	2,007 - 2,937	10

Table 2.7 Comparison of modeled (FRAM model run 2916) and estimated total Chinook encounters for the 2016-17 winter Chinook 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	1129	416	713	17
	AD	2,846	1,491	1,355	1,298
	Total	3,975	1,907	2,068	1,315
	% Marked	72	78	66	99
Estimated (Creel) Encounters	UM	381	278	103	3
	AD	3,130	2,522	607	2,248
	Total	3,511	2,800	710	2,250
	% Marked	89	90	86	100

Table 2.8 Comparison of modeled (FRAM model run 2916) and estimated total Chinook mortalities for the 2016-17 winter Chinook 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)	220	1,662	1,882	64	2,408	2,472
Released Legal	60	93	153	41	49	90
Released Sublegal	143	271	414	21	111	131

Draft; November 20, 2017

Landed Only	17	1,298	1,315	3	2,248	2,250
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Table 2.9 Monthly sample rates (Total retained Chinook sampled¹ / Estimated retained Chinook) for the 2016-17 winter Chinook MSF in Marine Area 6. 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	
December	49 - 53.1	01 Dec - 01 Jan	158	0	158	80	0	80	50.6
January	2-5	02 Jan - 29 Jan	500	0	500	208	0	208	41.6
February	6-9	30 Jan - 26 Feb	860	3	862	339	1	340	39.4
March	10-14	27 Feb - 02 Apr	418	0	418	204	0	204	48.8
April	15 - 16	03 Apr - 15 Apr	240	0	240	102	0	102	42.5
Season Total			2,176	3	2,179	933	1	934	42.90

Table 2.10 Summary of double-index tagged (DIT) Chinook kept by anglers, and estimated total mortality of unmarked DIT Chinook due to hook-and-release impacts resulting from the 2016-17 winter Chinook 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	2013	1	2.4	3.4	2.4	0.2	0.034	0.18
	2014	2	4.8	6.81	4.7	0.5	0.064	0.36
Clear Creek Hatchery	2013	6	14.5	20.43	14.4	1.4	0.202	1.1
	2014	3	7.2	10.21	7.3	0.7	0.105	0.56
George Adams Hatchery	2014	2	4.8	6.81	4.8	0.5	0.068	0.37
Grovers Cr Hatchery	2014	3	7.2	10.21	7.4	0.7	0.108	0.57
Marblemount Hatchery	2013	2	4.8	6.81	4.8	0.5	0.069	0.37
Samish Hatchery	2013	1	2.4	3.4	2.4	0.2	0.034	0.18
Soos Creek Hatchery	2013	8	19.3	27.24	19.3	1.9	0.271	1.47
Wallace R Hatchery	2013	8	19.3	27.24	19.6	2	0.281	1.5
Total		36	86.8	122.56	87.2	8.7	1.236	6.67

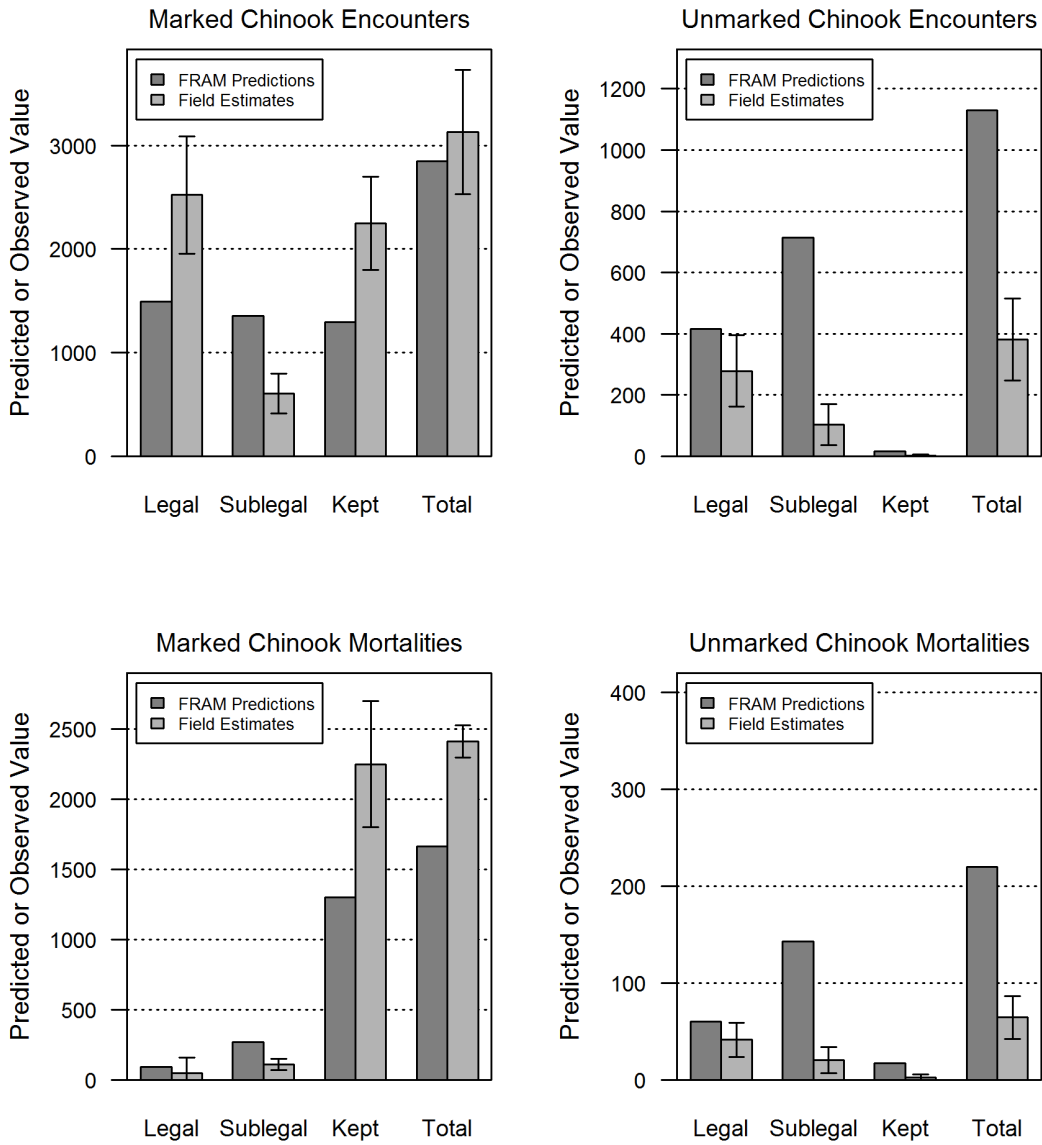


Figure 2.5 Comparison of modeled (FRAM model run 2916) and estimated total Chinook encounters and mortalities for the 2016-17 winter Chinook MSF in Marine Area 6. Error bars represent approximate 95% confidence intervals for field estimates.

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 2016-17 winter Chinook 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, $S_{y_{ijk}}$	
14-Dec	WD	9:20	10:05	9	16	5	29	0.556
22-Dec	WD	9:16	10:03	19	33	7	90	0.368
12-Jan	WD	9:12	9:59	7	4	1	28	0.143
13-Jan	WE	8:44	9:31	14	6	5	17	0.357
14-Jan	WE	9:04	9:51	27	21	13	44	0.481
27-Jan	WE	9:12	9:56	26	21	15	36	0.577
29-Jan	WE	9:39	10:34	33	26	24	36	0.727
31-Jan	WD	10:02	10:35	12	10	8	15	0.667
25-Feb	WE	2:26	3:23	16	19	5	61	0.313
4-Mar	WE	1:05	2:11	6	13	4	20	0.667
17-Mar	WE	12:15	12:59	11	14	8	19	0.727
19-Mar	WE	11:31	12:27	51	43	35	63	0.686
1-Apr	WE	9:57	10:59	9	14	8	16	0.889
9-Apr	WE	10:26	11:19	29	31	24	37	0.828
11-Apr	WD	10:20	11:06	24	23	20	28	0.833
Season Totals:				293	294	182	537	
Mean:				20	20	12	36	0.5879
St Dev:				12	11	10	21	0.217
CV(%):				62.9%	53.7%	79.3%	58.9%	36.8%

Table 2.12 Fishery-total estimates of retained and released salmon (*other than Chinook*) during the 2016-17 winter Chinook MSF in Marine Area 6. Values may not add exactly due to rounding error. AD = marked (adipose-clipped), UM = unmarked, UK = unknown mark-status

StatWk	Start.Date	End.Date	Coho.AD.rel	Coho.UM.rel	Unknown.salmonid.rel
49	1-Dec	4-Dec	1	0	7
50	5-Dec	10-Dec	3	0	7
51	12-Dec	18-Dec	0	0	17
52	19-Dec	25-Dec	0	0	17
53	26-Dec	31-Dec	0	0	0
1/2	1-Jan	8-Jan	0	0	0
3	9-Jan	15-Jan	0	0	20
4	16-Jan	22-Jan	0	0	7
5	23-Jan	29-Jan	0	0	9
6	30-Jan	5-Feb	0	0	11
7	6-Feb	12-Feb	0	3	5
8	13-Feb	19-Feb	0	0	0
9	20-Feb	26-Feb	0	0	0
10	27-Feb	5-Mar	0	0	0
11	6-Mar	12-Mar	0	0	0
12	13-Mar	19-Mar	3	0	3
13	20-Mar	26-Mar	0	0	0
14	27-Mar	2-Apr	0	0	0
15	3-Apr	9-Apr	0	0	0
16	10-Apr	15-Apr	0	0	2
Total			7	3	103
Variance			14	3	1,261
SE			4	2	36
CV			56	65	34
ci			0 - 14	0 - 6	33 - 173

Table 2.13 Season-total estimates of Chinook encounters by size/mark-status and total estimates of angler effort, summarized for all seasons to date of the Area 6 Winter Chinook 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

3) Marine Area 7 Winter Mark-Selective Chinook Fishery

The Washington Department of Fish and Wildlife (WDFW) implemented an tenth consecutive winter Chinook MSF in Marine Area 7 from October 1 – 31, 2016, December 1, 2016 through February 10, 2017 and from March 25, 2017 through April 21, 2017 WDFW's Puget Sound Sampling Unit (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 from October 1 – 31, 2016, December 1, 2016 through February 10, 2017 and from March 25, 2017 through April 21, 2017. 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 three sites included in the Area 7 dockside sample frame are Washington Park Ramp, Bellingham Ramp and Coronet Ramp, 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 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 ; $n=17$ surveys conducted out of $N=128$ days available in the [season][GTJ(4)]. Season-wide sample fraction was calculated as the average sample fraction over the 11 individual aerial surveys.
Test Fishing	Size (legal/sublegal) and mark-status (marked/unmarked) composition of encountered Chinook	Chinook length, age, and DNA-based ² stock composition; species composition of non-Chinook encounters	Fish encounter	Season	[We used the test fishery data only to estimate the size/mark-status proportions (LM = 47%, LU = 17%, SM = 24%, SU = 1%; Table 3.6) needed to produce encounter and mortality estimates.][GTJ(5)]
Voluntary Trip Reports (VTRs)	Size (legal/sublegal) and mark-status (marked/unmarked) composition of encountered Chinook	Encounter data for non-Chinook species (e.g., Coho) that the angler may record on the VTR form	Fish encounter	Season	VTR data (Table 3.5) 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 encounters and mortalities, by size/mark-status group	Ratios of encounters and mortalities per kept Chinook	N/A	Season	Estimated on a monthly time step but considered at the season-total level.
Coded-wire tag (CWT) Impacts Estimation	Marked/unmarked double-index tag (DIT) encounters and mortalities	N/A	N/A	Season	The temporal resolution of DIT impacts is constrained by the total number of tags recovered.

Table 3.2 Estimates of total fishing effort and total salmon catch (harvest and releases) during the 2016-17 winter Chinook 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	
Oct	40	1-Oct	2-Oct	90	176	45	0	37	35	117
	41	3-Oct	9-Oct	216	412	93	0	76	72	241
	42	10-Oct	16-Oct	95	184	40	0	33	31	103
	43	17-Oct	23-Oct	127	264	75	0	62	58	194
	44	24-Oct	30-Oct	123	224	88	0	72	67	227
	45	31-Oct	31-Oct	2	4	2	0	2	2	6
October Total:				654	1,264	343	0	282	264	888
Dec	49	1-Dec	4-Dec	82	166	41	0	37	33	111
	50	5-Dec	11-Dec	229	459	130	0	117	104	351
	51	12-Dec	18-Dec	129	272	95	4	86	72	257
	52	19-Dec	25-Dec	136	290	144	0	130	116	389
	53	26-Dec	31-Dec	298	822	406	0	366	326	1098
Jan	2	2-Jan	8-Jan	164	390	190	0	171	152	513
	3	9-Jan	15-Jan	330	687	329	0	297	264	890
	4	16-Jan	22-Jan	194	402	167	0	150	134	451
	5	23-Jan	29-Jan	291	583	224	7	202	173	605
	6	30-Jan	5-Feb	247	519	221	0	199	177	596
Feb	7	6-Feb	10-Feb	14	18	0	0	0	0	0
Mar	13	25-Mar	26-Mar	264	537	252	0	227	202	680
	14	27-Mar	2-Apr	465	1091	399	0	360	320	1080
Apr	15	3-Apr	9-Apr	446	891	337	6	304	264	911
	16	10-Apr	16-Apr	695	1346	633	6	571	502	1712
	17	17-Apr	21-Apr	539	1006	604	0	545	484	1632
Sub-Total:				4524	9,480	4169	24	3762	3322	11,277
Resurrection Derby				48	155	39	0	35	31	105
Friday Harbor Derby				88	301	204	0	184	164	552
Roche Harbor Derby				99	347	297	0	268	238	803
Dec 1 - Feb 10, Mar 25 - April 21 Total:				4759	10,283	4709	24	4249	3756	12,737
Season Total:				5,413	11,547	5,052	24	4,531	4,020	13,625
Variance:				269,935	1,047,515	181,848	148	1,239,136	340,750	2,651,474
SE:				520	1023	426	12	1113	584	1628
CV (%):				10%	9%	8%	51%	25%	15%	12%
95% CI:				4,395-6,431	9,541-13,553	4,216-5,888	1-48	2,349-6,713	2,876-5,164	10,433-16,817

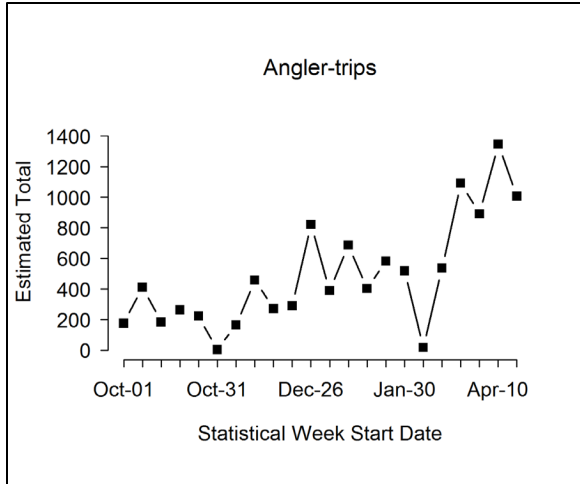


Figure 3.1 Temporal patterns in fishing effort during the 2016-17 winter Chinook MSF in Marine Area 7.

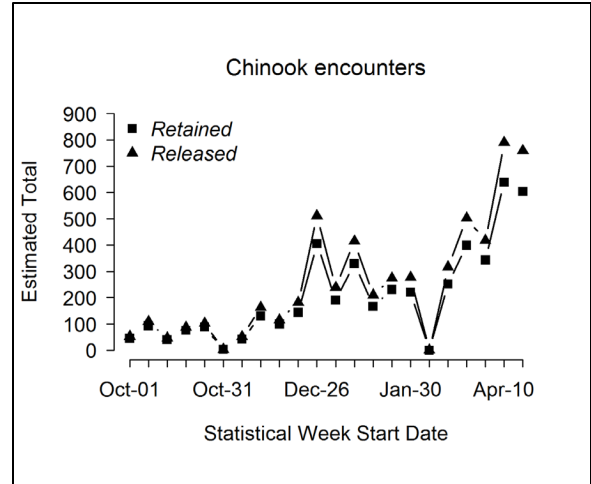


Figure 3.3 Temporal patterns in Chinook encounters (number retained and released) during the 2016-17 winter Chinook MSF in Marine Area 7

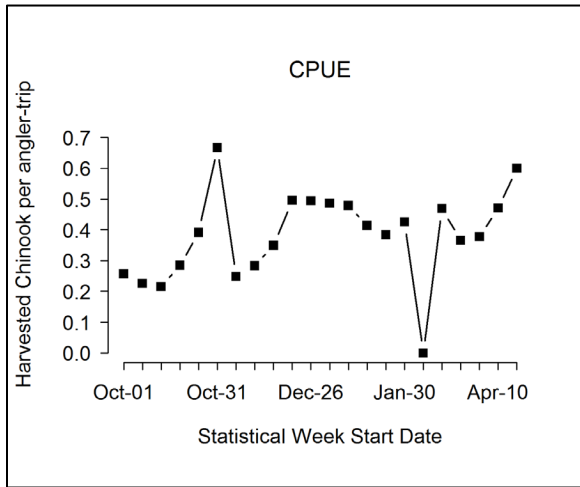


Figure 3.2 Temporal patterns in CPUE (number of Chinook landed per angler trip) during the 2016-17 winter Chinook MSF in Marine Area 7.

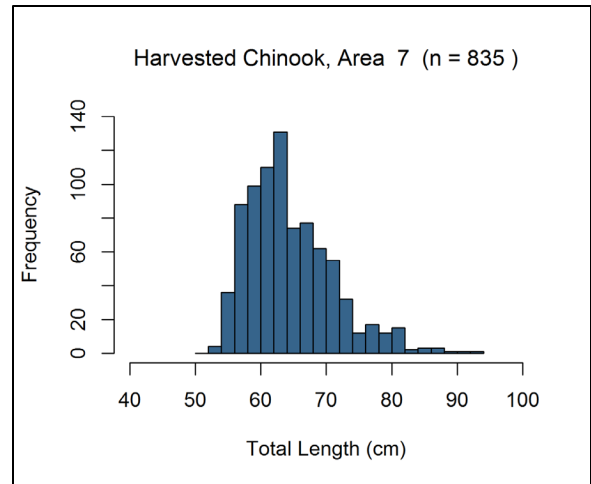


Figure 3.4 Length-frequency distribution of retained marked Chinook sampled in dockside angler interviews during the 2016-17 winter Chinook MSF in Marine Area

Table 3.3 Summary of total length samples from retained Chinook salmon collected during dockside angler interviews in the Area 7 Chinook MSF from October 1-31, 2016 (top panel) and December 1, 2016 - April 21, 2017 (bottom panel).

Mark Type	Number Sampled October		
	Legal-size	Sublegal-size	Total
Marked	87	8	95
Unmarked	0	0	0
Total	87	8	95
Number Sampled Dec 1 – April 21			
Marked	708	32	740
Unmarked	3	1	4
Total	711	33	744
Total Season Sampled			
Marked	795	40	835
Unmarked	3	1	4
Total	798	41	839

Table 3.4 Summary of CWTs recovered from Chinook salmon harvested during the 2016-17 winter Chinook 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	Fraser River – Thompson River (0.9%)	R-Chilliwack R	H-Chilliwack River H	1 (0.9%)	0
	Georgia Strait (6.9%)	R-Big Qualicum R	H-Big Qualicum River H	1 (0.9%)	0
		R-Cowichan R	H-Cowichan River H	7 (6%)	0
WA	N Washington (7.8%)	Friday Cr 03.0017	Samish Hatchery	2 (1.7%)	0
		East Sound Bay (San)	Glenwood Springs	3 (2.6%)	0
		Kendall Cr 01.0406	Kendall Cr Hatchery	4 (3.4%)	0
	Hood Canal (7.8%)	Purdy Cr 16.0005	George Adams Hatchery	7 (6%)	1
		Finch Cr 16.0222	Hoodsport Hatchery	2 (1.7%)	0
	N Puget Sound (31%)	Stillaguamish R -Sf	Brenner Hatchery	1 (0.9%)	0
		Tulalip Cr 07.0001	Bernie Gobin Hatch	6 (5.2%)	6
		Wallace R 07.0940	Wallace R Hatchery	20 (17.2%)	12
		Whitehorse Springs	Whitehorse Pond	9 (7.8%)	0
	Skagit River (30.2%)	Cascade R 03.1411	Marblemount Hatchery	34 (29.3%)	10
		Co Line Pd2 03.1853B	Marblemount Hatchery	1 (0.9%)	0
	Mid Puget Sound (7.8%)	Big Soos Cr 09.0072	Soos Creek Hatchery	2 (1.7%)	0
		Voight Cr 10.0414	Voights Cr Hatchery	4 (3.4%)	0
		Grovers Cr 15.0299	Grovers Cr Hatchery	2 (1.7%)	2
		Icy Cr 09.0125	Icy Cr Hatchery	1 (0.9%)	0
S Puget Sound (7.8%)	Kalama Cr 11.0017	Kalama Cr Hatchery	1 (0.9%)	0	
	Minter Cr 15.0048	Minter Cr Hatchery	1 (0.9%)	0	
	Clear Cr 11.0013C	Clear Creek Hatchery	7 (6%)	7	
Total				116	38

Table 3.5 Total Chinook 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 2016-17 winter Chinook 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.

Time Frame	Data Source	Effort and Sample Size	Legal		Sublegal		Totals	Mark Rate	
			AD	UM	AD	UM		Overall	Legal
Oct-Apr	Private VTR	9 1-trip VTRs, 14 Angler Trips	9	5	3	0	17	0.71	0.64
	Size/mark-status composition:		0.53	0.29	0.18	0.00			
		Variance:	(0.0156)	(0.0130)	(0.0091)	(0.0000)			

Table 3.6 Composition of test fishery Chinook encounters and associated mark-rate and size/mark-status proportion estimates from the 2016-17 winter Chinook MSF in Marine Area 7. AD = marked (adipose-clipped), UM = unmarked.

Month	Stat Week	Legal		Sublegal		Total
		AD	UM	AD	UM	
Oct	41	4	1	6	1	12
	42	3	1	2	0	6
	43	4	1	2	3	10
	44	5	0	4	2	11
	45	4	0	1	2	7
Dec	49	1	0	2	0	3
	51	4	1	1	1	7
	52	2	1	0	0	3
	53	3	3	1	3	10
Jan	1	1	3	2	4	10
	2	9	1	8	1	19
	3	2	1	3	0	6
	4	8	7	8	2	25
	5	5	2	7	4	18
	6	0	0	0	1	1
Mar	13	8	2	5	1	16
	14	8	1	2	2	13
Apr	15	0	1	0	0	1
	16	3	1	0	0	4
Season	Season Total	74	27	54	27	182
	Size/mark-status composition:	0.41	0.15	0.30	0.15	1
	Legal size mark rate	0.73				
	Overall mark rate	0.70				

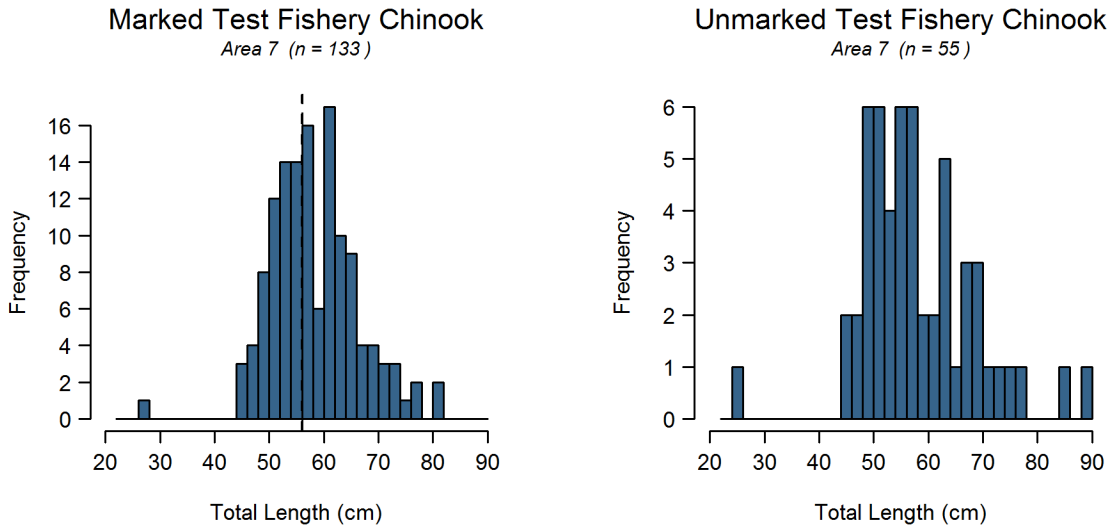


Figure 3.5 Length-frequency distributions of marked (*left panel*) and unmarked (*right panel*) Chinook encountered by test fishers during the 2016-17 winter Chinook MSF in Marine Area 7. The vertical dashed line in the left panel corresponds to the legal size limit (22 in or 56 cm).

Table 3.7 Summary of season-wide fishery impact estimates for the 2016-17 winter Chinook 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	5,540	4,820	720	108	4,928	185,724	431	4,083 - 5,773	9%
Legal UM	2021	18	2004	301	318	3943	63	195 - 441	2%
Sublegal AD	4,043	233	3,810	762	995	18,202	135	730 - 1,259	14%
Sublegal UM	2021	6	2015	403	409	6,849	83	247 - 571	20%
Total	13,626	5,076	8,550	1,574	6,650	214,718	463	5,742 - 7,558	7%

Table 3.8 Comparison of modeled (FRAM model run 2916) and estimated total Chinook encounters for the 2016-17 winter Chinook 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	2109	1215	894	12
	AD	8,139	4,605	3,534	4,006
	Total	10,248	5,820	4,428	4,018
	% Marked	79	79	80	100
Estimated (Creel) Encounters	UM	4,043	2021	2021	24
	AD	9,583	5,540	4,043	5,052
	Total	13,626	7,562	6,064	5,076
	% Marked	70	73	67	100

Table 3.9 Comparison of modeled (FRAM model run 2916) and estimated total Chinook mortalities for the 2016-17 winter Chinook 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)	2024	8,401	10,425	727	5923	6650
Released Legal	1040	2536	3576	301	108	409
Released Sublegal	972	1859	2831	403	762	1165
Landed Only	12	4,006	4,018	24	5052	5076

Table 3.10 Summary of double-index tagged (DIT) Chinook kept by anglers, and estimated total mortality of unmarked DIT Chinook due to hook-and-release impacts resulting from the 2016-17 winter Chinook MSF in Marine Area 7. AD = marked (adipose-clipped), UM = unmarked.

Hatchery	Brood Year	DITs Obs'd	AD DIT Harvest		UM DIT Enc.	UM DIT Mortality		
			Est.	var(Est.)		Est.	var(Est.)	SE(Est.)
Bernie Gobin Hatch	2013	5	29.1	145.86	28.8	2.9	1.437	2.62
	2014	1	6.4	34.11	6.2	0.6	0.32	0.57
Clear Creek Hatchery	2014	7	44.5	238.75	45.1	4.5	2.453	4.14
George Adams Hatchery	2014	1	6.4	34.11	6.4	0.6	0.341	0.58
Grovers Cr Hatchery	2014	2	12.7	68.22	13.1	1.3	0.722	1.2
Marblemount Hatchery	2013	10	60.9	316.4	61.1	6.1	3.191	5.59
Wallace R Hatchery	2013	11	61.7	301.16	62.7	6.3	3.108	5.68
	2014	1	3.6	9.43	3.6	0.4	0.096	0.31
Total		38	225.2	1148.04	227.1	22.7	11.66	20.7

Table 3.11 Monthly sample rates (Total retained Chinook sampled¹ / Estimated retained Chinook) for the 2016-17 winter Chinook 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	
October	40 - 45	01 Oct - 31 Oct	343	0	343	95	0	95	27.7
December	49 - 53.1	01 Dec - 01 Jan	653	4	657	129	1	130	19.8
January	2-5	02 Jan - 29 Jan	1206	7	1213	243	2	245	20.2
February	6-7	30 Jan - 10 Feb	221	0	221	37	0	37	16.8
March	13 - 14	25 Mar - 02 Apr	651	0	651	145	0	145	22.3
April	15 - 17	03 Apr - 21 Apr	1573	13	1586	186	1	187	11.8
Season Total			4,647	24	4,671	835	4	839	17.96

¹ Number of retained Chinook sampled includes all retained Chinook inspected for CWTs, from all sites sampled during the winter 2016-17 Area 7 Chinook MSF (the three sample-frame sites included in the creel estimates, derby samples, and the fish sampled as part of baseline sampling in Area 7)

Table 3.12 Fishery-total estimates of retained and released salmon (*other than Chinook*) during the 2016-17 winter Chinook 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	Released Salmon				
			Coho AD	Coho UM	Coho Unk	Unknown	Cutthroat
40	1-Oct	2-Oct	2	5	5	0	0
41	3-Oct	9-Oct	4	4	0	0	0
42	10-Oct	16-Oct	0	0	0	0	0
43	17-Oct	23-Oct	0	0	4	4	0
44	24-Oct	30-Oct	0	0	0	0	0
45	31-Oct	31-Oct	0	0	0	0	0
49	1-Dec	4-Dec	0	0	0	0	0
50	5-Dec	11-Dec	0	0	0	0	0
51	12-Dec	18-Dec	0	0	0	0	0
52	19-Dec	25-Dec	0	0	0	0	0
53	26-Dec	31-Dec	0	0	0	0	0
2	2-Jan	8-Jan	0	0	0	0	0
3	9-Jan	15-Jan	0	0	0	0	0
4	16-Jan	22-Jan	0	0	0	0	0
5	23-Jan	29-Jan	0	0	0	0	0
6	30-Jan	5-Feb	0	0	0	0	0
7	6-Feb	10-Feb	0	0	0	0	0
13	25-Mar	26-Mar	0	0	0	0	0
14	27-Mar	2-Apr	0	0	0	0	0
15	3-Apr	9-Apr	0	0	0	0	0
16	10-Apr	16-Apr	0	0	0	0	0
17	17-Apr	21-Apr	0	0	0	0	13
Season Total:			6	9	9	4	13
Variance:			5	5	6	5	5
Standard Error:			2	2	2	2	2
CV (%):			37	27	29	60	18
95% CI:			2-10	4-13	4-13	4-8	8-18

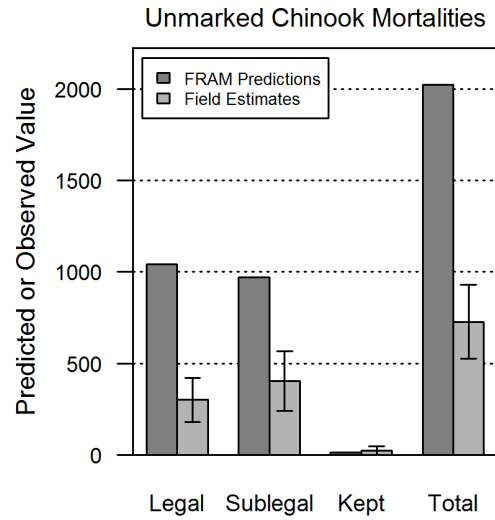
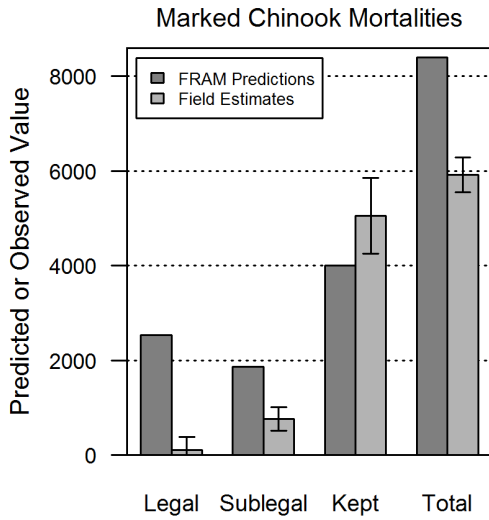
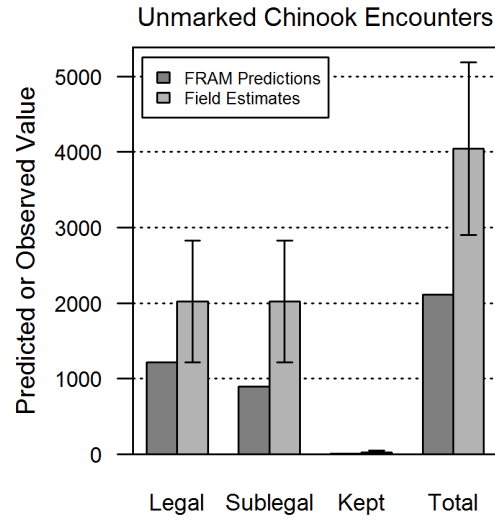
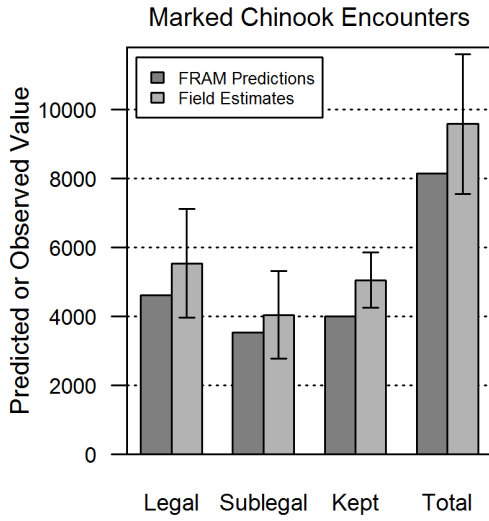


Table 3.13 Summary of aerial survey and dockside data used to estimate the fraction of effort captured in the three-site sample frame during the 2016-17 winter Chinook MSF in Marine Area 7. See Methods Report (WDFW 2012a) for computational details and notation.

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, $S_{y_{ijk}}$	
1-Oct	WE	10:04	11:25	54	36	15	130	0.278
9-Oct	WE	9:50	11:07	74	60	27	164	0.365
12-Oct	WD	10:39	11:42	62	36	21	106	0.339
22-Oct	WE	10:34	11:53	69	50	16	216	0.232
28-Oct	WE	9:33	10:36	34	26	10	88	0.294
4-Dec	WE	11:19	12:23	36	28	8	126	0.222
14-Dec	WD	10:05	11:03	38	5	0	0	0.000
22-Dec	WD	10:03	11:01	33	8	5	53	0.152
12-Jan	WD	9:59	11:04	59	24	14	101	0.237
13-Jan	WE	9:31	10:29	56	37	27	77	0.482
14-Jan	WE	9:52	10:56	96	55	40	132	0.417
27-Jan	WE	9:57	10:57	67	41	29	95	0.433
29-Jan	WE	10:34	11:53	66	33	16	136	0.242
31-Jan	WD	10:45	11:36	6	7	1	42	0.167
1-Apr	WD	10:59	12:15	75	66	50	99	0.667
9-Apr	WE	11:19	12:25	84	45	27	140	0.321
11-Apr	WD	11:06	12:04	60	51	34	90	0.567
Season Totals:				969	608	340	1795	
Mean:				57	36	20	106	0.3185
St Dev:				22	18	14	49	0.162
CV(%):				38.6%	50.7%	69.0%	46.7%	50.8%

Table 3.14 Summary of the 5 year sample fraction used in the winter Chinook MSF in Marine Area 7.

Month	5 Year Sample Fraction, f_{ij} Average
Oct	0.422
Dec	0.389
Jan	0.330
Feb	0.444
Mar	0.492
Apr	0.319

Table 3.15 Season-total estimates of Chinook encounters by size/mark-status and total estimates of angler effort, summarized for all seasons to date of the Area 7 Winter Chinook 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 - Oct 31 2016, Dec 1 - Feb 10 2017, Mar 25 - Apr 21 2017	11,547	4,820	18	233	6	720	2,004	3,811	2,016	13,625

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

The Washington Department of Fish and Wildlife (WDFW) implemented a twelfth consecutive winter Chinook MSF in Marine Areas 8-1 and 8-2 from November 1, 2016 through April 30, 2017. WDFW's Puget Sound Sampling Unit (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 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 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 5 boat] [GTJ(6)] 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	Encounter data for non-Chinook species (e.g., Coho) that the angler may record on the VTR form	Fish encounter	Season (6 months)	We used the Nov-Apr VTR data to estimate the size/mark-status proportions. Area 8-1 (LM = 44%, LU = 21%, SM = 26% and SU = 9%; see Table 4.7); Area 8-2 (LM = 39%, LU = 6%, SM = 51% and SU = 4%; see Table 4.8) needed to produce encounter and mortality estimates.[GTJ(7)]
Overall Fishery Impacts Estimation	Total Chinook encounters and mortalities, by size/mark-status group	Ratios of encounters and mortalities per kept Chinook	N/A	Season (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.

Table 4.2 Estimates of total fishing effort and total salmon catch (harvest and releases) during the 2016-17 winter Chinook 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	6-Nov	87	203	82	0	63	61	206
	46	7-Nov	13-Nov	43	95	43	0	33	32	108
	47	14-Nov	20-Nov	90	162	20	0	16	15	51
	48	21-Nov	27-Nov	73	146	20	0	16	15	51
	49	28-Nov	4-Dec	49	71	7	0	6	5	18
Dec	50	5-Dec	11-Dec	49	71	12	0	10	9	31
	51	12-Dec	18-Dec	44	89	4	0	3	3	9
	52	19-Dec	25-Dec	72	147	21	0	16	15	52
	53	26-Dec	31-Dec	80	181	43	0	34	32	109
Jan	1/2	1-Jan	8-Jan	24	46	5	0	4	4	14
	3	9-Jan	15-Jan	19	30	7	0	5	5	17
	4	16-Jan	22-Jan	16	31	12	0	9	9	29
	5	23-Jan	29-Jan	35	70	6	0	5	4	15
	6	30-Jan	5-Feb	17	31	6	0	5	4	15
Feb	7	6-Feb	12-Feb	35	68	8	0	6	6	21
	8	13-Feb	19-Feb	17	40	9	0	7	6	22
	9	20-Feb	26-Feb	92	180	15	0	12	11	39
	10	27-Feb	5-Mar	25	44	7	0	5	5	17
Mar	11	6-Mar	12-Mar	33	71	6	0	5	4	15
	12	13-Mar	19-Mar	44	97	20	0	15	15	50
	13	20-Mar	26-Mar	27	59	8	0	6	6	20
	14	27-Mar	2-Apr	4	11	4	0	3	3	11
Apr	15	3-Apr	9-Apr	24	41	3	0	2	2	7
	16	10-Apr	16-Apr	46	91	7	0	6	5	19
	17	21-Apr	23-Apr	173	437	29	0	23	22	74
	18	24-Apr	30-Apr	26	51	18	0	14	13	44
Sub-Total:				1244	2,563	424	0	328	313	1,066
Everett Derby				7	17	5	0	4	4	13
Stanwood Derby				22	42	6	0	5	4	15
Everett Black Mouth Derby				29	84	14	0	11	10	35
Stanwood Eagles Derby				45	68	20	0	15	15	50
Season Total:				1347	2,774	469	0	363	347	1,179
Variance:				18,626	93,838	3,324	0	40,613	13469	74,804
SE:				136	306	58	0	202	116	274
CV (%):				10	11	12	0	56	33	23
95% CI:				1,079 - 1,614	2,174 - 3,374	356 - 582	0 - 0	0 - 758	119 - 574	643 - 1,715

Table 4.3 Estimates of total fishing effort and total salmon catch (harvest and releases) during the 2016-17 winter Chinook 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	6-Nov	240	456	67	0	105	20	192
	46	7-Nov	13-Nov	101	202	48	0	76	14	138
	47	14-Nov	20-Nov	144	295	31	0	49	9	89
	48	21-Nov	27-Nov	130	278	48	0	76	14	138
	49	28-Nov	4-Dec	89	151	31	0	49	9	89
Dec	50	5-Dec	11-Dec	60	99	25	0	39	7	71
	51	12-Dec	18-Dec	101	185	33	0	52	10	95
	52	19-Dec	25-Dec	119	215	34	0	54	10	98
	53	26-Dec	31-Dec	254	542	42	0	66	12	119
Jan	1/2	1-Jan	8-Jan	69	128	16	0	25	5	45
	3	9-Jan	15-Jan	75	136	15	0	23	4	42
	4	16-Jan	22-Jan	72	135	20	0	31	6	57
	5	23-Jan	29-Jan	90	155	22	0	35	6	63
	6	30-Jan	5-Feb	72	140	16	0	25	5	45
Feb	7	6-Feb	12-Feb	104	224	13	0	20	4	37
	8	13-Feb	19-Feb	75	154	16	0	25	5	46
	9	20-Feb	26-Feb	141	295	46	0	72	13	131
	10	27-Feb	5-Mar	74	144	27	0	43	8	78
Mar	11	6-Mar	12-Mar	64	124	19	0	30	6	55
	12	13-Mar	19-Mar	102	202	32	0	51	9	92
	13	20-Mar	26-Mar	78	174	23	0	36	7	65
	14	27-Mar	2-Apr	76	130	13	0	20	4	37
Apr	15	3-Apr	9-Apr	125	222	30	0	47	9	86
	16	10-Apr	16-Apr	153	292	45	0	71	13	129
	17	21-Apr	23-Apr	76	178	17	0	28	5	50
	18	24-Apr	30-Apr	127	274	49	0	77	14	139
Sub-Total:				2811	5,531	776	0	1224	227	2,228
Everett Derby				85	186	38	0	60	11	109
Stanwood Derby				8	17	7	0	11	2	20
Everett Black Mouth Derby				17	50	10	0	16	3	29
Stanwood Eagles Derby				45	66	19	0	30	6	55
Season Total:				2966	5,850	850	0	1341	249	2,440
Variance:				39,575	140,506	7,094	0	169,418	12853	255,044
SE:				199	375	84	0	412	113	505
CV (%):				7	6	10	0	31	46	21
95% CI:				2,576 - 3,356	5,115 - 6,585	685 - 1,015	0 - 0	534 - 2,148	27 - 471	1,450 - 3,430

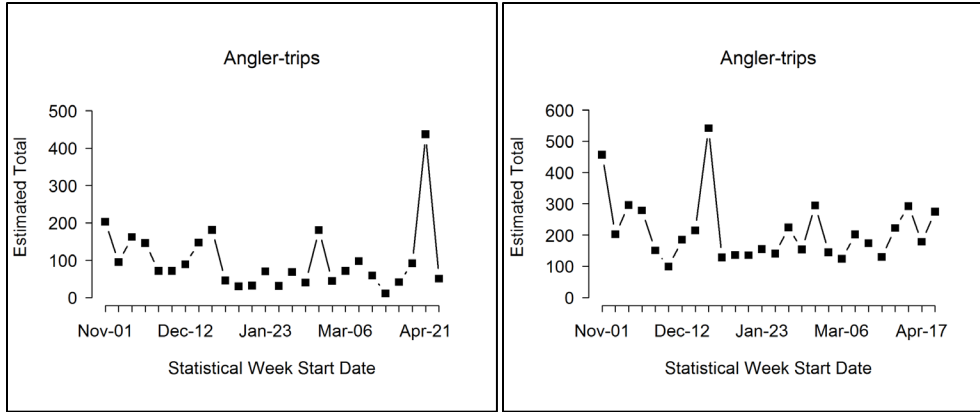


Figure 4.1 Temporal patterns in fishing effort during the 2016-17 winter Chinook MSFs in Marine Areas 8-1 (left panel) and 8-2 (right panel).

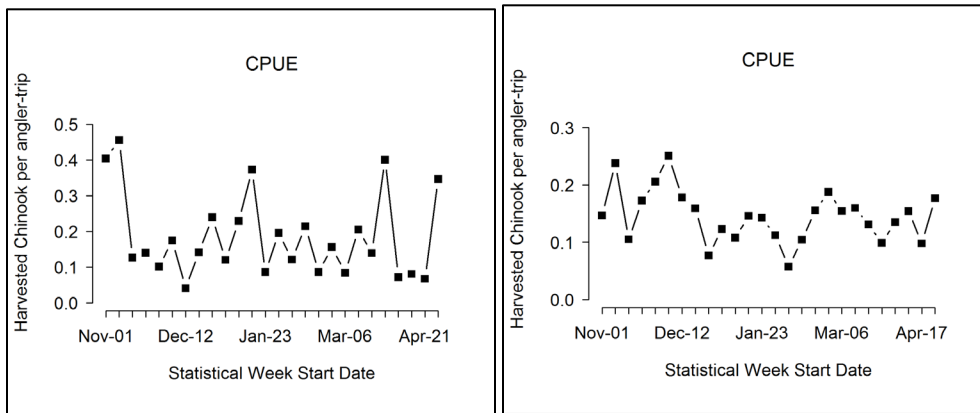


Figure 4.2 Temporal patterns in CPUE (number of Chinook landed per angler trip) during the 2016-17 winter Chinook MSFs in Marine Areas 8-1 (left panel) and 8-2 (right panel).

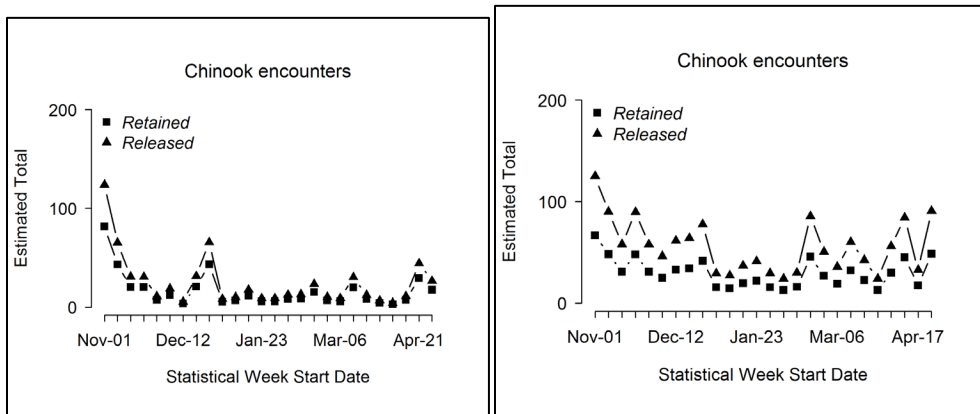


Figure 4.3 Temporal patterns in CPUE (number of Chinook landed per angler trip) during the 2016-17 winter Chinook MSFs in Marine Areas 8-1 (left panel) and 8-2 (right panel).

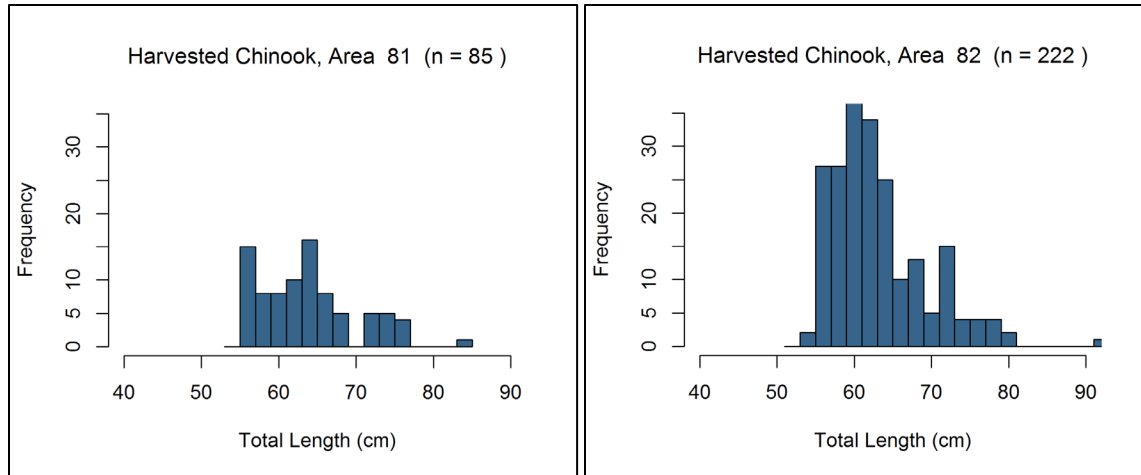


Figure 4.4 Length-frequency distributions of retained marked Chinook sampled in dockside angler interviews during the 2016-17 winter Chinook MSFs in Marine Areas 8-1 (left panel) and 8-2 (right panel).

Table 4.4 Summary of total length samples from retained Chinook salmon collected during dockside angler interviews in the 2016-17 winter Chinook MSFs in Marine Areas 8-1 (left panel) and 8-2 (right panel).

Mark Type	Number Sampled			Mark Type	Number Sampled		
	Legal-size	Sublegal-size	Total		Legal-size	Sublegal-size	Total
Marked	82	3	85	Marked	215	7	222
Unmarked	0	0	0	Unmarked	0	0	0
Total	82	3	85	Total	215	7	222

Table 4.5 Summary of CWTs recovered from Chinook salmon harvested during the 2016-17 winter Chinook 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
BC	Georgia Strait (5.3%)	R-Capilano R	H-Capilano River H	1 (5.3%)	0
WA	N Washington (5.3%)	Kendall Cr 01.0406	Kendall Cr Hatchery	1 (5.3%)	0
WA	Hood Canal (10.5%)	Finch Cr 16.0222	Hoodsport Hatchery	2 (10.5%)	0
WA	N Puget Sound (31.6%)	Tulalip Cr 07.0001	Bernie Gobin Hatch	2 (10.5%)	2
WA		Wallace R 07.0940	Wallace R Hatchery	3 (15.8%)	1
WA		Whitehorse Springs	Whitehorse Pond	1 (5.3%)	0
WA	Skagit River (21.1%)	Co Line Pd2 03.1853B	Marblemount Hatchery	2 (10.5%)	0
WA	Skagit River (21.1%)	Cascade R 03.1411	Marblemount Hatchery	2 (10.5%)	0
WA	Mid Puget Sound (21.1%)	Icy Cr 09.0125	Icy Cr Hatchery	2 (10.5%)	0
WA		Big Soos Cr 09.0072	Soos Creek Hatchery	1 (5.3%)	0
WA		Voight Cr 10.0414	Voights Cr Hatchery	1 (5.3%)	0
WA	S Puget Sound (5.3%)	Clear Cr 11.0013C	Clear Creek Hatchery	1 (5.3%)	1
Total				19	4

Table 4.6 Summary of CWTs recovered from Chinook salmon harvested during the 2016-17 winter Chinook 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	Georgia Strait (4.2%)	R-Sandy Cv	H-Sandy Cove Seapen	1 (4.2%)	0
WA	Hood Canal (4.2%)	Finch Cr 16.0222	Hoodsport Hatchery	1 (4.2%)	0
	N Puget Sound (41.7%)	Tulalip Cr 07.0001	Bernie Gobin Hatch	1 (4.2%)	1
		Wallace R 07.0940	Wallace R Hatchery	6 (25%)	1
		Whitehorse Springs	Whitehorse Pond	3 (12.5%)	0
	Skagit River (4.2%)	Cascade R 03.1411	Marblemount Hatchery	1 (4.2%)	0
	Mid Puget Sound (25%)	Big Soos Cr 09.0072	Soos Creek Hatchery	1 (4.2%)	0
	Mid Puget Sound (25%)	Voight Cr 10.0414	Voights Cr Hatchery	2 (8.3%)	0
	Mid Puget Sound (25%)	Grovers Cr 15.0299	Grovers Cr Hatchery	3 (12.5%)	3
		Clear Cr 11.0013C	Clear Creek Hatchery	3 (12.5%)	3
		Minter Cr 15.0048	Minter Cr Hatchery	1 (4.2%)	0
S Puget Sound (20.8%)	Kalama Cr 11.0017	Kalama Cr Hatchery	1 (4.2%)	0	
	Total			24	8

Table 4.7 Total Chinook encountered (retained and released) by private-boat anglers logging their trips on VTRs during the 2016-17 winter Chinook MSFs in Marine Area 8-1, 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.

Time Frame	Data Source	Effort and Sample Size	Legal		Sublegal		Totals	Mark Rate	
			AD	UM	AD	UM		Overall	Legal
Nov-Apr	Private VTR	10 1-trip VTRs, 19 Angler Trips	15	7	9	3	34	0.71	0.68
	Size/mark-status composition:		0.44	0.21	0.26	0.09			
Variance:		(0.0075)	(0.0050)	(0.0059)	(0.0024)				

Table 4.8 Total Chinook encountered (retained and released) by private-boat anglers logging their trips on VTRs during the 2016-17 winter Chinook MSFs in Marine Area 8-2, 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.

Time Frame	Data Source	Effort and Sample Size	Legal		Sublegal		Totals	Mark Rate		
			AD	UM	AD	UM		Overall	Legal	
Nov-Apr	Private VTR	13 1-trip VTRs, 27 Angler Trips	19	3	25	2	49	0.90	0.86	
	Size/mark-status composition:		0.39	0.06	0.51	0.04				
		Variance:	(0.0049)	(0.0012)	(0.0052)	(0.0008)				

Table 4.9 Summary of season-wide fishery impact estimates for the 2016-17 winter Chinook 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	520	452	68	10	463	3,785	62	342 - 583	13
Legal UM	243	0	243	36	36	218	15	7 - 65	41
Sublegal AD	312	17	295	59	76	598	24	28 - 124	32
Sublegal UM	104	0	104	21	21	151	12	0 - 45	59
Total	1,179	469	710	126	595	4,752	69	460 - 730	12

Size/mark group	Encounters	Retained	Released	Release Mortality	Total Mortality	Var	SE	95% CI	CV (%)
Legal AD	946	823	123	18	842	8,384	92	662 - 1,021	11
Legal UM	149	0	149	22	22	175	13	0 - 48	59
Sublegal AD	1,245	27	1,218	244	270	3935	63	147 - 393	23
Sublegal UM	100	0	100	20	20	203	14	0 - 48	72
Total	2,440	850	1,590	304	1,154	12,698	113	933 - 1,375	10

Table 4.10 Comparison of modeled (FRAM model run 2916) and estimated total Chinook encounters for the 2016-17 winter Chinook 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	1,834	314	1,520	3
	AD	4,291	944	3,347	821
	Total	6,125	1,258	4,867	824
	% Marked	70	75	69	100
	UM	596	392	204	0
	AD	3023	1466	1557	1319

Estimated (Creel) Encounters	Total	3,619	1858	1761	1319
	% Marked	84	79	88	100

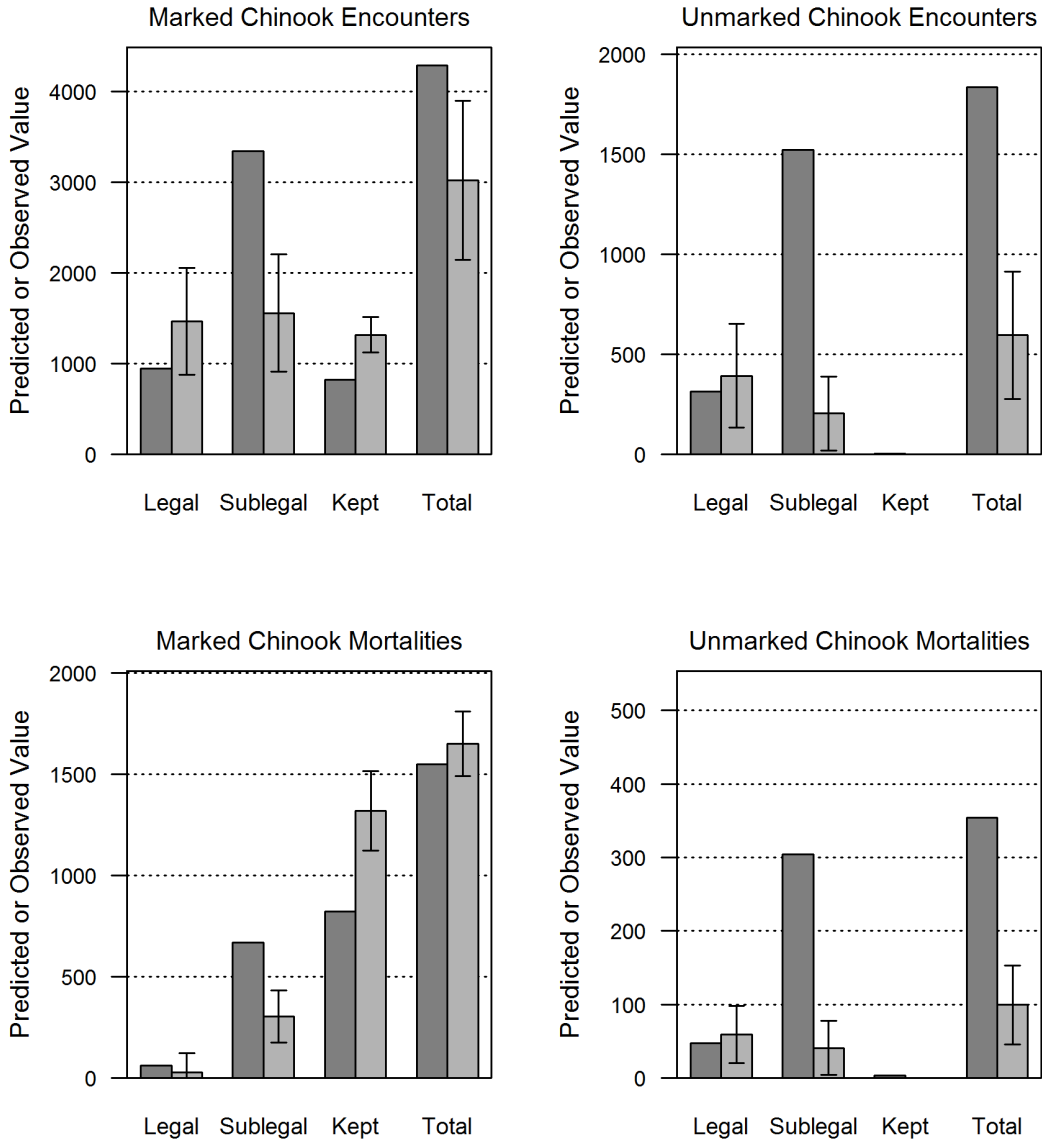


Figure 4.5 Comparison of modeled (FRAM model run 2016) and estimated total Chinook encounters and mortalities for the 2016-17 winter Chinook MSFs in Marine Areas 8-1 and 8-2, combined. Error bars represent approximate 95% confidence intervals for field estimates.

Table 4.11 Comparison of modeled (FRAM model run 2916) and estimated total Chinook mortalities for the 2016-17 winter Chinook 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)	354	1,550	1,904	100	1,650	1,750
Released Legal	47	60	107	59	29	87
Released Sublegal	304	669	973	41	303	343
Landed Only	3	821	824	0	1,319	1,319

Table 4.12 Summary of double-index tagged (DIT) Chinook kept by anglers, and estimated total mortality of unmarked DIT Chinook due to hook-and-release impacts resulting from the 2016-17 winter Chinook MSFs in Marine Areas 8-1 (*upper panel*) and 8-2 (*lower panel*). AD = marked (adipose-clipped), UM = unmarked.

Hatchery	Brood Year	DITs Obs'd	AD DIT Harvest		UM DIT Enc.	UM DIT Mortality		
			Est.	var(Est.)		Est.	var(Est.)	SE(Est.)
Bernie Gobin Hatch	2013	1	5.5	24.92	5.5	0.5	0.245	0.5
Bernie Gobin Hatch	2014	1	5.5	24.92	5.3	0.5	0.234	0.48
Clear Creek Hatchery	2014	1	5.5	24.92	5.6	0.6	0.256	0.51
Wallace R Hatchery	2014	1	5.5	24.92	5.6	0.6	0.254	0.5
Total		4	22.1	99.67	22	2.2	0.989	1.99

Hatchery	Brood Year	DITs Obs'd	AD DIT Harvest		UM DIT Enc.	UM DIT Mortality		
			Est.	var(Est.)		Est.	var(Est.)	SE(Est.)
Bernie Gobin Hatch	2014	1	3.8	10.83	3.7	0.4	0.102	0.32
Clear Creek Hatchery	2014	3	11.5	32.49	11.6	1.2	0.334	1
Grovers Cr Hatchery	2014	3	11.5	32.49	11.8	1.2	0.344	1.02
Wallace R Hatchery	2013	1	3.8	10.83	3.9	0.4	0.112	0.33
Total		8	30.6	86.64	31.1	3.1	0.891	2.67

Table 4.13 Monthly sample rates (Total retained Chinook sampled / Estimated retained Chinook) for the 2016-17 winter Chinook 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	01 Nov - 27 Nov	171	0	171	33	0	33	19.30%
December	49 - 53.1	28 Nov - 01 Jan	44	0	44	12	0	12	27.20%
January	2-5	02 Jan - 29 Jan	30	0	30	6	0	6	20.00%
February	6-9	30 Jan - 26 Feb	38	0	38	4	0	4	10.50%
March	10-14	27 Feb - 02 Apr	59	0	59	17	0	17	28.70%
April	15 - 18	03 Apr - 30 Apr	77	0	77	13	0	13	16.80%
Season Total			420	0	420	85	0	85	20.30%

Time period			Estimated Retained Chinook			Number of Chinook sampled			Sample Rate
Month	Stat Weeks	Dates	AD	UM	Total	AD	UM	Total	
November	45 - 48	01 Nov - 27 Nov	232	0	232	55	0	55	23.70%
December	49 - 53.1	28 Nov - 01 Jan	123	0	123	28	0	28	22.80%
January	2-5	02 Jan - 29 Jan	72	0	72	24	0	24	33.30%
February	6-9	30 Jan - 26 Feb	90	0	90	29	0	29	32.10%
March	10-14	27 Feb - 02 Apr	124	0	124	53	0	53	42.80%
April	15 - 18	03 Apr - 30 Apr	160	0	160	33	0	33	20.60%
Season Total			801	0	801	222	0	222	27.70%

Table 4.14 Fishery-total estimates of retained and released salmon (other than Chinook) during the 2016-17 winter Chinook 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 Released	8-1 Released				
			Coho.AD	Coho.AD .rel	Coho.UM. rel	Coho.UK.rel	Cutthroat.rel	Unknown.sal.rel
45	1-Nov	6-Nov	0	4	0	15	0	53
46	7-Nov	13-Nov	0	3	0	0	0	0
47	14-Nov	20-Nov	0	0	0	0	0	12
48	21-Nov	27-Nov	0	0	0	0	0	10
49	28-Nov	4-Dec	0	0	0	0	0	0
50	5-Dec	11-Dec	0	0	0	0	0	0
51	12-Dec	18-Dec	6	0	0	5	0	15
52	19-Dec	25-Dec	6	0	0	3	0	15
53	26-Dec	31-Dec	0	9	16	0	5	4
1/2	1-Jan	8-Jan	0	0	0	0	5	0
3	9-Jan	15-Jan	0	3	0	0	0	0
4	16-Jan	22-Jan	0	0	0	0	0	0
5	23-Jan	29-Jan	0	0	0	0	0	0
6	30-Jan	5-Feb	0	0	0	4	0	0
7	6-Feb	12-Feb	0	4	0	0	0	0
8	13-Feb	19-Feb	0	7	0	0	0	4
9	20-Feb	26-Feb	0	0	0	0	0	0
10	27-Feb	5-Mar	0	0	0	6	0	0
11	42800	12-Mar	0	0	0	0	0	4
12	13-Mar	19-Mar	0	0	0	0	0	19
13	20-Mar	26-Mar	0	0	0	0	0	0
14	27-Mar	2-Apr	0	2	0	0	0	6
15	3-Apr	9-Apr	0	0	0	0	0	0
16	10-Apr	16-Apr	0	0	2	0	0	0
17	21-Apr	23-Apr	0	2	0	0	0	0
18	24-Apr	30-Apr	0	0	0	0	0	16
Season Total:			13	36	18	34	11	158
Variance:			143	49	42	62	97	1459
Standard Error:			12	7	6	8	10	38
CV (%):			95	20	36	23	93	24
95% CI:			0 - 36	22 - 49	5 - 31	18 - 49	0 - 30	84 -233

Table 4.15 Summary of the total number of anglers intercepted during on-the-water surveys conducted for the 2016-17 winter Chinook MSFs in Marine Areas 8-1 and 8-2. Bold sites indicate those included in the dockside sample frame.

Area	Site Name	Total Anglers	Season Total (unadjusted) Size Measure
8-1	Maplegrove Ramp, Camano Is	4	0.8000
8-1	Oak Harbor Marina & Public Ramp	1	0.2000
Area 8-1 Total Anglers		5	1
8-2	Bayside Marina	11	0.1078
8-2	Camano Island State Park	24	0.2353
8-2	Dagmar's Landing	5	0.0490
8-2	Edmonds Dry Storage	3	0.0294
8-2	Everett Marina	8	0.0784
8-2	Everett Ramp	39	0.3824
8-2	Langley Marina/Ramp	7	0.0686
8-2	Mukilteo Lighthouse Park	2	0.0196
8-2	Private	3	0.0294
Area 8-2 Total Anglers		102	1

Table 4.16 Season-total estimates of Chinook encounters by size/mark-status and total estimates of angler effort, summarized for all seasons to date of the Area 8-1 and 8-2 Winter Chinook 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 Chinook				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	Nov 1, 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
8-2	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

5) Marine Area 9 Winter Mark-Selective Chinook Fishery

The Washington Department of Fish and Wildlife (WDFW) implemented a tenth consecutive winter Chinook MSF in Marine Area 9 from November 1-30, 2016 and January 16– April 15, 2017. [GTJ(8)] Although the fishery was scheduled in month of November, no fishery took place during the month due to presence of sub-legal salmon in the area. WDFW’s Puget Sound Sampling Unit (PSSU) implemented an intensive monitoring program in Area 9 throughout the season in order to collect the data needed to estimate key parameters characterizing the fishery and its impacts on unmarked salmon. Sampling activities included 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 MSF from November 1-30, 2016 and January 16-April 15, 2017. 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] [GTJ(9)] 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 February 18-19 [GTJ(10)] 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 5.1 Sampling/estimation details on target parameters associated with the overall Area 9 winter Chinook 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 5.13 ; $n=12$ surveys conducted out of $N=118$ days available in the season). Since mean sample fractions were similar between the Nov and Jan-Apr time strata, one season total sample fraction was calculated and used to calculate estimates of Chinook encounters and mortality.][GTJ(11)]
Test Fishing	Size (legal/sublegal) and mark-status (marked/unmarked) composition of encountered Chinook	Chinook length, age, and DNA-based ² stock composition; species composition of non-Chinook encounters	Fish encounter	Season	We used the Nov, Feb-Apr test fishery data to estimate the size/mark-status proportions (Nov: LM = 55%, LU = 3%, SM = 33% and SU = 9%, Jan-Apr: LM = 40%, LU = 13%, SM = 42% and SU = 6%; see Table 5.6)/ needed to produce encounter and mortality estimates.][GTJ(12)]
Voluntary Trip Reports (VTRs)	Size (legal/sublegal) and mark-status (marked/unmarked) composition of encountered Chinook	Encounter data for non-Chinook species (e.g., Coho) that the angler may record on the VTR form	Fish encounter	Season	VTR data (Table 5.5) 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 encounters and mortalities, by size/mark-status group	Ratios of encounters and mortalities per kept Chinook	N/A	Season	Estimated on a monthly time step but considered at the season-total level.
Coded-wire tag (CWT) Impacts Estimation	Marked/unmarked double-index tag (DIT) encounters and mortalities	N/A	N/A	Season	The temporal resolution of DIT impacts is constrained by the total number of tags recovered.

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

Table 5.2 Estimates of total fishing effort and total salmon catch (harvest and releases) during the 2016-17 winter Chinook 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	6-Nov	567	1163	363	0	264	87	714
	46	7-Nov	13-Nov	304	584	306	0	222	73	601
	47	14-Nov	20-Nov	389	737	259	0	188	62	509
	48	21-Nov	27-Nov	319	591	218	0	158	52	428
	49	28-Nov	30-Nov	124	223	108	0	79	26	213
Sub-Total:				1703	3,299	1255	0	912	299	2,465
Everett Derby				146	361	120	0	87	29	236
November Total:				1849	3,660	1375	0	999	327	2,701
Feb	8	16-Feb	19-Feb	436	885	259	3	338	133	734
	9	20-Feb	26-Feb	610	1123	193	0	252	102	548
	10	27-Feb	5-Mar	80	172	51	0	67	27	144
Mar	11	6-Mar	12-Mar	99	199	46	0	60	24	129
	12	13-Mar	19-Mar	328	686	148	0	193	78	418
	13	20-Mar	26-Mar	117	249	48	0	62	25	135
	14	27-Mar	2-Apr	193	363	127	0	166	67	361
Apr	15	3-Apr	9-Apr	318	595	252	0	329	133	713
	16	10-Apr	15-Apr	338	620	276	0	361	146	782
Sub-Total:				2518	4,892	1400	3	1828	735	3,965
Olympic Peninsula Derby				71	214	59	0	77	31	167
Everett Derby				79	219	28	0	37	15	79
Feb 16 - April 15 Total:				2668	5,325	1487	3	1941	780	4,212
Season Total:				4,517	8,985	2,862	3	2,940	1,107	6,913
Variance:				143,044	531,625	68,478	4	530,533	64,877	859,125
SE:				378	729	262	2	728	255	927
CV (%):				8%	8%	9%	67%	25%	23%	13%
95% CI:				3,776-5,258	7,556-10,414	2,349-3,375	1-7	1,512-4,368	608-1,606	5,096-8,730

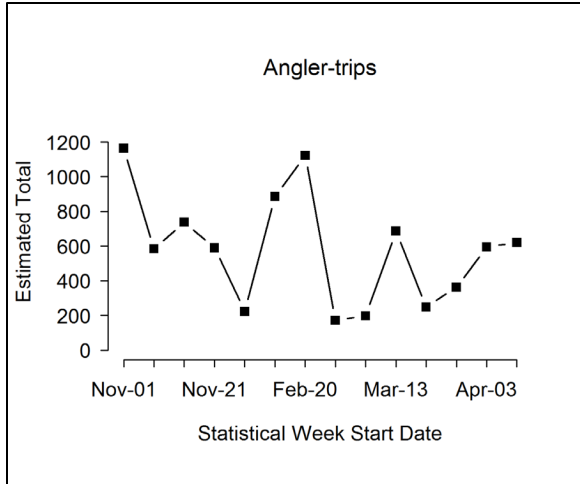


Figure 5.1 Temporal patterns in fishing effort during the 2016-17 winter Chinook MSF in Marine Area 9.

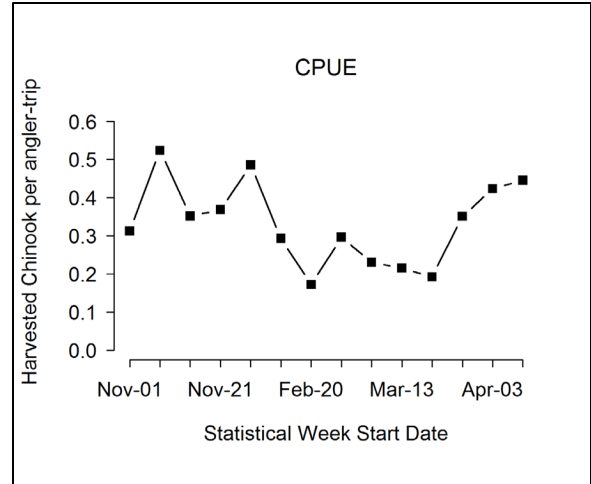


Figure 5.3 Temporal patterns in Chinook encounters (number retained and released) during the 2016-17 winter Chinook MSF in Marine Area 9.

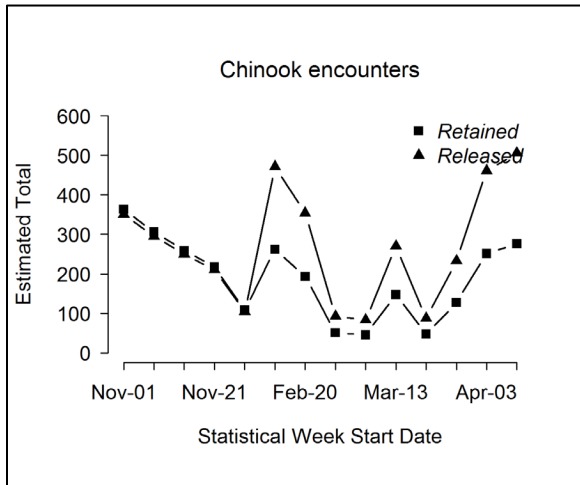


Figure 5.2 Temporal patterns in CPUE (number of Chinook landed per angler trip) during the 2016-17 winter Chinook MSF in Marine Area 9.

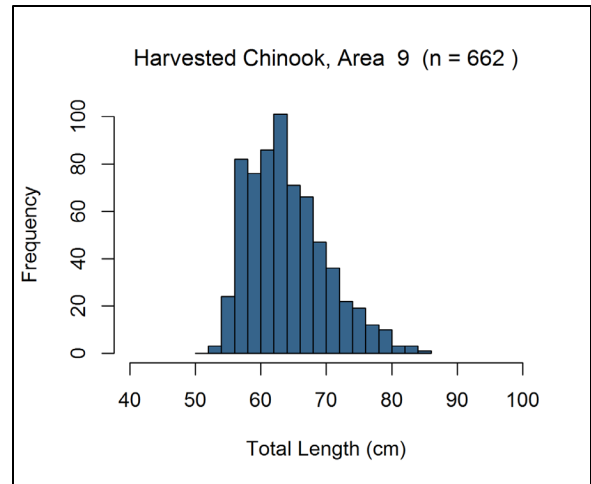


Figure 5.4 Length-frequency distribution of retained marked Chinook sampled in dockside angler interviews during the 2016-17 winter Chinook MSF in Marine Area 9.

Table 5.3 Summary of total length samples from retained Chinook salmon collected during dockside angler interviews in the during the 2016-17 winter Chinook MSF in Area 9.

Mark Type	Number Sampled November		
	Legal-size	Sublegal-size	Total
Marked	221	16	237
Unmarked	0	0	0
Total	221	16	237
Number Sampled Feb 16- Apr 15			
Marked	414	11	425
Unmarked	1	0	1
Total	415	11	426
Total Season Sampled			
Marked	635	27	662
Unmarked	1	0	1
Total	636	27	663

Table 5.4 Summary of CWTs recovered from Chinook salmon harvested during the 2016-17 winter Chinook 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
BC	Georgia Strait (5.3%)	R-Sandy Cv	H-Sandy Cove Seapen	2 (5.3%)	0
WA	N Washington (7.9%)	East Sound Bay (San)	Glenwood Springs	1 (2.6%)	0
		Friday Cr 03.0017	Samish Hatchery	2 (5.3%)	1
	Hood Canal (15.8%)	Finch Cr 16.0222	Hoodsport Hatchery	5 (13.2%)	0
	Hood Canal (15.8%)	Purdy Cr 16.0005	George Adams Hatchery	1 (2.6%)	1
	N Puget Sound (31.6%)	Tulalip Cr 07.0001	Bernie Gobin Hatch	2 (5.3%)	2
		Wallace R 07.0940	Wallace R Hatchery	7 (18.4%)	4
		Whitehorse Springs	Whitehorse Pond	3 (7.9%)	0
	Skagit River (15.8%)	Cascade R 03.1411	Marblemount Hatchery	6 (15.8%)	2
	Mid Puget Sound (13.2%)	Icy Cr 09.0125	Icy Cr Hatchery	1 (2.6%)	0
	Mid Puget Sound (13.2%)	Big Soos Cr 09.0072	Soos Creek Hatchery	4 (10.5%)	1
	S Puget Sound (10.5%)	Clear Cr 11.0013C	Clear Creek Hatchery	2 (5.3%)	2
Minter Cr Tr 15.0051		Hupp Springs Rearing	2 (5.3%)	0	
Total				38	13

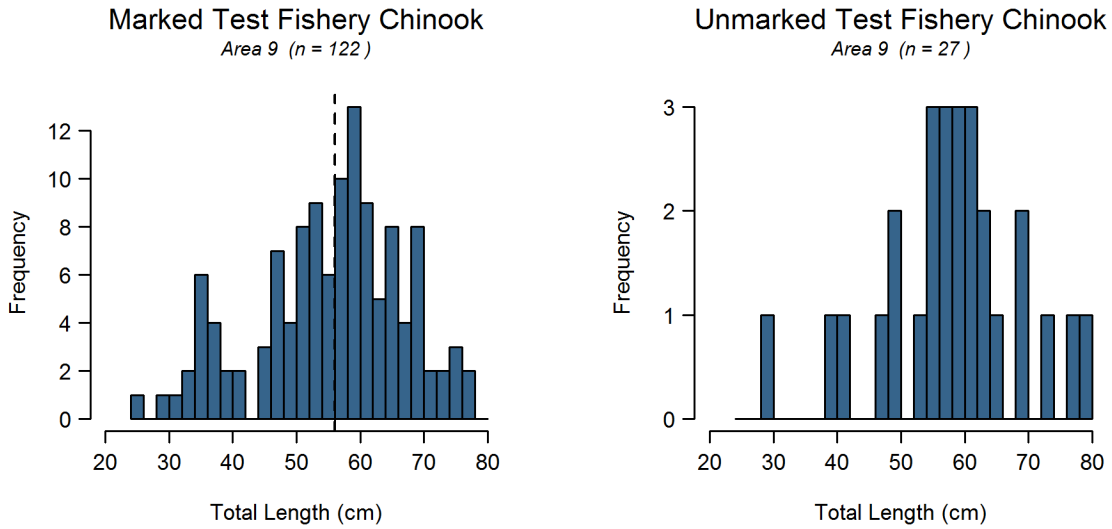


Figure 5.5 Length-frequency distributions of marked (*left panel*) and unmarked (*right panel*) Chinook encountered by test fishers during the 2016-17 winter Chinook MSF in Marine Area 9. The vertical dashed line in the left panel corresponds to the legal size limit (22 in or 56 cm).

Table 5.5 Total Chinook 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 2016-17 winter Chinook 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
Pooled Private/Charter VTR	86 1-trip VTRs, 252 Angler Trips	131	16	88	14	249	0.88	0.89
Size/mark-status composition:		0.53	0.06	0.35	0.06			
Variance:		(0.0010)	(0.0002)	(0.0009)	(0.0002)			

Due the assumed higher quality of the test fishing data, only test fishing data was used in the estimate.

Table 5.6 Composition of test fishery Chinook encounters and associated mark-rate and size/mark-status proportion estimates for the 2016-17 winter Chinook MSF in Marine Area 9. AD = marked (adipose-clipped), UM = unmarked.

Month	Stat Week	Legal		Sublegal		Total
		AD	UM	AD	UM	
Nov	45	3	1	7	1	12
	46	13	0	4	1	18
	47	2	0	0	1	3
	November Total	18	1	11	3	33
	Size/mark-status composition:	0.55	0.03	0.33	0.09	1
	Legal size mark rate	0.95				
	Overall mark rate	0.88				
Feb	8	6	1	5	0	12
	9	2	1	1	1	5
	10	1	1	3	1	6
Mar	11	1	2	6	0	9
	12	4	1	2	0	7
	13	5	0	9	1	15
	14	8	2	6	2	18
Apr	15	3	2	1	0	6
	16	4	1	3	0	8
Feb-Apr	Feb-Apr Total	34	11	36	5	86
	Size/mark-status composition:	0.40	0.13	0.42	0.06	1
	Legal size mark rate	0.76				
	Overall mark rate	0.81				
Season	Season Total	52	12	47	8	119
	Size/mark-status composition:	0.60	0.14	0.55	0.09	1
	Legal size mark rate	0.81				
	Overall mark rate	0.83				

Table 5.7 Summary of season-wide fishery impact estimates for the 2016-17 winter Chinook 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	3,139	2,731	408	61	2,792	72,798	270	2,263 - 3,321	10
Legal UM	621	3	617	93	96	946	31	36 - 156	32
Sublegal AD	2,664	131	2,532	506	638	11,101	105	431 - 844	17
Sublegal UM	490	0	490	98	98	1350	37	26 - 170	37
Total	6,913	2,865	4,048	758	3,623	86,194	294	3,048 - 4,199	8

Table 5.8 Comparison of modeled (FRAM model run 2916) and estimated total Chinook encounters for the 2016-17 winter Chinook 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	1250	335	915	7
	AD	4,831	1,201	3,630	1045
	Total	6,081	1,536	4,545	1052
	% Marked	79	78	80	99
Estimated (Creel) Encounters	UM	1,111	621	490	3
	AD	5,802	3,139	2,664	2,862
	Total	6,913	3,759	3,154	2,865
	% Marked	84	83	84	100

Table 5.9 Summary of double-index tagged (DIT) Chinook kept by anglers, and estimated total mortality of unmarked DIT Chinook due to hook-and-release impacts resulting from the 2016-17 winter Chinook 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)	239	1,847	2,086	194	3,429	3,623
Released Legal	49	76	125	93	61	154
Released Sublegal	183	726	909	98	506	605
Landed Only	7	1045	1052	3	2,862	2,865

Table 5.10 Summary of double-index tagged (DIT) Chinook kept by anglers, and estimated total mortality of unmarked DIT Chinook due to hook-and-release impacts resulting from the 2016-17 winter Chinook MSF in Marine Area 9. AD = marked (adipose-clipped), UM = unmarked.

Hatchery	Brood Year	DITs Obs'd	AD DIT Harvest		UM DIT Enc.	UM DIT Mortality		
			Est.	var(Est.)		Est.	var(Est.)	SE(Est.)
Bernie Gobin Hatch	2014	2	7	17.48	6.8	0.7	0.164	0.57
Clear Creek Hatchery	2013	1	3.5	8.74	3.5	0.3	0.086	0.29
Clear Creek Hatchery	2014	1	3.5	8.74	3.5	0.4	0.09	0.3
George Adams Hatchery	2014	1	3.5	8.74	3.5	0.4	0.088	0.3
Marblemount Hatchery	2012	1	3.5	8.74	3.6	0.4	0.091	0.3
Marblemount Hatchery	2013	1	3.5	8.74	3.5	0.4	0.088	0.3
Samish Hatchery	2013	1	3.5	8.74	3.5	0.4	0.088	0.3
Soos Creek Hatchery	2013	1	3.5	8.74	3.5	0.3	0.087	0.3
Wallace R Hatchery	2012	1	3.5	8.74	3.5	0.4	0.088	0.3
Wallace R Hatchery	2013	3	10.5	26.22	10.7	1.1	0.271	0.9
Total		13	45.5	113.63	45.5	4.6	1.14	3.85

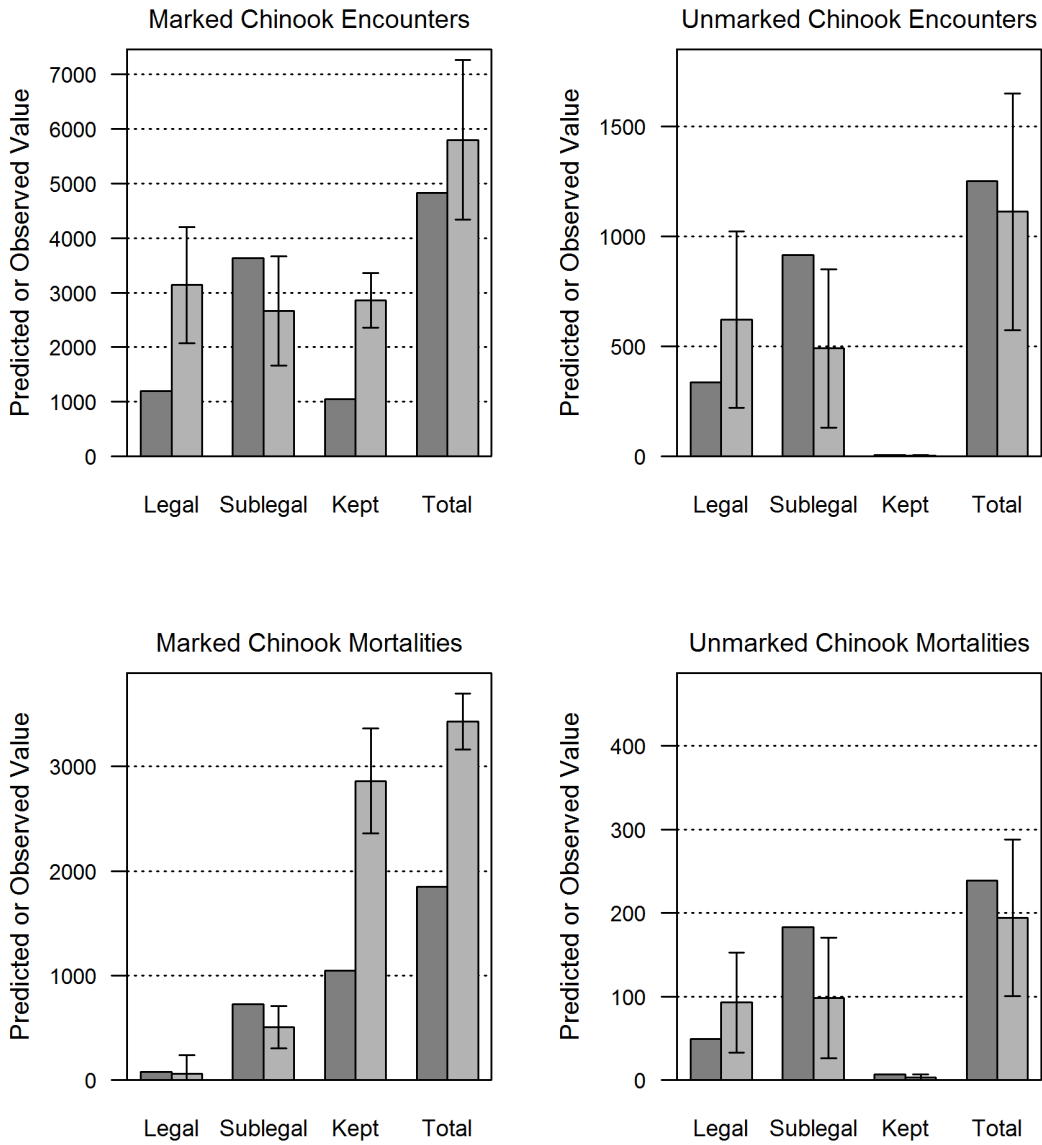


Figure 5.6 Comparison of modeled (FRAM model run 2916) and estimated total Chinook encounters and mortalities for the 2016-17 winter Chinook MSF in Marine Area 7. Error bars represent approximate 95% confidence intervals for field estimates

Table 5.11 Monthly sample rates (Total retained Chinook sampled¹ / Estimated retained Chinook) in the 2016-17 winter Chinook MSF in Marine Area 9.

Time period			Estimated Retained Chinook			Number of Chinook sampled			Sample Rate
Month	Stat Weeks	Dates	AD	UM	Total	AD	UM	Total	
November	45-49	01 Nov - 30 Nov	1375	0	1375	237	0	237	17.20%
February	6-9	16 Feb - 26 Feb	512	3	515	142	1	143	27.80%
March	10-14	27 Feb - 02 Apr	448	0	448	154	0	154	34.40%
April	15 - 16	03 Apr - 15 Apr	528	0	528	129	0	129	24.40%
Season Total			2,863	3	2,866	662	1	663	23.13%

^{1/} Number of retained Chinook sampled includes all retained Chinook inspected for CWTs, from all sites sampled during the winter 2016-17 Area 9 Chinook 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 Fishery-total estimates of retained and released salmon (*other than Chinook*) during the 2016-17 winter Chinook 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				
			Chum	Coho AD	Coho UM	Coho UK	Chum	Unk Salmon
45	1-Nov	6-Nov	3	16	3	57	6	274
46	7-Nov	13-Nov	0	4	4	4	4	59
47	14-Nov	20-Nov	0	10	11	3	3	32
48	21-Nov	27-Nov	0	0	4	0	0	13
49	28-Nov	30-Nov	0	0	3	0	0	10
8	16-Feb	19-Feb	0	0	0	3	0	53
9	20-Feb	26-Feb	0	19	0	3	0	30
10	42793	5-Mar	0	0	0	0	0	0
11	6-Mar	12-Mar	0	0	0	0	0	0
12	13-Mar	19-Mar	0	0	0	6	0	13
13	20-Mar	26-Mar	0	0	0	3	0	0
14	27-Mar	2-Apr	0	0	0	3	0	0
15	3-Apr	9-Apr	0	0	0	0	0	19
16	10-Apr	15-Apr	0	0	0	0	0	0
Season Total:			3	49	25	82	13	503
Variance:			4	174	115	657	47	21,999
Standard Error:			2	13	11	26	7	148
CV (%):			67%	27%	43%	31%	53%	29%
95% CI:			1-7	23-75	4-46	32-132	1-26	212-794

Table 5.13 Summary of aerial survey and dockside data used to estimate the fraction of effort captured in the four-site sample frame during the 2016-17 winter Chinook 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_{yijk}	
4-Nov	WE	9:50	10:16	90	69	45	138	0.500
17-Nov	WD	10:35	11:02	28	30	14	60	0.500
18-Nov	WE	10:31	11:00	50	36	21	86	0.420
21-Nov	WD	11:43	12:07	43	27	15	77	0.349
25-Feb	WE	1:48	2:24	79	109	49	176	0.620
4-Mar	WE	12:35	13:05	32	25	13	62	0.406
12-Mar	WE	12:30	13:08	33	23	14	54	0.424
17-Mar	WE	11:55	12:14	35	26	15	61	0.429
19-Mar	WE	11:01	11:32	124	80	62	160	0.500
1-Apr	WE	9:27	9:54	38	33	21	60	0.553
9-Apr	WE	9:42	10:26	63	49	35	88	0.556
11-Apr	WD	9:56	10:20	51	37	20	94	0.392
Season Totals:				666	544	324	1116	
Mean:				56	45	27	93	0.4707
St Dev:				29	27	17	42	0.080
CV(%):				52.2%	59.5%	61.6%	45.2%	17.0%

Table 5.14 Season-total estimates of Chinook encounters by size/mark-status and total estimates of angler effort, summarized for all seasons to date of the Area 9 Winter Chinook 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	1204	8,290
Nov 1-30, 2016 & Jan 16 - Apr 15, 2017	8,985	2,731	3	131	0	408	618	2,533	491	6,913

6) **Marine Area 10 Winter Mark-Selective Chinook Fishery**[GTJ(13)]

The Washington Department of Fish and Wildlife (WDFW) implemented an tenth consecutive winter Chinook MSF in Marine Area 10 from November 1, 2016 through January 23, 2017. WDFW's Puget Sound Sampling Unit (PSSU) implemented an intensive monitoring program in Area 10 throughout [GTJ(14)]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 MSF from November 1, 2016 through January 23, 2017. **Due to a very low legal marked encounter rate in the Area 10 test fishery and returned VTRs, variance numbers are very high for encounters and mortalities in this fishery. All encounter and mortality information in this section should be considered preliminary until catch record card data is available.**

Table 6.1 Sampling/estimation details on target parameters associated with the overall Area 10 winter Chinook 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 4 boat surveys were conducted during the three week fishery. The results of these surveys were incorporated into multi-year site-weight averages.[GTJ(15)]
Test Fishing	Size (legal/sublegal) and mark-status composition (marked, unmarked) of encountered Chinook	Chinook length, age, and DNA-based ² stock composition; species composition of non-Chinook encounters	Fish encounter	Season (4 months)	Season-total size/mark-status proportions from the test fishery data were used to estimate total Chinook encounters and associated impacts; LM=9%, LU=3%, SM=64%, SU=24%. (See Table 6.5).[GTJ(16)]
Voluntary Trip Reports (VTRs)	Size (legal/sublegal) and mark-status composition (marked, unmarked) of encountered Chinook	Encounter data for non-Chinook species (e.g., Coho) that the angler may record on the VTR form	Fish encounter	Season (4 months)	Although VTRs could be combined with test fishing data, p-value (0.36), the combined VTR and test fishing sample size was not sufficient. VTR data (Table 6.6) 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 encounters and mortalities, by size/mark-status group	Ratios of encounters and mortalities per kept Chinook	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.

Draft; November 20, 2017

Table 6.2 Estimates of total fishing effort and total salmon catch (harvest and releases) during the 2016-17 winter Chinook 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	6-Nov	363	632	38	0	305	129	472
	46	7-Nov	13-Nov	111	123	22	0	175	74	270
	47	14-Nov	20-Nov	63	111	6	0	47	20	73
	48	21-Nov	27-Nov	64	141	2	0	17	7	26
	49	28-Nov	4-Dec	116	136	25	0	197	83	305
Dec	50	5-Dec	11-Dec	88	88	23	0	181	76	280
	51	12-Dec	18-Dec	38	84	0	0	0	0	0
	52	19-Dec	25-Dec	46	100	26	0	210	89	325
	53	26-Dec	31-Dec	91	167	22	0	174	73	268
Jan	2	2-Jan	8-Jan	41	79	17	0	139	59	215
	3	9-Jan	15-Jan	67	96	43	0	347	146	537
	4	16-Jan	22-Jan	61	82	6	0	48	20	74
	5	23-Jan	23-Jan	3	3	0	0	0	0	0
Season Total:				1,153	1,841	230	0	1840	776	2,846
Variance:				52,526	148,617	4,743	0	1,184,806	197,078	2,735,566 [GTJ(17)]
SE:				229	386	69	0	1088	444	1654
CV (%):				20	21	30	0	59	57	58
95% CI:				703 - 1,602	1,085 - 2,597	95 - 365	0 - 0	0 - 3,973	0 - 1,646	0 - 6,088

Table 6.3 Summary of total length samples from retained Chinook salmon collected during dockside angler interviews in the 2016-17 winter Chinook MSF in Marine Area 10.

Mark Type	Number Sampled		
	Legal-size	Sublegal-size	Total
Marked	43	1	44
Unmarked	0	0	0
Total	43	1	44

Table 6.4 Summary of CWTs recovered from Chinook salmon harvested during the 2016-17 winter Chinook 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	Georgia Strait (33.3%)	R-Cowichan R	H-Cowichan River H	1 (33.3%)	0
WA	Hood Canal (33.3%)	Finch Cr 16.0222	Hoodspout Hatchery	1 (33.3%)	0
	Skagit River (33.3%)	Cascade R 03.1411	Marblemount Hatchery	1 (33.3%)	0
Total				3	0

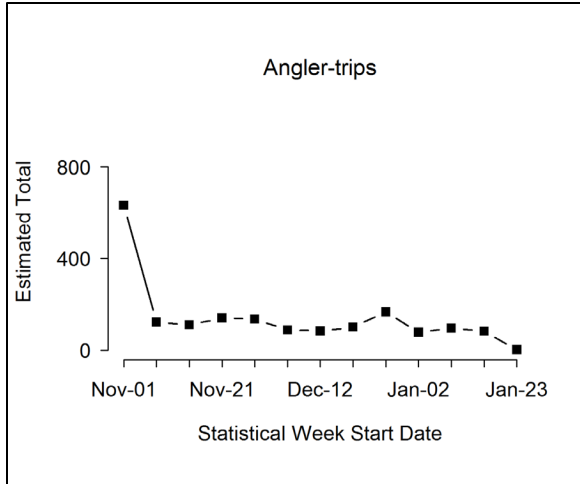


Figure 6.1 Temporal patterns in fishing effort during the 2016-17 winter Chinook MSF in Marine Area 10.

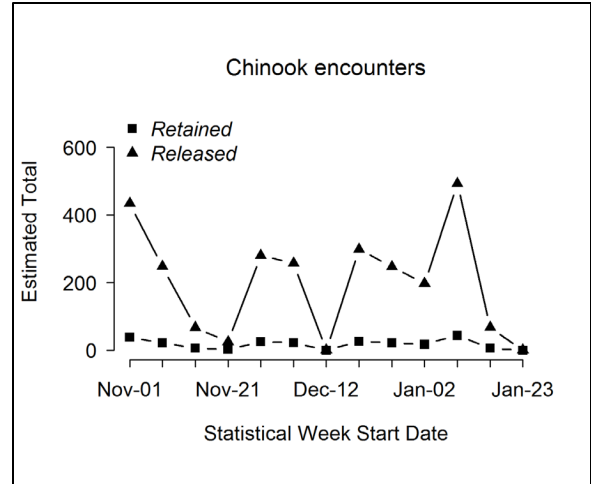


Figure 6.3 Temporal patterns in Chinook encounters (number retained and released) during the 2016-17 winter Chinook MSF in Marine Area 10.

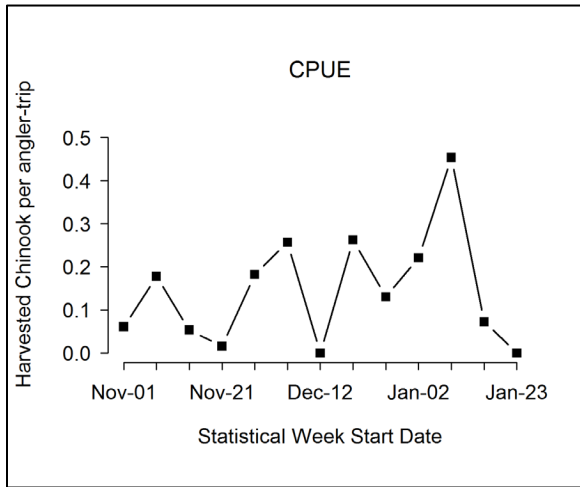


Figure 6.2 Temporal patterns in CPUE (number of Chinook landed per angler trip) during the 2016-17 winter Chinook MSF in Marine Area 10.

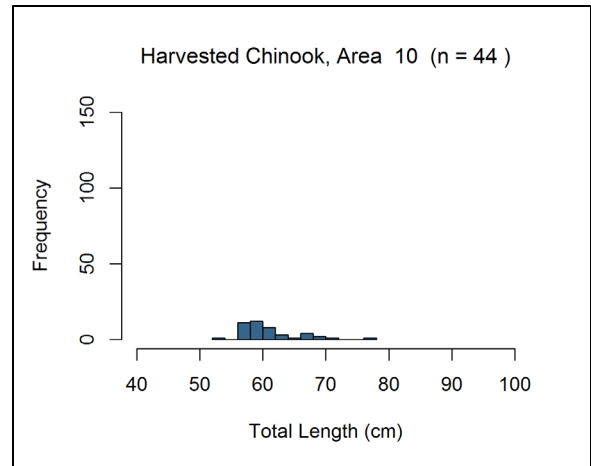


Figure 6.4 Length-frequency distribution of retained marked Chinook sampled in dockside angler interviews during the 2016-17 winter Chinook MSF in Marine Area 10.

Table 6.5 Composition of test fishery Chinook encounters and associated mark-rate and size/mark-status proportion estimates for the 2016-17 winter Chinook MSF in Marine Area 10. AD = marked (adipose-clipped), UM = unmarked.

Month	Stat Week	Legal		Sublegal		Total
		AD	UM	AD	UM	
Nov	46	0	0	3	0	3
	47	4	1	6	4	15
	48	0	0	2	0	2
	49	0	0	8	3	11
Dec	50	0	0	1	1	2
	51	0	0	7	1	8
	52	0	0	4	0	4
	53	0	1	2	3	6
Jan	2	1	0	4	1	6
	3	0	0	1	1	2
	4	1	0	4	2	7
Total		6	2	42	16	66
Size/mark-status composition:		0.09	0.03	0.64	0.24	
Legal size mark rate:		0.7500				
Overall mark rate:		0.7273				

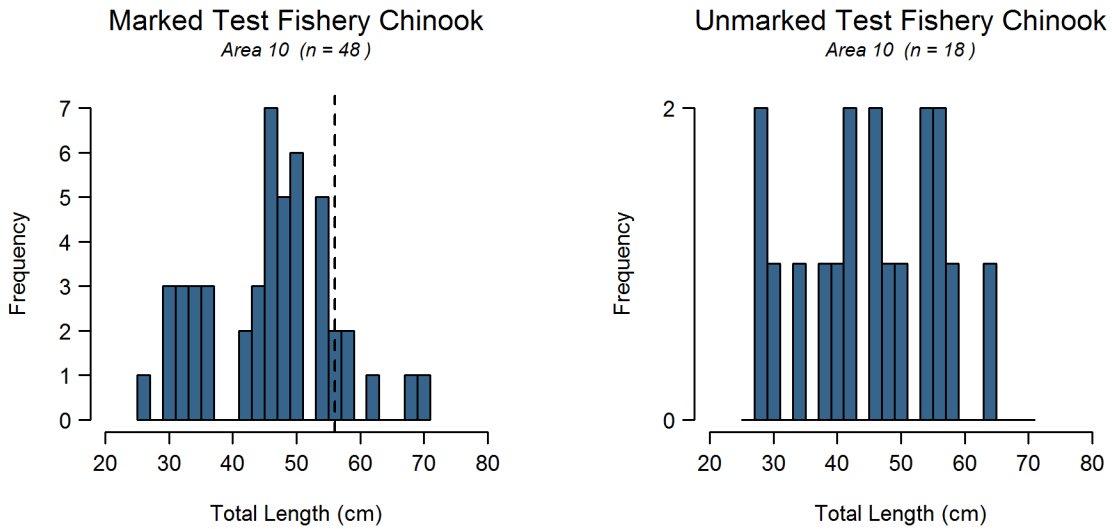


Figure 6.5 Length-frequency distributions of marked (*left panel*) and unmarked (*right panel*) Chinook encountered by test fishers during the 2016-17 winter Chinook MSF in Marine Area 10. The vertical dashed line in the left panel corresponds to the legal size limit (22 in or 56 cm).

Table 6.6 Total Chinook 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 2016-17 winter Chinook 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.

Time Frame	Data Source	Effort and Sample Size	Legal		Sublegal		Totals	Mark Rate		
			AD	UM	AD	UM		Overall	Legal	
Nov-Jan	Private VTR	6 1-trip VTRs, 11 Angler Trips	2	0	3	1	6	0.83	1.00	
	Size/mark-status composition:		0.33	0.00	0.50	0.17				
		Variance:	(0.0444)	(0.0000)	(0.0500)	(0.0278)				

Table 6.7 Summary of season-wide fishery impact estimates for the 2016-17 winter Chinook 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	259	225	34	5	230	5200	72	89 - 371	31
Legal UM	86	0	86	13	13	103	10	0 - 33	78
Sublegal AD	1811	5	1806	361	366	32,883	181	11 - 722	49
Sublegal UM	690	0	690	138	138	5334	73	0 - 281	53
Total	2,846	230	2,616	517	747	43,520	209	339 - 1,156	28

Table 6.8 Comparison of modeled (FRAM model run 2916) and estimated total Chinook encounters for the 2016-17 winter Chinook 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	705	77	628	2
	AD	1,892	197	1,695	171
	Total	2,597	274	2,323	173
	% Marked	73	72	73	99
Estimated (Creel) Encounters	UM	776	86	690	0
	AD	2070	259	1811	230
	Total	2,846	345	2501	230
	% Marked	73	75	72	100

Table 6.9 Comparison of modeled (FRAM model run 2916) and estimated total Chinook mortalities for the 2016-17 winter Chinook 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)	139	522	661	151	597	747
Released Legal	11	12	23	13	5	18
Released Sublegal	126	339	465	138	361	499
Landed Only	2	171	173	0	230	230

Table 6.10 Monthly sample rates (Total retained Chinook sampled¹ / Estimated retained Chinook) in the 2016-17 winter Chinook 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 - 48	01 Nov - 27 Nov	68	0	68	23	0	23	33.80%
December	49 - 53.1	28 Nov - 01 Jan	74	0	74	10	0	10	13.60%
January	2-5	02 Jan - 23 Jan	67	0	67	11	0	11	16.50%
Season Total			209	0	209	44	0	44	21.10%

¹ Number of retained Chinook sampled includes all retained Chinook inspected for CWTs, from all sites sampled during the three-month winter Area 10 fishery (i.e., the two selected sites per sampling day for creel [Murthy] estimates, plus the fish sampled as part of baseline [non-Murthy] sampling in the Area).

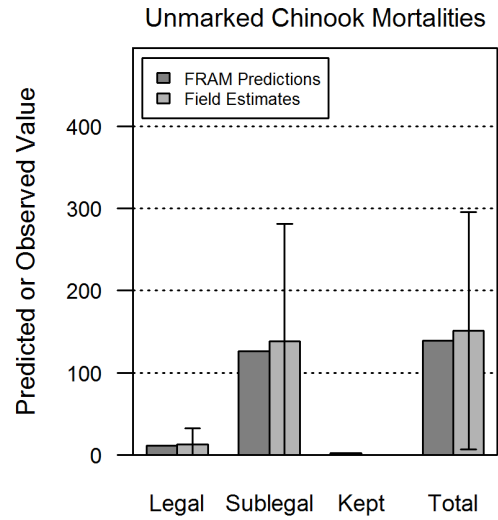
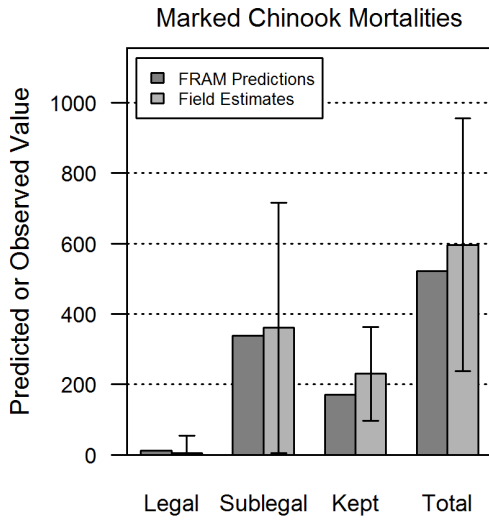
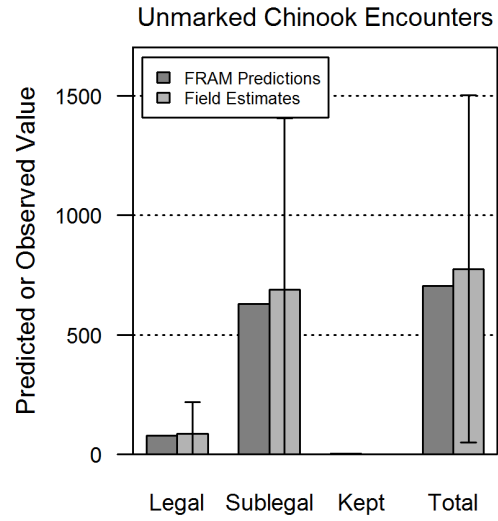
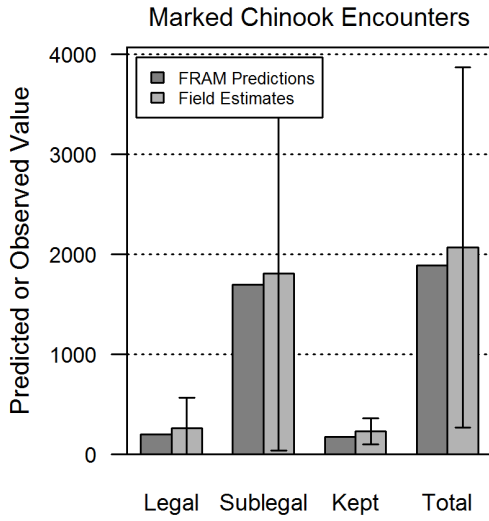


Table 6.11 Fishery-total estimates of retained and released salmon (*other than Chinook*) during the 2016-17 winter Chinook MSF in Marine Area 10. Values may not add exactly due to rounding error. AD = marked (adipose-clipped), UM = unmarked, UK = unknown mark-status

Stat Week	Start Date	End Date	Released Salmon				
			Coho AD	Coho UM	Coho UK	Chum	Unk Salmon
45	1-Nov	6-Nov	122	50	27	6	128
46	7-Nov	13-Nov	0	0	0	8	87
47	14-Nov	20-Nov	0	0	27	0	176
48	21-Nov	27-Nov	0	0	24	0	216
49	28-Nov	4-Dec	0	7	10	0	89
50	5-Dec	11-Dec	0	7	0	0	89
51	12-Dec	18-Dec	0	0	0	0	0
52	19-Dec	25-Dec	0	0	0	0	0
53	26-Dec	31-Dec	0	0	0	0	0
2	2-Jan	8-Jan	0	0	0	0	0
3	9-Jan	15-Jan	20	0	0	0	0
4	16-Jan	22-Jan	34	0	0	0	0
5	23-Jan	23-Jan	5	0	0	0	0
Area 10 Season Total:			181	64	88	14	786
Variance:			6,421	2545	2,078	174	68,300
Standard Error:			80	50	46	13	261
CV (%):			44	79	52	93	33
95% CI:			24 - 338	0 - 163	0 - 177	0 - 40	274 - 1,298

Table 6.12 Summary of the total number of anglers intercepted during on-the-water surveys conducted for the 2016-17 winter Chinook 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	9	0.0692
Blake Island	1	0.0077
Brownsville Marina/Dock/Ramp	3	0.0231
Des Moines Marina (Moorage)	1	0.0077
Eagle Harbor Waterfront Park	3	0.0231
Edmonds Dry Storage	10	0.0769
Edmonds Marina	28	0.2154
Elliott Bay Marina	5	0.0385
Kingston Marina	3	0.0231
Kingston Public Ramp	13	0.1000
Manchester Public Ramp	8	0.0615
Point Defiance Public Ramp	4	0.0308
Private	6	0.0462
Shilshole Marina	13	0.1000
Shilshole Public Ramp	23	0.1769
Area 10 Total Anglers	130	1

Table 6.13 Season-total estimates of Chinook encounters by size/mark-status and total estimates of angler effort, summarized for all seasons to date of the Area 10 Winter Chinook 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

7) Marine Area 11 Winter Mark-Selective Chinook Fishery

The Washington Department of Fish and Wildlife (WDFW) implemented a seventh consecutive winter Chinook MSF in Marine Area 11 from November 1, 2016 –April 30, 2017. Data collection methods used to monitor the Area 11 Chinook 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 2016-17 winter Chinook 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 8 different access [GTJ(18)] sites (Table 7.2), and a total of 285 site visits during [GTJ(19)] 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 11 fishery at the selected access site. The interview and catch-sampling procedures employed were identical to those used in other MSFs. Thus, 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 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 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. Thus, 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 2016-17 Chinook MSF.

Draft; November 20, 2017

Table 7.1 Observations of fishing effort, salmon harvest, and reported salmon releases, by week, for the 2016-17 winter Chinook 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.

StatWk	Start	End	Effort		Retained Fish			Released Fish							
			Boats	Anglers	Chin.AD	Chin.UM	Chin. UD	Chin.AD	Chin.UM	Chin.UK	Coho.AD	Coho.UM	Coho.UK	Cutthroat	Unknown
6	1-Feb	5-Feb	18	32	0	0	0	8	1	0	0	0	0	2	0
7	6-Feb	12-Feb	22	31	0	0	0	7	0	1	2	0	0	2	0
8	13-Feb	19-Feb	23	32	0	0	0	1	0	4	0	0	0	0	0
9	20-Feb	26-Feb	28	46	1	0	0	8	5	11	0	0	2	0	0
10	27-Feb	5-Mar	11	13	1	0	0	0	0	0	0	0	0	1	0
11	6-Mar	12-Mar	25	32	8	0	0	4	2	1	0	0	1	4	0
12	13-Mar	19-Mar	36	50	3	0	0	4	3	4	0	0	0	0	0
13	20-Mar	26-Mar	21	29	0	0	0	4	0	8	0	0	0	1	0
14	27-Mar	2-Apr	27	36	5	0	0	6	2	0	0	0	0	0	0
15	3-Apr	9-Apr	45	64	7	0	0	9	2	1	0	0	0	1	1
16	10-Apr	16-Apr	12	18	1	0	0	1	1	0	0	0	0	0	0
17	17-Apr	23-Apr	52	62	13	0	0	11	6	2	0	0	0	1	0
18	24-Apr	30-Apr	79	115	14	0	0	1	5	0	0	0	0	1	0
Season Total			399	560	53	0	0	64	27	32	2	0	3	13	1

Table 7.2 List of sites sampled with the number of sampling events (site-days) during the 2016-17 winter Chinook MSF in Marine Area 11.

Location Name	Number of Site Days Sampled Per Month			Total Site-Days	% of Total
	February	March	April		
Armeni Public Ramp	1	0	1	38	13.33%
Gig Harbor Ramp	3	3	4	1	0.35%
Narrows Marina Private	6	3	7	30	10.53%
Narrows Park	0	0	1	115	40.35%
Olalla Public Ramp	3	3	3	86	30.18%
Point Defiance Boathouse	14	17	20	1	0.35%
Point Defiance Public Ramp	13	14	11	13	4.56%
Steilacoom Public Ramp	1	0	0	1	0.35%
Grand Total	41	40	47	285	1

Table 7.3 Summary of total length samples from retained Chinook salmon collected during dockside angler interviews in the 2016-17 winter Chinook MSF in Marine Area 11.

Mark Type	Number Sampled		Total
	Legal-size	Sublegal-size	
Marked	47	1	48
Unmarked	0	0	0
Total	47	1	48

Table 7.4 Summary of CWTs recovered from Chinook salmon harvested during the 2016-17 winter Chinook 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
WA	Skagit River (100%)	Co Line Pd2 03.1853B	Marblemount Hatchery	1 (100%)	0
			Total	1	1

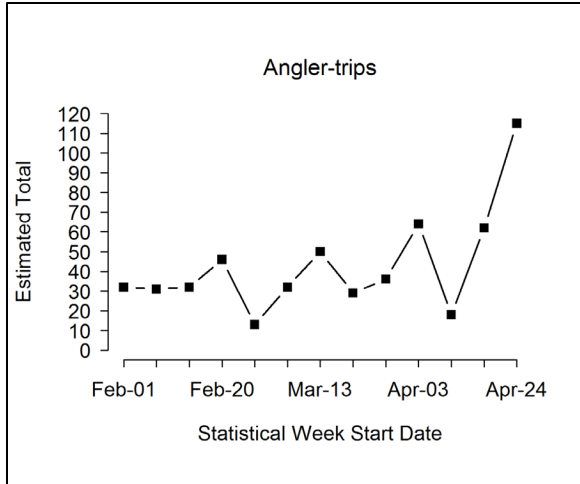


Figure 7.1 Temporal patterns in fishing effort during the 2016-17 winter Chinook MSF in Marine Area 11. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates.

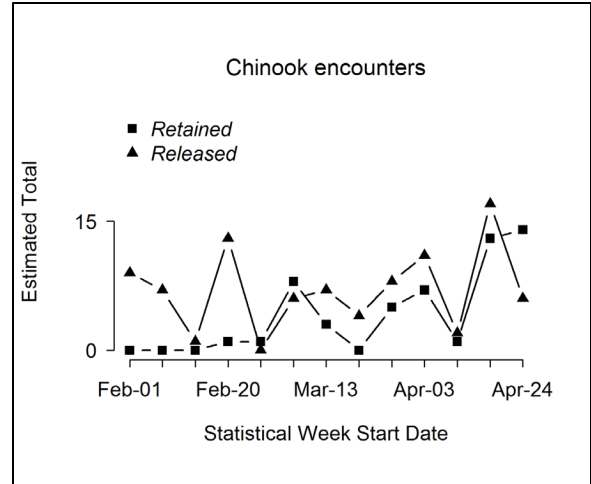


Figure 7.3 Temporal patterns in Chinook encounters (number retained and released) during the 2016-17 winter Chinook MSF in Marine Area 11. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates.

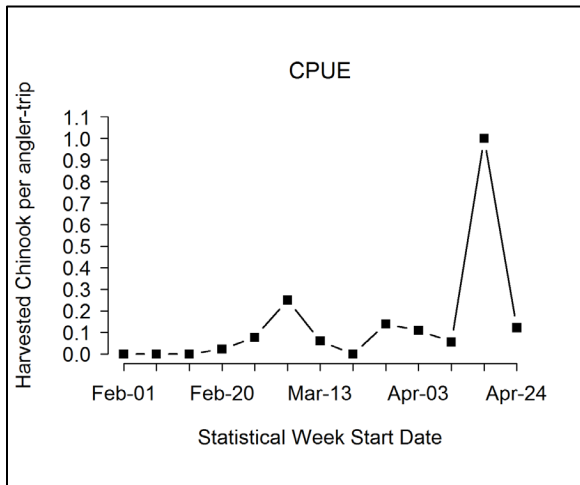


Figure 7.2 Temporal patterns in CPUE (number of Chinook landed per angler-trip) during the 2016-17 winter Chinook MSF in Marine Area 11. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates

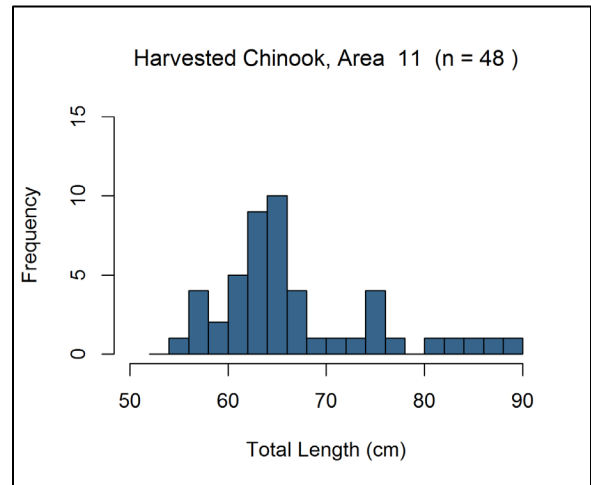


Figure 7.4 Length-frequency distributions of retained marked Chinook sampled in dockside angler interviews during the 2016-17 winter Chinook MSF in Marine Area 11. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates.

Table 7.5 Total Chinook encountered (retained and released) by private-boat anglers logging their trips on VTRs during the 2016-17 winter Chinook 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	5 1-trip VTRs, 9 Angler Trips	0	1	6	2	9	0.67	0.00
Size/mark-status composition:		0.00	0.11	0.67	0.22			
Variance:		(0.0000)	(0.0123)	(0.0278)	(0.0216)			

8) Marine Area 12 Winter Mark-Selective Chinook Fishery

The Washington Department of Fish and Wildlife (WDFW) implemented a seventh consecutive winter Chinook MSF in Marine Area 12 from October 1 – December 31, 2016 – April 30, 2017. Data collection methods used to monitor the Area 12 Chinook 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 2016-17 winter Chinook 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 12 different [GTJ(20)] access sites (**Table 8.2**), and a total of 123 site visits [GTJ(21)] 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. Thus, 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 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 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. Thus, 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 2016-17 Chinook MSF.

Table 8.1 Observations of fishing effort, salmon harvest, and reported salmon releases, by week, for the 2016-17 winter Chinook 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.

StatWk	Start	End	Effort		Retained Fish							Released Fish							
			Boats	Anglers	Chin.AD	Chin.UM	Chin. UD	Coho.AD	Coho.UM	Coho.UD	Chum	Chin.AD	Chin.UM	Chin.UK	Coho.AD	Coho.UM	Coho.UK	Chum	Cutthroat
40	1-Oct	2-Oct	26	41	0	0	0	0	6	0	0	10	11	25	0	0	4	0	30
41	3-Oct	9-Oct	32	55	0	0	0	2	3	0	0	2	6	4	7	3	4	0	2
42	10-Oct	16-Oct	18	30	0	0	0	0	2	0	0	5	4	1	8	1	8	0	0
43	17-Oct	23-Oct	15	19	0	0	0	1	0	0	0	5	1	0	1	0	0	0	8
44	24-Oct	30-Oct	6	11	0	0	0	0	2	0	0	0	0	20	0	2	0	0	16
45	31-Oct	6-Nov	7	10	0	0	0	0	0	0	16	0	0	0	0	0	0	38	0
46	7-Nov	13-Nov	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	9	0
47	14-Nov	20-Nov	6	9	1	0	0	0	0	0	0	10	1	0	0	0	0	0	3
48	21-Nov	27-Nov	2	3	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0
49	28-Nov	4-Dec	7	11	0	0	0	0	0	0	0	3	0	5	0	0	0	0	0
50	5-Dec	11-Dec	3	3	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
51	12-Dec	18-Dec	9	12	1	0	0	0	0	0	0	19	0	39	0	0	0	0	0
52	19-Dec	25-Dec	4	4	0	0	0	0	0	0	0	2	3	5	0	0	0	0	0
53	26-Dec	1-Jan	5	9	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0
2	2-Jan	8-Jan	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	9-Jan	15-Jan	1	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
4	16-Jan	22-Jan	4	9	0	0	0	0	0	0	0	12	1	0	0	0	0	0	0
5	23-Jan	29-Jan	17	32	6	0	0	0	0	0	0	44	15	33	0	0	0	0	4
6	30-Jan	5-Feb	8	12	2	0	0	0	0	0	0	10	1	5	0	0	0	0	2
7	6-Feb	12-Feb	19	32	5	0	0	0	0	0	0	25	5	2	0	0	1	0	7
8	13-Feb	19-Feb	14	26	7	0	0	0	0	0	0	33	8	0	0	0	0	0	4
9	20-Feb	26-Feb	10	22	3	0	0	0	0	0	0	13	0	13	0	0	0	0	0
10	27-Feb	5-Mar	5	6	0	0	0	0	0	0	0	4	0	4	0	0	0	0	3
11	6-Mar	12-Mar	10	19	2	0	0	0	0	0	0	2	3	0	0	0	0	0	0
12	13-Mar	19-Mar	14	28	3	0	0	0	0	0	0	14	0	0	0	0	0	0	0
13	20-Mar	26-Mar	19	34	3	0	0	0	0	0	0	14	3	3	0	0	0	0	0
14	27-Mar	2-Apr	12	22	8	0	0	0	0	0	0	5	1	1	0	0	0	0	0
15	3-Apr	9-Apr	5	6	1	0	0	0	0	0	0	2	1	1	0	0	0	0	0
16	10-Apr	16-Apr	8	12	0	0	0	0	0	0	0	5	0	2	0	0	0	0	0
17	17-Apr	23-Apr	13	22	4	0	0	0	0	0	0	4	2	0	0	0	0	0	5
18	24-Apr	30-Apr	13	22	8	0	0	0	0	0	0	23	3	4	0	0	0	0	1
Season Total			314	525	54	0	0	3	13	0	0	270	72	169	16	6	17	47	85

Table 8.2 List of sites sampled with the number of sampling events (site-days) during the 2016-17 winter Chinook MSF in Marine Area 12.

Location Name	Number of Site Days Sampled Per Month						Total Site-Days	% of Total
	October	November	December	February	March	April		
Big Beef Beach	5	1	0	0	0	0	6	4.88%
Boston Harbor Ramp/Marina	1	0	0	0	0	0	1	0.81%
Dewatto Creek Watch	4	0	0	0	0	0	4	3.25%
Misery Point Ramp	10	6	11	9	7	10	53	43.09%
Pleasant Harbor Boat Ramp (WDFW)	0	0	2	2	9	9	22	17.89%
Quilcene Bay Ramp	3	0	0	2	0	0	5	4.07%
Salsbury County Park Ramp	4	0	0	0	3	1	8	6.50%
Skokomish Ramp	7	1	0	0	0	0	8	6.50%
Tahuya Ramp	3	0	0	0	0	0	3	2.44%
Tahuya Shore	1	0	0	0	0	0	1	0.81%
Triton Cove State Park	0	1	6	0	3	1	11	8.94%
Union Ramp	1	0	0	0	0	0	1	0.81%
Grand Total	39	9	19	13	22	21	123	100.00%

Table 8.3 Summary of total length samples from retained Chinook salmon collected during dockside angler interviews in the 2016-17 winter Chinook MSF in Marine Area 12

Mark Type	Number Sampled		
	Legal-size	Sublegal-size	Total
Marked	50	1	51
Unmarked	0	0	0
Total	50	1	51

Table 8.4 Summary of CWTs recovered from Chinook salmon harvested during the 2016-17 winter Chinook 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	N Washington (12.5%)	Kendall Cr 01.0406	Kendall Cr Hatchery	1 (12.5%)	0
	Hood Canal (62.5%)	Finch Cr 16.0222	Hoodsport Hatchery	3 (37.5%)	0
		Purdy Cr 16.0005	George Adams Hatchery	2 (25%)	2
	N Puget Sound (12.5%)	Tulalip Cr 07.0001	Bernie Gobin Hatch	1 (12.5%)	1
	S Puget Sound (12.5%)	Clear Cr 11.0013C	Clear Creek Hatchery	1 (12.5%)	1
Total				8	4

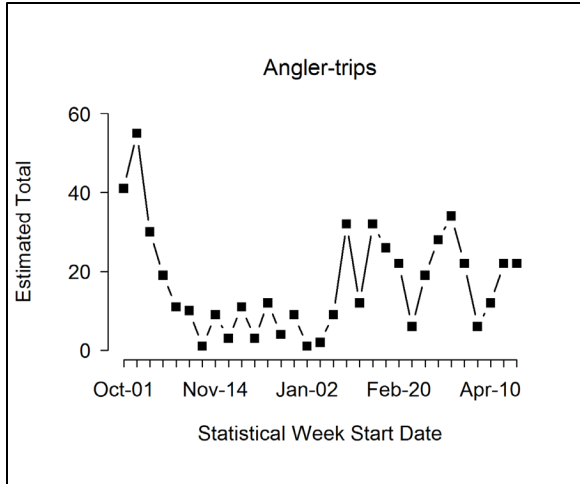


Figure 8.1 Temporal patterns in fishing effort during the 2016-17 winter Chinook MSF in Marine Area. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates.

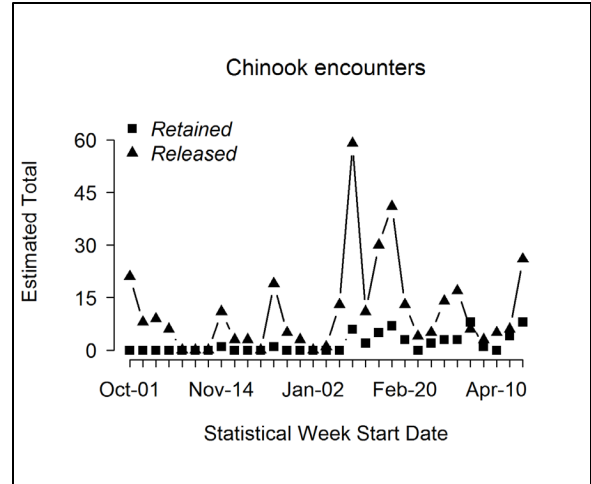


Figure 8.3 Temporal patterns in Chinook encounters (number retained and released) during the 2016-17 winter Chinook MSF in Marine Area 12. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates.

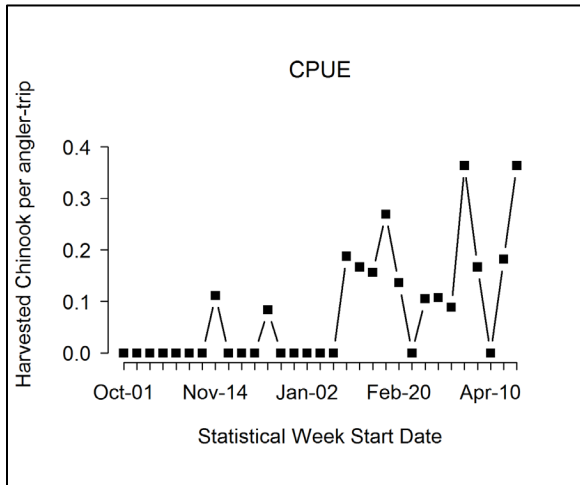


Figure 8.2 Temporal patterns in CPUE (number of Chinook landed per angler trip) during the 2016-17 winter Chinook MSF in Marine Area 12. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates

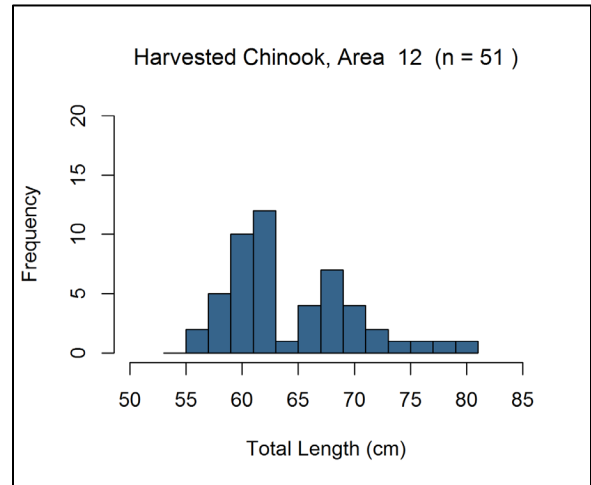


Figure 8.4 Length-frequency distributions of retained marked Chinook sampled in dockside angler interviews during the 2016-17 winter Chinook MSF in Marine Area 12.

Table 8.5 Total Chinook encountered (retained and released) by private-boat anglers logging their trips on VTRs during the 2016-17 winter Chinook 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	12 1-trip VTRs, 24 Angler Trips	1	4	23	8	36	0.67	0.20
Size/mark-status composition:		0.03	0.11	0.64	0.22			
Variance:		(0.0008)	(0.0028)	(0.0066)	(0.0049)			

9) Marine Area 13 Winter Mark-Selective Fishery

The Washington Department of Fish and Wildlife (WDFW) implemented the second winter Chinook MSF in Marine Area 13 from October 1, 2016 – April 30, 2017. Data collection methods used to monitor the Area 13 Chinook 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). Although we usually 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 2016-17 winter Chinook 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 29 different access sites (**Table 9.2**), and a total of 255 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. Thus, 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 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 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. Thus, 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 2016-17 Chinook MSF.

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Table 9.1 Observations of fishing effort, salmon harvest, and reported salmon releases, by week, for the 2016-17 winter Chinook 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.

StatWk	Start	End	Effort		Retained Fish							Released Fish								
			Boats	Anglers	Chin.AD	Chin.UM	Chin.UD	Coho.AD	Coho.UM	Coho.UD	Chum	Chin.AD	Chin.UM	Chin.UK	Coho.AD	Coho.UM	Coho.UK	Chum	Cutthroat	Unknown
40	1-Oct	2-Oct	21	47	0	0	0	55	0	0	0	0	0	1	50	4	25	0	1	0
41	3-Oct	9-Oct	84	148	0	0	0	47	0	0	0	4	0	3	17	3	3	0	5	1
42	10-Oct	16-Oct	42	45	0	0	0	0	0	0	6	0	0	0	0	0	1	10	0	0
43	17-Oct	23-Oct	51	59	0	0	0	0	0	0	6	0	1	1	0	0	0	4	24	0
44	24-Oct	30-Oct	43	48	0	0	0	0	0	0	3	0	2	0	2	0	0	3	12	0
45	31-Oct	6-Nov	109	111	0	0	0	0	0	0	56	0	0	0	0	0	0	123	1	0
46	7-Nov	13-Nov	71	71	0	0	0	0	0	0	19	0	0	0	0	0	0	48	0	0
47	14-Nov	20-Nov	73	74	0	0	0	0	0	0	36	0	0	0	0	0	0	74	0	0
48	21-Nov	27-Nov	64	64	0	0	0	0	0	0	39	0	0	0	0	0	0	86	0	4
49	28-Nov	4-Dec	71	73	0	0	0	0	0	0	38	2	0	0	0	0	0	22	1	5
50	5-Dec	11-Dec	13	13	0	0	0	0	0	0	1	1	0	7	0	0	0	0	0	0
51	12-Dec	18-Dec	5	5	0	0	0	0	0	0	0	0	0	16	0	0	0	0	2	0
52	19-Dec	25-Dec	4	4	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0
53	26-Dec	1-Jan	6	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	2-Jan	8-Jan	10	10	0	0	0	0	0	0	0	1	1	2	2	0	4	0	6	0
3	9-Jan	15-Jan	18	18	1	0	0	0	0	0	0	1	0	4	9	0	4	0	20	0
4	16-Jan	22-Jan	18	19	0	0	0	0	0	0	0	4	0	0	2	0	3	0	18	0
5	23-Jan	29-Jan	28	32	0	0	0	0	0	0	0	0	0	0	4	0	0	0	1	0
6	30-Jan	5-Feb	19	20	2	0	0	1	0	0	0	3	1	3	48	3	14	1	12	0
7	6-Feb	12-Feb	19	21	0	0	0	2	0	0	0	9	0	0	17	7	3	0	2	3
8	13-Feb	19-Feb	11	12	0	0	0	1	0	0	0	1	0	0	2	0	22	0	3	0
9	20-Feb	26-Feb	39	46	2	0	0	5	0	0	0	3	1	2	15	6	5	0	0	0
10	27-Feb	5-Mar	14	22	4	0	0	3	0	0	0	5	0	10	8	2	9	0	12	0
11	6-Mar	12-Mar	20	28	2	0	0	3	0	0	0	8	2	1	4	0	2	0	1	0
12	13-Mar	19-Mar	21	26	0	0	0	2	0	0	0	0	0	0	7	3	0	0	3	0
13	20-Mar	26-Mar	21	29	0	0	0	1	0	0	0	4	0	10	13	2	5	0	4	0
14	27-Mar	2-Apr	7	13	0	0	0	2	0	0	0	0	3	0	2	0	0	0	0	0
15	3-Apr	9-Apr	19	20	0	0	0	3	0	0	0	0	0	0	10	0	3	0	4	0
16	10-Apr	16-Apr	36	44	1	0	0	12	0	0	0	5	5	5	22	6	9	0	9	0
17	17-Apr	23-Apr	18	22	0	0	0	3	0	0	0	0	0	0	3	0	0	0	3	0
18	24-Apr	30-Apr	12	17	1	0	0	5	0	0	0	3	1	0	2	2	4	0	8	0
Season Total			987	1168	13	0	0	145	0	0	204	54	17	70	239	38	116	371	152	13

Table 9.2 List of sites sampled with the number of sampling events (site-days) during the 2016-17 winter Chinook 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		
Arcadia Ramp	0	0	0	0	0	1	1	2	0.78%
Boston Harbor Ramp/Marina	9	0	0	2	0	1	1	13	5.10%
Burfoot Park Shore	1	0	0	0	0	0	0	1	0.39%
Concrete Dock	0	0	0	0	0	1	0	1	0.39%
Fox Island Public Ramp	0	0	0	1	1	0	3	5	1.96%
Fox Island Shore	0	0	0	0	0	1	0	1	0.39%
Gig Harbor Ramp	0	0	0	0	2	1	3	6	2.35%
Hartstene Is. Ramp	3	0	0	0	2	11	5	21	8.24%
Home Public Ramp	2	0	0	0	0	0	0	2	0.78%
John's Creek	9	0	2	0	0	0	0	11	4.31%
Kennedy Creek Mouth	7	13	0	0	0	0	0	20	7.84%
Landover	0	0	1	0	0	0	0	1	0.39%
Luhr Beach Ramp	2	1	1	1	1	1	2	9	3.53%
Narrows Marina Private	2	0	1	2	4	1	2	12	4.71%
Narrows Park	2	2	3	10	3	6	5	31	12.16%
Perry Creek	1	10	3	0	0	0	0	14	5.49%
Point Defiance Boathouse	2	0	1	3	4	0	0	10	3.92%
Point Defiance Public Ramp	1	2	5	1	5	5	2	21	8.24%
Priest Point Park	2	0	0	0	0	0	0	2	0.78%
Sandy Spit County Park	0	0	0	0	0	0	2	2	0.78%
Solo Point	1	0	2	0	3	1	3	10	3.92%
Solo Point Shore	0	0	0	0	1	0	0	1	0.39%
Steamboat Island Bridge	1	2	0	0	0	0	0	3	1.18%
Steilacoom Public Ramp	0	0	0	0	1	0	0	1	0.39%
Swan Town	10	0	0	0	0	0	0	10	3.92%
Tahuya Ramp	1	0	0	0	0	0	0	1	0.39%
Wauna Ramp	0	0	0	1	0	0	0	1	0.39%
Wauna Shore	1	1	6	9	8	7	9	41	16.08%
Zittels Marina	0	0	0	1	0	1	0	2	0.78%
Grand Total	57	31	25	31	35	38	38	255	100.00%

Table 9.3 Summary of total length samples from retained Chinook salmon collected during dockside angler interviews in the 2016-17 winter Chinook MSF in Marine Area 13.

Mark Type	Number Sampled		
	Legal-size	Sublegal-size	Total
Marked	8	2	10
Unmarked	0	0	0
Total	8	2	10

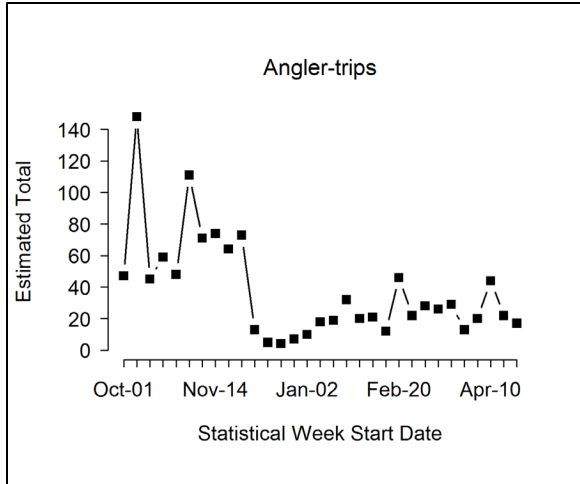


Figure 9.1 Temporal patterns in fishing effort during the 2016-17 winter Chinook MSF in Marine Area 13. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates.

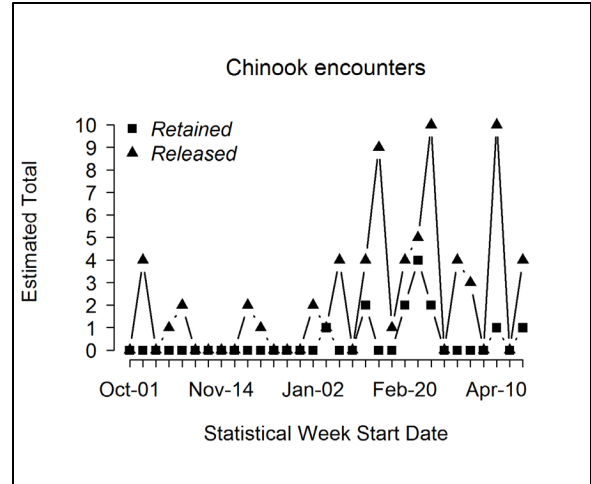


Figure 9.3 Temporal patterns in Chinook encounters (number retained and released) during the 2016-17 winter Chinook MSF in Marine Area 13. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates.

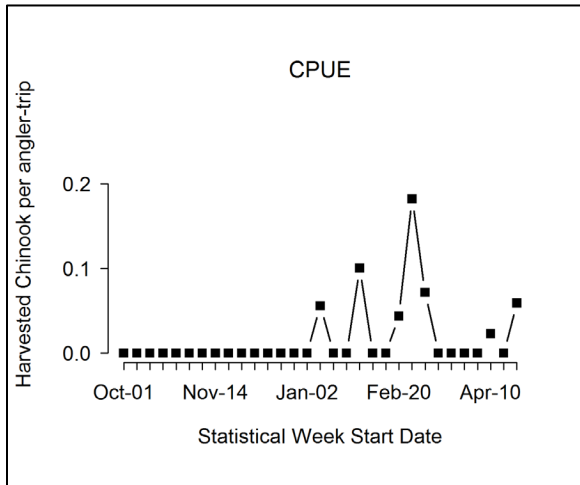


Figure 9.2 Temporal patterns in CPUE (number of Chinook landed per angler-trip) during the 2016-17 winter Chinook MSF in Marine Area 13. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates.

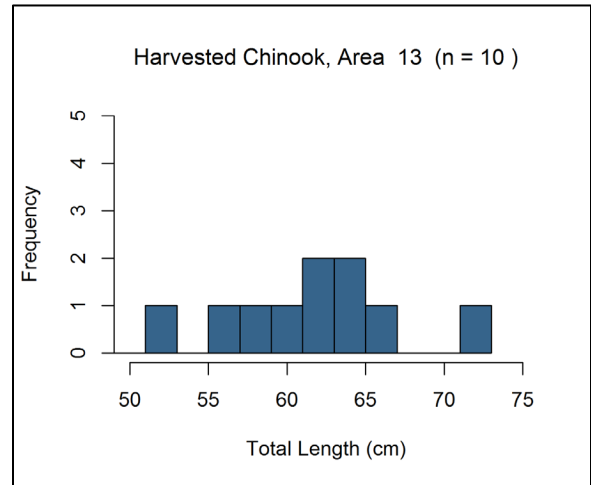


Figure 9.4 Length-frequency distributions of retained marked Chinook sampled in dockside angler interviews during the 2016-17 winter Chinook MSF in Marine Area 13.

Table 9.4 Total Chinook encountered (retained and released) by private-boat anglers logging their trips on VTRs during the 2016-17 winter Chinook 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	1 1-trip VTRs, 2 Angler Trips	0	0	3	0	3	1.00	0.00
Size/mark-status composition:		0.00	0.00	1.00	0.00			
Variance:		(0.0000)	(0.0000)	(0.0000)	(0.0000)			

ACKNOWLEDGEMENTS

This review of the 2016-17 winter mark-selective Chinook fisheries in Areas 5, 6, 7, 8-1, 8-2, 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 2016-17 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 and Courtney Adkins. From the Strait of Juan de Fuca/Peninsula area, we thank Larry Bennett (Peninsula Sampling Supervisor), Connie Konopaski Anthony Rodriguez, Lorena McGovern, Ryan Ollerman and Jessica Newberg. From North Sound, we thank Steve Axtell (North Sampling Supervisor), Al Esparza, Marcus Thompson, Dean Toba, Patrick Morrison, Lynn Stricker, Mary Mureau, Angela Foster, Nathan Layman, Jim Repoz, Heather McKinnon and Area 7 test fishers Phil Colwell and Chad Paul. From South Sound as well as Hood Canal and the Kitsap Peninsula, we thank Dan O'Brien (South Sound Supervisor), Justin Terry, John Moore, Scott Walker, Cara Crowley, Mary Raymond, Katrina Outland, Paul Lorenz, Tom Matthews, John Rohr, Karen Shields, Maria Garcia-Rojas and Lars Swartling. Additionally, we thank WDFW pilots Marty Kimbrel, Stephen Lindberg and Kevin Nelsen and samplers Jeff McKee, Kathy Young-Berg, Pete Sergeeff, Courtney Adkins and Brant Boelts for their time surveying Areas 6, 7 and 9 from the sky. [GTJ(22)]

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Finally, we extend a special thanks to Robert Conrad of Northwest Indian Fisheries Commission (NWIFC) for his dedicated efforts and expertise in working with us to develop and refine mark-selective fishery estimation methods and reports. We also thank NWIFC biometrician Marianna Alexandersdottir for her helpful reviews and valuable guidance regarding sampling design and

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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 2016-17 winter Chinook MSF in Marine Area 8-1.

Sample Date	Week	Location #1	Site Size	Location #2	Site Size
11/1/2016	45	Camano Island State Park Public Ramp	0.2661	Maple Grove Ramp; Camano Is	0.2956
11/4/2016	45	Camano Island State Park Public Ramp	0.2661	Oak Harbor Marina & Public Ramp	0.2775
11/5/2016	45	Camano Island State Park Public Ramp	0.2661	Coupeville Public Ramp	0.0786
11/9/2016	46	Camano Island State Park Public Ramp	0.2661	Maple Grove Ramp; Camano Is	0.2956
11/12/2016	46	Camano Island State Park Public Ramp	0.2661	Maple Grove Ramp; Camano Is	0.2956
11/17/2016	47	Camano Island State Park Public Ramp	0.2661	Maple Grove Ramp; Camano Is	0.2956
11/18/2016	47	Camano Island State Park Public Ramp	0.2661	Oak Harbor Marina & Public Ramp	0.2775
11/19/2016	47	Camano Island State Park Public Ramp	0.2661	Oak Harbor Marina & Public Ramp	0.2775
11/21/2016	48	Camano Island State Park Public Ramp	0.2661	Maple Grove Ramp; Camano Is	0.2956
11/26/2016	48	Camano Island State Park Public Ramp	0.2661	Norton Street (Everett) Ramp	0.0765
11/27/2016	48	Camano Island State Park Public Ramp	0.2661	Maple Grove Ramp; Camano Is	0.2956
12/1/2016	49	Camano Island State Park Public Ramp	0.1511	Coupeville Public Ramp	0.1007
12/2/2016	49	Camano Island State Park Public Ramp	0.1511	Norton Street (Everett) Ramp	0.2443
12/4/2016	49	Camano Island State Park Public Ramp	0.1511	Norton Street (Everett) Ramp	0.2443
12/6/2016	50	Camano Island State Park Public Ramp	0.1511	Maple Grove Ramp; Camano Is	0.1811
12/9/2016	50	Camano Island State Park Public Ramp	0.1511	Oak Harbor Marina & Public Ramp	0.2713
12/10/2016	50	Camano Island State Park Public Ramp	0.1511	Norton Street (Everett) Ramp	0.2443
12/14/2016	51	Camano Island State Park Public Ramp	0.1511	Oak Harbor Marina & Public Ramp	0.2713
12/16/2016	51	Camano Island State Park Public Ramp	0.1511	Oak Harbor Marina & Public Ramp	0.2713
12/17/2016	51	Camano Island State Park Public Ramp	0.1511	Norton Street (Everett) Ramp	0.2443
12/22/2016	52	Camano Island State Park Public Ramp	0.1511	Maple Grove Ramp; Camano Is	0.1811
12/23/2016	52	Camano Island State Park Public Ramp	0.1511	Norton Street (Everett) Ramp	0.2443

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12/27/2016	53	Camano Island State Park Public Ramp	0.1511	Coupeville Public Ramp	0.1007
12/30/2016	53	Camano Island State Park Public Ramp	0.1511	Maple Grove Ramp; Camano Is	0.1811
1/4/2017	2	Camano Island State Park Public Ramp	0.4682	Coupeville Public Ramp	0.0557
1/7/2017	2	Camano Island State Park Public Ramp	0.4682	Norton Street (Everett) Ramp	0.1294
1/8/2017	2	Camano Island State Park Public Ramp	0.4682	Oak Harbor Marina & Public Ramp	0.1294
1/12/2017	3	Camano Island State Park Public Ramp	0.4682	Utsalady Ramp; Camano Is	0.0687
1/13/2017	3	Camano Island State Park Public Ramp	0.4682	Norton Street (Everett) Ramp	0.1294
1/14/2017	3	Camano Island State Park Public Ramp	0.4682	Oak Harbor Marina & Public Ramp	0.1294
1/17/2017	4	Camano Island State Park Public Ramp	0.4682	Norton Street (Everett) Ramp	0.1294
1/20/2017	4	Camano Island State Park Public Ramp	0.4682	Oak Harbor Marina & Public Ramp	0.1294
1/22/2017	4	Camano Island State Park Public Ramp	0.4682	Maple Grove Ramp; Camano Is	0.1612
1/25/2017	5	Camano Island State Park Public Ramp	0.4682	Maple Grove Ramp; Camano Is	0.1612
1/27/2017	5	Camano Island State Park Public Ramp	0.4682	Utsalady Ramp; Camano Is	0.0687
1/29/2017	5	Camano Island State Park Public Ramp	0.4682	Maple Grove Ramp; Camano Is	0.1612
1/31/2017	6	Camano Island State Park Public Ramp	0.4682	Norton Street (Everett) Ramp	0.1294
2/3/2017	6	Camano Island State Park Public Ramp	0.3887	Maple Grove Ramp; Camano Is	0.2982
2/4/2017	6	Camano Island State Park Public Ramp	0.3887	Maple Grove Ramp; Camano Is	0.2982
2/7/2017	7	Camano Island State Park Public Ramp	0.3887	Oak Harbor Marina & Public Ramp	0.1441
2/10/2017	7	Camano Island State Park Public Ramp	0.3887	Maple Grove Ramp; Camano Is	0.2982
2/12/2017	7	Camano Island State Park Public Ramp	0.3887	Oak Harbor Marina & Public Ramp	0.1441
2/15/2017	8	Camano Island State Park Public Ramp	0.3887	Utsalady Ramp; Camano Is	0.0619
2/17/2017	8	Camano Island State Park Public Ramp	0.3887	Maple Grove Ramp; Camano Is	0.2982
2/18/2017	8	Camano Island State Park Public Ramp	0.3887	Maple Grove Ramp; Camano Is	0.2982
2/23/2017	9	Camano Island State Park Public Ramp	0.3887	Maple Grove Ramp; Camano Is	0.2982
2/25/2017	9	Camano Island State Park Public Ramp	0.3887	Maple Grove Ramp; Camano Is	0.2982
2/26/2017	9	Camano Island State Park Public Ramp	0.3887	Maple Grove Ramp; Camano Is	0.2982
3/1/2017	10	Camano Island State Park Public Ramp	0.5353	Norton Street (Everett) Ramp	0.1513
3/3/2017	10	Camano Island State Park Public Ramp	0.5353	Maple Grove Ramp; Camano Is	0.1754
3/4/2017	10	Camano Island State Park Public Ramp	0.5353	Oak Harbor Marina & Public Ramp	0.0728

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3/7/2017	11	Camano Island State Park Public Ramp	0.5353	Norton Street (Everett) Ramp	0.1513
3/10/2017	11	Camano Island State Park Public Ramp	0.5353	Maple Grove Ramp; Camano Is	0.1754
3/12/2017	11	Camano Island State Park Public Ramp	0.5353	Maple Grove Ramp; Camano Is	0.1754
3/14/2017	12	Camano Island State Park Public Ramp	0.5353	Oak Harbor Marina & Public Ramp	0.0728
3/17/2017	12	Camano Island State Park Public Ramp	0.5353	Norton Street (Everett) Ramp	0.1513
3/19/2017	12	Camano Island State Park Public Ramp	0.5353	Maple Grove Ramp; Camano Is	0.1754
3/22/2017	13	Camano Island State Park Public Ramp	0.5353	Maple Grove Ramp; Camano Is	0.1754
3/24/2017	13	Camano Island State Park Public Ramp	0.5353	Norton Street (Everett) Ramp	0.1513
3/25/2017	13	Camano Island State Park Public Ramp	0.5353	Maple Grove Ramp; Camano Is	0.1754
3/29/2017	14	Camano Island State Park Public Ramp	0.5353	Maple Grove Ramp; Camano Is	0.1754
4/1/2017	14	Camano Island State Park Public Ramp	0.5353	Maple Grove Ramp; Camano Is	0.1754
4/2/2017	14	Camano Island State Park Public Ramp	0.5353	Norton Street (Everett) Ramp	0.1513
4/6/2017	15	Camano Island State Park Public Ramp	0.5353	Maple Grove Ramp; Camano Is	0.1754
4/7/2017	15	Camano Island State Park Public Ramp	0.5353	Oak Harbor Marina & Public Ramp	0.0728
4/9/2017	15	Camano Island State Park Public Ramp	0.5353	Norton Street (Everett) Ramp	0.1513
4/11/2017	16	Camano Island State Park Public Ramp	0.5353	Norton Street (Everett) Ramp	0.1513
4/14/2017	16	Camano Island State Park Public Ramp	0.5353	Norton Street (Everett) Ramp	0.1513
4/15/2017	16	Camano Island State Park Public Ramp	0.5353	Norton Street (Everett) Ramp	0.1513
4/20/2017	17	Camano Island State Park Public Ramp	0.5353	Norton Street (Everett) Ramp	0.1513
4/22/2017	17	Camano Island State Park Public Ramp	0.5353	Oak Harbor Marina & Public Ramp	0.0728
4/23/2017	17	Camano Island State Park Public Ramp	0.5353	Norton Street (Everett) Ramp	0.1513
4/26/2017	18	Camano Island State Park Public Ramp	0.5353	Norton Street (Everett) Ramp	0.1513
4/28/2017	18	Camano Island State Park Public Ramp	0.5353	Oak Harbor Marina & Public Ramp	0.0728
4/29/2017	18	Camano Island State Park Public Ramp	0.5353	Norton Street (Everett) Ramp	0.1513

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Appendix 1.2 Size measures by sample date, for sites sampled during dockside creel surveys for the 2016-17 winter Chinook MSF in Marine Area 8-2.

Sample Date	Week	Location #1	Site Size	Location #2	Site Size
11/1/2016	45	Camano Island State Park Public Ramp	0.3107	Norton Street (Everett) Ramp	0.566
11/4/2016	45	Camano Island State Park Public Ramp	0.3107	Norton Street (Everett) Ramp	0.566
11/5/2016	45	Camano Island State Park Public Ramp	0.3107	Norton Street (Everett) Ramp	0.566
11/9/2016	46	Camano Island State Park Public Ramp	0.3107	Norton Street (Everett) Ramp	0.566
11/12/2016	46	Camano Island State Park Public Ramp	0.3107	Norton Street (Everett) Ramp	0.566
11/17/2016	47	Camano Island State Park Public Ramp	0.3107	Norton Street (Everett) Ramp	0.566
11/18/2016	47	Camano Island State Park Public Ramp	0.3107	Norton Street (Everett) Ramp	0.566
11/19/2016	47	Dagmar's Landing; Forklift Launch	0.08	Norton Street (Everett) Ramp	0.566
11/21/2016	48	Camano Island State Park Public Ramp	0.3107	Norton Street (Everett) Ramp	0.566
11/26/2016	48	Dagmar's Landing; Forklift Launch	0.08	Norton Street (Everett) Ramp	0.566
11/27/2016	48	Camano Island State Park Public Ramp	0.3107	Norton Street (Everett) Ramp	0.566
12/1/2016	49	Camano Island State Park Public Ramp	0.1436	Norton Street (Everett) Ramp	0.6752
12/2/2016	49	Camano Island State Park Public Ramp	0.1436	Norton Street (Everett) Ramp	0.6752
12/4/2016	49	Camano Island State Park Public Ramp	0.1436	Norton Street (Everett) Ramp	0.6752
12/6/2016	50	Camano Island State Park Public Ramp	0.1436	Norton Street (Everett) Ramp	0.6752
12/9/2016	50	Camano Island State Park Public Ramp	0.1436	Norton Street (Everett) Ramp	0.6752
12/10/2016	50	Dagmar's Landing; Forklift Launch	0.0912	Norton Street (Everett) Ramp	0.6752
12/14/2016	51	Camano Island State Park Public Ramp	0.1436	Norton Street (Everett) Ramp	0.6752
12/16/2016	51	Camano Island State Park Public Ramp	0.1436	Norton Street (Everett) Ramp	0.6752
12/17/2016	51	Camano Island State Park Public Ramp	0.1436	Norton Street (Everett) Ramp	0.6752
12/22/2016	52	Camano Island State Park Public Ramp	0.1436	Norton Street (Everett) Ramp	0.6752
12/23/2016	52	Camano Island State Park Public Ramp	0.1436	Norton Street (Everett) Ramp	0.6752
12/27/2016	53	Camano Island State Park Public Ramp	0.1436	Norton Street (Everett) Ramp	0.6752
12/30/2016	53	Camano Island State Park Public Ramp	0.1436	Norton Street (Everett) Ramp	0.6752
1/4/2017	2	Camano Island State Park Public Ramp	0.2099	Norton Street (Everett) Ramp	0.5649
1/7/2017	2	Camano Island State Park Public Ramp	0.2099	Norton Street (Everett) Ramp	0.5649

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1/8/2017	2	Camano Island State Park Public Ramp	0.2099	Norton Street (Everett) Ramp	0.5649
1/12/2017	3	Camano Island State Park Public Ramp	0.2099	Norton Street (Everett) Ramp	0.5649
1/13/2017	3	Camano Island State Park Public Ramp	0.2099	Norton Street (Everett) Ramp	0.5649
1/14/2017	3	Camano Island State Park Public Ramp	0.2099	Norton Street (Everett) Ramp	0.5649
1/17/2017	4	Camano Island State Park Public Ramp	0.2099	Norton Street (Everett) Ramp	0.5649
1/20/2017	4	Camano Island State Park Public Ramp	0.2099	Norton Street (Everett) Ramp	0.5649
1/22/2017	4	Dagmar's Landing; Forklift Launch	0.0586	Norton Street (Everett) Ramp	0.5649
1/25/2017	5	Camano Island State Park Public Ramp	0.2099	Norton Street (Everett) Ramp	0.5649
1/27/2017	5	Camano Island State Park Public Ramp	0.2099	Norton Street (Everett) Ramp	0.5649
1/29/2017	5	Camano Island State Park Public Ramp	0.2099	Norton Street (Everett) Ramp	0.5649
1/31/2017	6	Camano Island State Park Public Ramp	0.2099	Norton Street (Everett) Ramp	0.5649
2/3/2017	6	Camano Island State Park Public Ramp	0.1406	Norton Street (Everett) Ramp	0.6973
2/4/2017	6	Dagmar's Landing; Forklift Launch	0.068	Norton Street (Everett) Ramp	0.6973
2/7/2017	7	Camano Island State Park Public Ramp	0.1406	Norton Street (Everett) Ramp	0.6973
2/10/2017	7	Camano Island State Park Public Ramp	0.1406	Norton Street (Everett) Ramp	0.6973
2/12/2017	7	Camano Island State Park Public Ramp	0.1406	Norton Street (Everett) Ramp	0.6973
2/15/2017	8	Camano Island State Park Public Ramp	0.1406	Norton Street (Everett) Ramp	0.6973
2/17/2017	8	Camano Island State Park Public Ramp	0.1406	Norton Street (Everett) Ramp	0.6973
2/18/2017	8	Camano Island State Park Public Ramp	0.1406	Norton Street (Everett) Ramp	0.6973
2/23/2017	9	Camano Island State Park Public Ramp	0.1406	Norton Street (Everett) Ramp	0.6973
2/25/2017	9	Camano Island State Park Public Ramp	0.1406	Norton Street (Everett) Ramp	0.6973
2/26/2017	9	Camano Island State Park Public Ramp	0.1406	Norton Street (Everett) Ramp	0.6973
3/1/2017	10	Camano Island State Park Public Ramp	0.1409	Norton Street (Everett) Ramp	0.6285
3/3/2017	10	Bayside Marine	0.0704	Norton Street (Everett) Ramp	0.6285
3/4/2017	10	Camano Island State Park Public Ramp	0.1409	Norton Street (Everett) Ramp	0.6285
3/7/2017	11	Camano Island State Park Public Ramp	0.1409	Norton Street (Everett) Ramp	0.6285
3/10/2017	11	Camano Island State Park Public Ramp	0.1409	Norton Street (Everett) Ramp	0.6285
3/12/2017	11	Camano Island State Park Public Ramp	0.1409	Norton Street (Everett) Ramp	0.6285
3/14/2017	12	Camano Island State Park Public Ramp	0.1409	Norton Street (Everett) Ramp	0.6285

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3/17/2017	12	Bayside Marine	0.0704	Norton Street (Everett) Ramp	0.6285
3/19/2017	12	Camano Island State Park Public Ramp	0.1409	Norton Street (Everett) Ramp	0.6285
3/22/2017	13	Camano Island State Park Public Ramp	0.1409	Norton Street (Everett) Ramp	0.6285
3/24/2017	13	Camano Island State Park Public Ramp	0.1409	Norton Street (Everett) Ramp	0.6285
3/25/2017	13	Camano Island State Park Public Ramp	0.1409	Norton Street (Everett) Ramp	0.6285
3/29/2017	14	Camano Island State Park Public Ramp	0.1409	Norton Street (Everett) Ramp	0.6285
4/1/2017	14	Camano Island State Park Public Ramp	0.1409	Norton Street (Everett) Ramp	0.6285
4/2/2017	14	Bayside Marine	0.0704	Norton Street (Everett) Ramp	0.6285
4/6/2017	15	Camano Island State Park Public Ramp	0.1409	Norton Street (Everett) Ramp	0.6285
4/7/2017	15	Camano Island State Park Public Ramp	0.1409	Norton Street (Everett) Ramp	0.6285
4/9/2017	15	Camano Island State Park Public Ramp	0.1409	Norton Street (Everett) Ramp	0.6285
4/11/2017	16	Camano Island State Park Public Ramp	0.1409	Norton Street (Everett) Ramp	0.6285
4/14/2017	16	Dagmar's Landing; Forklift Launch	0.0622	Norton Street (Everett) Ramp	0.6285
4/15/2017	16	Camano Island State Park Public Ramp	0.1409	Norton Street (Everett) Ramp	0.6285
4/20/2017	17	Camano Island State Park Public Ramp	0.1409	Norton Street (Everett) Ramp	0.6285
4/22/2017	17	Bayside Marine	0.0704	Norton Street (Everett) Ramp	0.6285
4/23/2017	17	Camano Island State Park Public Ramp	0.1409	Norton Street (Everett) Ramp	0.6285
4/26/2017	18	Camano Island State Park Public Ramp	0.1409	Norton Street (Everett) Ramp	0.6285
4/28/2017	18	Bayside Marine	0.0704	Norton Street (Everett) Ramp	0.6285
4/29/2017	18	Camano Island State Park Public Ramp	0.1409	Norton Street (Everett) Ramp	0.6285

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Appendix 1.3 Size measures by sample date, for sites sampled during dockside creel surveys for the 2016-17 winter Chinook MSF in Marine Area 10.

Sample Date	Week	Location #1	Site Size	Location #2	Site Size
11/1/2016	45	Armeni Public Ramp	0.1631	Shilshole Public Ramp	0.5629
11/4/2016	45	Shilshole Public Ramp	0.5629	Manchester Public Ramp	0.0174
11/5/2016	45	Armeni Public Ramp	0.1631	Shilshole Public Ramp	0.5629
11/9/2016	46	Kingston Public Ramp	0.1584	Shilshole Public Ramp	0.5629
11/12/2016	46	Armeni Public Ramp	0.1631	Shilshole Public Ramp	0.5629
11/17/2016	47	Armeni Public Ramp	0.1631	Shilshole Public Ramp	0.5629
11/18/2016	47	Shilshole Public Ramp	0.5629	Manchester Public Ramp	0.0174
11/19/2016	47	Shilshole Public Ramp	0.5629	Armeni Public Ramp	0.1631
11/21/2016	48	Shilshole Public Ramp	0.5629	Manchester Public Ramp	0.0174
11/26/2016	48	Shilshole Public Ramp	0.5629	Manchester Public Ramp	0.0174
11/27/2016	48	Armeni Public Ramp	0.8265	Shilshole Public Ramp	0.0992
12/1/2016	49	Shilshole Public Ramp	0.2959	Edmonds Boat Loft (Priv. fork lift)	0.2091
12/2/2016	49	Shilshole Public Ramp	0.2959	Kingston Public Ramp	0.2559
12/4/2016	49	Armeni Public Ramp	0.7127	Manchester Public Ramp	0.0804
12/6/2016	50	Shilshole Public Ramp	0.2959	Armeni Public Ramp	0.1373
12/9/2016	50	Shilshole Public Ramp	0.2959	Kingston Public Ramp	0.2559
12/10/2016	50	Shilshole Public Ramp	0.2959	Kingston Public Ramp	0.2559
12/14/2016	51	Shilshole Public Ramp	0.2959	Kingston Public Ramp	0.2559
12/16/2016	51	Edmonds Boat Loft (Priv. fork lift)	0.2091	Kingston Public Ramp	0.2559
12/17/2016	51	Shilshole Public Ramp	0.2959	Manchester Public Ramp	0.1018
12/22/2016	52	Shilshole Public Ramp	0.2959	Armeni Public Ramp	0.1373
12/23/2016	52	Shilshole Public Ramp	0.2959	Edmonds Boat Loft (Priv. fork lift)	0.2091
12/27/2016	53	Shilshole Public Ramp	0.2959	Kingston Public Ramp	0.2559
12/30/2016	53	Shilshole Public Ramp	0.2959	Armeni Public Ramp	0.1373
1/4/2017	2	Shilshole Public Ramp	0.3512	Kingston Public Ramp	0.2082
1/7/2017	2	Shilshole Public Ramp	0.3512	Armeni Public Ramp	0.1116

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1/8/2017	2	Armeni Public Ramp	0.1116	Kingston Public Ramp	0.2082
1/12/2017	3	Armeni Public Ramp	0.1116	Kingston Public Ramp	0.2082
1/13/2017	3	Armeni Public Ramp	0.1116	Edmonds Boat Loft (Priv. fork lift)	0.1018
1/14/2017	3	Shilshole Public Ramp	0.3512	Manchester Public Ramp	0.2272
1/17/2017	3	Armeni Public Ramp	0.1116	Manchester Public Ramp	0.2272
1/20/2017	4	Armeni Public Ramp	0.1116	Kingston Public Ramp	0.2082
1/22/2017	4	Shilshole Public Ramp	0.3512	Manchester Public Ramp	0.2272

2) CWT RECOVERIES

Appendix 2.1 Coded-wire tag (CWT) recoveries from the 2016-17 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	4-Mar-17	636674	2013	Purdy Cr 16.0005	George Adams Hatchery	WDFW	NA	58	79856	AD
5	5-Mar-17	636814	2014	Kendall Cr 01.0406	Kendall Cr Hatchery	WDFW	NA	72	79929	AD
5	17-Mar-17	211134	2014	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636815	52	79926	AD
5	23-Mar-17	90701	2012	Santiam R & N Fk-1	Marion Forks Hatch	ODFW	NA	84	79934	AD
5	29-Mar-17	636467	2012	Fallert Cr 27.0017	Fallert Cr Hatchery	WDFW	NA	84	79936	AD
5	30-Mar-17	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	61	79827	UNK
5	30-Mar-17	55730	2014	Spring Cr 29.0159	Spring Cr Nfh	USFWS	NA	61	79828	AD
5	1-Apr-17	90632	2013	Willamette R M Fk-1	Dexter Ponds (Willam	ODFW	NA	70	79860	AD
5	1-Apr-17	211133	2014	Co Line Pd2 03.1853B	Marblemount Hatchery	WDFW	NA	68	79861	AD
5	1-Apr-17	636494	2013	Kendall Cr 01.0406	Kendall Cr Hatchery	WDFW	NA	71	79927	AD
5	2-Apr-17	90882	2013	Mckenzie R 1	Mckenzie Hatchery	ODFW	NA	76	79864	AD
5	5-Apr-17	90699	2012	Willamette R Cst Fk	Mckenzie Hatchery	ODFW	NA	75	79932	AD
5	5-Apr-17	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW	NA	59	79933	AD
5	14-Apr-17	211092	2013	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636493	62	79871	AD
5	22-Apr-17	636479	2012	Gobar Cr 27.0073	Gobar Pond (27)	WDFW	NA	79	79865	AD
5	22-Apr-17	636630	NA	Na	Na	NA	NA	72	79866	AD
5	23-Apr-17	90922	2014	Tanner Cr (Bnville)	Bonneville Hatchery	ODFW	NA	55	79877	AD
5	23-Apr-17	636827	2014	Purdy Cr 16.0005	George Adams Hatchery	WDFW	636828	57	79882	AD
5	26-Apr-17	636661	2013	Friday Cr 03.0017	Samish Hatchery	WDFW	636662	58	80161	AD

Appendix 2.2 Coded-wire tag (CWT) recoveries from the 2016-17 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-Dec-16	636661	2013	Friday Cr 03.0017	Samish Hatchery	WDFW	636662	57	80151	AD
6	23-Dec-16	636674	2013	Purdy Cr 16.0005	George Adams Hatchery	WDFW	NA	59	80152	AD
6	30-Dec-16	636669	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	636670	55	80153	AD
6	30-Dec-16	636827	2014	Purdy Cr 16.0005	George Adams Hatchery	WDFW	636828	51	96684	AD
6	7-Jan-17	60661	2014	Moss Landing Min. Pt	Mok R Fish Ins	CDFW	NA	57	96685	AD
6	12-Jan-17	636674	2013	Purdy Cr 16.0005	George Adams Hatchery	WDFW	NA	66	28723	AD
6	13-Jan-17	636833	2014	Elwha R 18.0272	Elwha Hatchery	WDFW	NA	58	80154	AD
6	15-Jan-17	636674	2013	Purdy Cr 16.0005	George Adams Hatchery	WDFW	NA	71	80155	AD
6	25-Jan-17	636669	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	636670	67	28726	AD
6	27-Jan-17	636659	2013	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW	636660	61	96686	AD
6	27-Jan-17	211091	2013	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636499	70	96687	AD
6	27-Jan-17	636636	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	NA	63	80156	AD
6	28-Jan-17	211090	2013	Whitehorse Springs	Whitehorse Pond	STIL	NA	80	96688	AD
6	28-Jan-17	636667	2013	Finch Cr 16.0222	Hoodsport Hatchery	WDFW	NA	65	96689	AD
6	28-Jan-17	636498	2013	Minter Cr Tr 15.0051	Hupp Springs Rearing	WDFW	NA	63	24372	AD
6	28-Jan-17	636667	2013	Finch Cr 16.0222	Hoodsport Hatchery	WDFW	NA	64	80157	AD
6	28-Jan-17	636813	2014	Finch Cr 16.0222	Hoodsport Hatchery	WDFW	NA	57	80158	AD
6	29-Jan-17	636669	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	636670	68	28727	AD
6	29-Jan-17	636749	2013	East Sound Bay (San)	Glenwood Springs	COOP	NA	61	77188	AD
6	29-Jan-17	636498	2013	Minter Cr Tr 15.0051	Hupp Springs Rearing	WDFW	NA	64	77189	AD
6	29-Jan-17	211134	2014	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636815	54	77190	AD
6	31-Jan-17	211091	2013	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636499	62	96690	AD
6	31-Jan-17	636659	2013	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW	636660	57	96691	AD
6	31-Jan-17	636674	2013	Purdy Cr 16.0005	George Adams Hatchery	WDFW	NA	60	96692	AD
6	4-Feb-17	636667	2013	Finch Cr 16.0222	Hoodsport Hatchery	WDFW	NA	60	84904	AD

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6	4-Feb-17	636814	2014	Kendall Cr 01.0406	Kendall Cr Hatchery	WDFW	NA	53	84905	AD
6	11-Feb-17	636659	2013	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW	636660	57	80411	AD
6	11-Feb-17	636667	2013	Finch Cr 16.0222	Hoodsport Hatchery	WDFW	NA	62	80412	AD
6	12-Feb-17	60671	2014	San Joaq Shrm Isl Net Pen	Mok R Fish Ins	CDFW	NA	54	96553	AD
6	12-Feb-17	183287	2014	R-Cowichan R	H-Cowichan River H	CDFO	NA	54	96556	AD
6	12-Feb-17	636669	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	636670	69	28728	AD
6	12-Feb-17	636674	2013	Purdy Cr 16.0005	George Adams Hatchery	WDFW	NA	61	28729	AD
6	12-Feb-17	636669	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	636670	72	28730	AD
6	12-Feb-17	636674	2013	Purdy Cr 16.0005	George Adams Hatchery	WDFW	NA	59	28731	AD
6	12-Feb-17	636659	2013	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW	636660	66	28733	AD
6	12-Feb-17	636659	2013	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW	636660	63	80372	AD
6	12-Feb-17	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	55	80408	AD
6	12-Feb-17	211091	2013	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636499	60	84724	AD
6	12-Feb-17	211148	2014	Kalama Cr 11.0017	Kalama Cr Hatchery	NISQ	NA	52	84750	AD
6	13-Feb-17	636497	2013	Minter Cr Tr 15.0051	Hupp Springs Rearing	WDFW	NA	66	80159	AD
6	13-Feb-17	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	55	80160	AD
6	17-Feb-17	636635	2013	Finch Cr 16.0222	Hoodsport Hatchery	WDFW	NA	60	96554	AD
6	17-Feb-17	636667	2013	Finch Cr 16.0222	Hoodsport Hatchery	WDFW	NA	62	96698	AD
6	17-Feb-17	636636	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	NA	74	84688	AD
6	17-Feb-17	636495	2013	Cascade R 03.1411	Marblemount Hatchery	WDFW	636496	73	84711	AD
6	17-Feb-17	211148	2014	Kalama Cr 11.0017	Kalama Cr Hatchery	NISQ	NA	56	87663	AD
6	17-Feb-17	636669	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	636670	58	87664	AD
6	17-Feb-17	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW	NA	57	87665	AD
6	18-Feb-17	211101	2013	Tulalip Cr 07.0001	Bernie Gobin Hatch	TULA	211099	68	96693	AD
6	18-Feb-17	636674	2013	Purdy Cr 16.0005	George Adams Hatchery	WDFW	NA	62	96694	AD
6	18-Feb-17	636674	2013	Purdy Cr 16.0005	George Adams Hatchery	WDFW	NA	61	96699	AD
6	18-Feb-17	636494	2013	Kendall Cr 01.0406	Kendall Cr Hatchery	WDFW	NA	77	96700	AD
6	18-Feb-17	636659	2013	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW	636660	67	77192	AD

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6	18-Feb-17	182694	2014	R-Capilano R	H-Capilano River H	CDFO	NA	63	77193	AD
6	18-Feb-17	636495	2013	Cascade R 03.1411	Marblemount Hatchery	WDFW	636496	67	77194	AD
6	18-Feb-17	636659	2013	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW	636660	69	80370	AD
6	18-Feb-17	636669	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	636670	63	84708	AD
6	18-Feb-17	636636	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	NA	69	87666	AD
6	18-Feb-17	636669	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	636670	64	87668	AD
6	19-Feb-17	636494	2013	Kendall Cr 01.0406	Kendall Cr Hatchery	WDFW	NA	68	97352	AD
6	19-Feb-17	636635	2013	Finch Cr 16.0222	Hoodsport Hatchery	WDFW	NA	61	97353	AD
6	23-Feb-17	636659	2013	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW	636660	55	96695	AD
6	25-Feb-17	636674	2013	Purdy Cr 16.0005	George Adams Hatchery	WDFW	NA	75	96696	AD
6	25-Feb-17	636667	2013	Finch Cr 16.0222	Hoodsport Hatchery	WDFW	NA	64	96697	AD
6	25-Feb-17	636822	2014	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW	NA	59	77195	AD
6	25-Feb-17	636810	2014	Minter Cr 15.0048	Minter Cr Hatchery	WDFW	NA	53	80885	AD
6	25-Feb-17	636813	2014	Finch Cr 16.0222	Hoodsport Hatchery	WDFW	NA	49	84707	AD
6	26-Feb-17	636635	2013	Finch Cr 16.0222	Hoodsport Hatchery	WDFW	NA	57	77196	AD
6	1-Mar-17	211123	2014	Tulalip Cr 07.0001	Bernie Gobin Hatch	TULA	211122	63	97433	AD
6	2-Mar-17	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW	NA	59	77197	AD
6	2-Mar-17	636644	2013	Icy Cr 09.0125	Icy Cr Hatchery	WDFW	NA	62	77198	AD
6	4-Mar-17	211090	2013	Whitehorse Springs	Whitehorse Pond	STIL	NA	67	79728	AD
6	4-Mar-17	211132	2014	Whitehorse Springs	Whitehorse Pond	STIL	NA	58	80301	AD
6	7-Mar-17	636667	2013	Finch Cr 16.0222	Hoodsport Hatchery	WDFW	NA	63	80231	AD
6	7-Mar-17	636827	2014	Purdy Cr 16.0005	George Adams Hatchery	WDFW	636828	61	80302	AD
6	11-Mar-17	636667	2013	Finch Cr 16.0222	Hoodsport Hatchery	WDFW	NA	69	80232	AD
6	11-Mar-17	211088	2013	Co Line Pd2 03.1853B	Marblemount Hatchery	WDFW	NA	66	80303	AD
6	12-Mar-17	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	57	84701	AD
6	14-Mar-17	636667	2013	Finch Cr 16.0222	Hoodsport Hatchery	WDFW	NA	60	80304	AD
6	16-Mar-17	211134	2014	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636815	60	80305	AD
6	17-Mar-17	636810	2014	Minter Cr 15.0048	Minter Cr Hatchery	WDFW	NA	50	80306	AD

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6	17-Mar-17	211091	2013	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636499	69	80307	AD
6	17-Mar-17	211134	2014	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636815	56	84706	AD
6	19-Mar-17	211090	2013	Whitehorse Springs	Whitehorse Pond	STIL	NA	73	80308	AD
6	22-Mar-17	636674	2013	Purdy Cr 16.0005	George Adams Hatchery	WDFW	NA	69	80309	AD
6	31-Mar-17	211132	2014	Whitehorse Springs	Whitehorse Pond	STIL	NA	57	80310	AD
6	31-Mar-17	636636	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	NA	57	80311	AD
6	31-Mar-17	211091	2013	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636499	62	80312	AD
6	5-Apr-17	636813	2014	Finch Cr 16.0222	Hoodsport Hatchery	WDFW	NA	56	80235	AD
6	11-Apr-17	211123	2014	Tulalip Cr 07.0001	Bernie Gobin Hatch	TULA	211122	59	80313	AD
6	13-Apr-17	211091	2013	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636499	62	80233	AD
6	14-Apr-17	211103	2013	Sol Duc R 20.0096	Lonesome Cr Hatchery	QUIL	NA	77	80314	AD
6	14-Apr-17	636814	2014	Kendall Cr 01.0406	Kendall Cr Hatchery	WDFW	NA	63	80315	AD
6	15-Apr-17	636497	2013	Minter Cr Tr 15.0051	Hupp Springs Rearing	WDFW	NA	75	79729	AD
6	15-Apr-17	55720	2013	Methow R 48.0002	Winthrop Nfh	USFWS	NA	69	80234	AD
6	15-Apr-17	636635	2013	Finch Cr 16.0222	Hoodsport Hatchery	WDFW	NA	57	80316	AD
6	15-Apr-17	636635	2013	Finch Cr 16.0222	Hoodsport Hatchery	WDFW	NA	66	80317	AD

Appendix 2.3 Coded-wire tag (CWT) recoveries from the 2016-17 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	1-Oct-16	636894	2014	East Sound Bay (San)	Glenwood Springs	COOP	NA	53	74179	AD
7	1-Oct-16	183485	2014	R-Cowichan R	H-Cowichan River H	CDFO	NA	55	74180	AD
7	2-Oct-16	636824	2014	Wallace R 07.0940	Wallace R Hatchery	WDFW	636825	55	74193	AD
7	4-Oct-16	183485	2014	R-Cowichan R	H-Cowichan River H	CDFO	NA	61	74492	AD
7	9-Oct-16	636818	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW	NA	51	51097	AD
7	9-Oct-16	211101	2013	Tulalip Cr 07.0001	Bernie Gobin Hatch	TULA	211099	60	51098	AD
7	12-Oct-16	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW	NA	53	74493	AD
7	22-Oct-16	636781	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW	NA	52	51091	AD
7	22-Oct-16	636495	2013	Cascade R 03.1411	Marblemount Hatchery	WDFW	636496	72	97503	AD
7	23-Oct-16	211132	2014	Whitehorse Springs	Whitehorse Pond	STIL	NA	53	28503	AD
7	23-Oct-16	636669	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	636670	61	74494	AD
7	28-Oct-16	636669	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	636670	54	97504	AD
7	28-Oct-16	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW	NA	55	97505	AD
7	29-Oct-16	636669	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	636670	67	51099	AD
7	30-Oct-16	636636	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	NA	63	74495	AD
7	31-Oct-16	636636	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	NA	66	84756	AD
7	1-Dec-16	183485	2014	R-Cowichan R	H-Cowichan River H	CDFO	NA	54	84963	AD
7	2-Dec-16	211134	2014	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636815	58	73483	AD
7	2-Dec-16	636495	2013	Cascade R 03.1411	Marblemount Hatchery	WDFW	636496	63	73484	AD
7	2-Dec-16	636495	2013	Cascade R 03.1411	Marblemount Hatchery	WDFW	636496	72	73485	AD
7	2-Dec-16	636636	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	NA	66	73486	AD
7	2-Dec-16	636495	2013	Cascade R 03.1411	Marblemount Hatchery	WDFW	636496	77	73487	AD
7	2-Dec-16	636810	2014	Minter Cr 15.0048	Minter Cr Hatchery	WDFW	NA	66	73488	AD
7	2-Dec-16	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW	NA	60	73497	AD
7	2-Dec-16	636495	2013	Cascade R 03.1411	Marblemount Hatchery	WDFW	636496	74	73498	AD
7	2-Dec-16	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW	NA	62	73499	AD

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7	2-Dec-16	636781	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW	NA	58	73500	AD
7	2-Dec-16	211090	2013	Whitehorse Springs	Whitehorse Pond	STIL	NA	74	74194	AD
7	2-Dec-16	636669	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	636670	66	74195	AD
7	3-Dec-16	636644	2013	Icy Cr 09.0125	Icy Cr Hatchery	WDFW	NA	61	28721	AD
7	3-Dec-16	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW	NA	54	73104	AD
7	3-Dec-16	211101	2013	Tulalip Cr 07.0001	Bernie Gobin Hatch	TULA	211099	60	73105	AD
7	3-Dec-16	636814	2014	Kendall Cr 01.0406	Kendall Cr Hatchery	WDFW	NA	60	73465	AD
7	3-Dec-16	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW	NA	61	73466	AD
7	3-Dec-16	636669	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	636670	71	73467	AD
7	3-Dec-16	636494	2013	Kendall Cr 01.0406	Kendall Cr Hatchery	WDFW	NA	73	73489	AD
7	3-Dec-16	636814	2014	Kendall Cr 01.0406	Kendall Cr Hatchery	WDFW	NA	70	73490	AD
7	3-Dec-16	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	62	73491	AD
7	3-Dec-16	636781	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW	NA	62	73492	AD
7	3-Dec-16	211132	2014	Whitehorse Springs	Whitehorse Pond	STIL	NA	67	73493	AD
7	3-Dec-16	211132	2014	Whitehorse Springs	Whitehorse Pond	STIL	NA	56	73494	AD
7	3-Dec-16	636495	2013	Cascade R 03.1411	Marblemount Hatchery	WDFW	636496	71	73495	AD
7	3-Dec-16	211101	2013	Tulalip Cr 07.0001	Bernie Gobin Hatch	TULA	211099	70	73496	AD
7	3-Dec-16	636674	2013	Purdy Cr 16.0005	George Adams Hatchery	WDFW	NA	61	74196	AD
7	17-Dec-16	636669	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	636670	73	84903	AD
7	30-Dec-16	636669	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	636670	68	73305	AD
7	30-Dec-16	636495	2013	Cascade R 03.1411	Marblemount Hatchery	WDFW	636496	76	84665	AD
7	30-Dec-16	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	56	84666	AD
7	30-Dec-16	636822	2014	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW	NA	54	84667	AD
7	30-Dec-16	636781	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW	NA	63	84668	AD
7	30-Dec-16	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW	NA	63	84964	AD
7	30-Dec-16	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW	NA	54	84965	AD
7	7-Jan-17	636894	2014	East Sound Bay (San)	Glenwood Springs	COOP	NA	60	73306	AD
7	8-Jan-17	636495	2013	Cascade R 03.1411	Marblemount Hatchery	WDFW	636496	72	28722	AD
7	8-Jan-17	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW	NA	74	84669	AD

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7	12-Jan-17	636827	2014	Purdy Cr 16.0005	George Adams Hatchery	WDFW	636828	56	73307	AD
7	12-Jan-17	211134	2014	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636815	53	84670	AD
7	13-Jan-17	211101	2013	Tulalip Cr 07.0001	Bernie Gobin Hatch	TULA	211099	60	28724	AD
7	13-Jan-17	636674	2013	Purdy Cr 16.0005	George Adams Hatchery	WDFW	NA	64	28725	AD
7	13-Jan-17	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	57	73308	AD
7	13-Jan-17	636636	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	NA	62	84671	AD
7	13-Jan-17	211145	2014	Stillaguamish R -Sf	Brenner Hatchery	STIL	NA	56	84672	AD
7	14-Jan-17	636636	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	NA	66	73309	AD
7	14-Jan-17	636495	2013	Cascade R 03.1411	Marblemount Hatchery	WDFW	636496	78	73310	AD
7	14-Jan-17	211132	2014	Whitehorse Springs	Whitehorse Pond	STIL	NA	57	73312	AD
7	14-Jan-17	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	56	73313	AD
7	14-Jan-17	636819	2014	Friday Cr 03.0017	Samish Hatchery	WDFW	NA	64	84673	AD
7	14-Jan-17	636749	2013	East Sound Bay (San)	Glenwood Springs	COOP	NA	54	84674	AD
7	14-Jan-17	183598	2014	R-Cowichan R	H-Cowichan River H	CDFO	NA	54	84675	AD
7	14-Jan-17	636495	2013	Cascade R 03.1411	Marblemount Hatchery	WDFW	636496	68	84676	AD
7	19-Jan-17	636636	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	NA	58	84901	AD
7	20-Jan-17	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW	NA	64	73469	AD
7	20-Jan-17	636781	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW	NA	56	73470	AD
7	20-Jan-17	211101	2013	Tulalip Cr 07.0001	Bernie Gobin Hatch	TULA	211099	61	73471	AD
7	20-Jan-17	636636	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	NA	62	73472	AD
7	20-Jan-17	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW	NA	52	73473	AD
7	20-Jan-17	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW	NA	59	73474	AD
7	20-Jan-17	636814	2014	Kendall Cr 01.0406	Kendall Cr Hatchery	WDFW	NA	57	73475	AD
7	20-Jan-17	211088	2013	Co Line Pd2 03.1853B	Marblemount Hatchery	WDFW	NA	74	73476	AD
7	20-Jan-17	182693	2014	R-Big Qualicum R	H-Big Qualicum River H	CDFO	NA	NA	73477	AD
7	22-Jan-17	636674	2013	Purdy Cr 16.0005	George Adams Hatchery	WDFW	NA	57	84677	AD
7	22-Jan-17	636667	2013	Finch Cr 16.0222	Hoodsport Hatchery	WDFW	NA	59	84678	AD
7	26-Jan-17	636632	2013	Cascade R 03.1411	Marblemount Hatchery	WDFW	NA	63	84679	AD

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7	26-Jan-17	211132	2014	Whitehorse Springs	Whitehorse Pond	STIL	NA	52	84680	AD
7	27-Jan-17	636781	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW	NA	65	84681	AD
7	27-Jan-17	636636	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	NA	58	84682	AD
7	27-Jan-17	211132	2014	Whitehorse Springs	Whitehorse Pond	STIL	NA	57	84683	AD
7	27-Jan-17	636674	2013	Purdy Cr 16.0005	George Adams Hatchery	WDFW	NA	59	84684	AD
7	29-Jan-17	211123	2014	Tulalip Cr 07.0001	Bernie Gobin Hatch	TULA	211122	54	84685	AD
7	3-Feb-17	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW	NA	67	73018	AD
7	4-Feb-17	636669	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	636670	63	84686	AD
7	4-Feb-17	183897	2014	R-Chilliwack R	H-Chilliwack River H	CDFO	NA	55	84687	AD
7	25-Mar-17	636667	2013	Finch Cr 16.0222	Hoodsport Hatchery	WDFW	NA	69	97430	AD
7	25-Mar-17	636781	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW	NA	59	73132	AD
7	25-Mar-17	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW	NA	65	73133	AD
7	25-Mar-17	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	54	73134	AD
7	25-Mar-17	211052	2012	Whitehorse Springs	Whitehorse Pond	STIL	NA	75	84922	AD
7	1-Apr-17	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	54	84705	AD
7	1-Apr-17	183599	2014	R-Cowichan R	H-Cowichan River H	CDFO	NA	57	84923	AD
7	1-Apr-17	183669	2014	R-Cowichan R	H-Cowichan River H	CDFO	NA	58	84924	AD
7	2-Apr-17	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	54	73352	AD
7	2-Apr-17	636674	2013	Purdy Cr 16.0005	George Adams Hatchery	WDFW	NA	64	73353	AD
7	2-Apr-17	183282	2014	R-Cowichan R	H-Cowichan River H	CDFO	NA	52	84928	AD
7	2-Apr-17	211148	2014	Kalama Cr 11.0017	Kalama Cr Hatchery	NISQ	NA	59	84929	AD
7	6-Apr-17	636819	2014	Friday Cr 03.0017	Samish Hatchery	WDFW	NA	63	73354	AD
7	9-Apr-17	636822	2014	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW	NA	61	84930	AD
7	9-Apr-17	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW	NA	61	84931	AD
7	11-Apr-17	636669	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	636670	67	73106	AD
7	11-Apr-17	636818	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW	NA	60	73135	UM
7	11-Apr-17	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW	NA	66	73136	AD
7	14-Apr-17	211090	2013	Whitehorse Springs	Whitehorse Pond	STIL	NA	78	62338	AD
7	14-Apr-17	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW	NA	61	84933	AD

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7	15-Apr-17	636781	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW	NA	67	73355	AD
7	15-Apr-17	636669	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	636670	71	84934	AD
7	20-Apr-17	636669	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	636670	77	84749	AD
7	21-Apr-17	636674	2013	Purdy Cr 16.0005	George Adams Hatchery	WDFW	NA	73	84747	AD

Appendix 2.4 Coded-wire tag (CWT) recoveries from the 2016-17 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	1-Nov-16	636636	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	NA	71	74496	AD
81	27-Nov-16	211101	2013	Tulalip Cr 07.0001	Bernie Gobin Hatch	TULA	211099	64	74499	AD
81	17-Dec-16	636824	2014	Wallace R 07.0940	Wallace R Hatchery	WDFW	636825	54	80778	AD
81	21-Dec-16	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW	NA	60	84902	AD
81	12-Jan-17	211133	2014	Co Line Pd2 03.1853B	Marblemount Hatchery	WDFW	NA	53	84962	AD
81	25-Feb-17	636635	2013	Finch Cr 16.0222	Hoodsport Hatchery	WDFW	NA	64	84926	AD
81	17-Mar-17	636644	2013	Icy Cr 09.0125	Icy Cr Hatchery	WDFW	NA	61	80888	AD
81	18-Mar-17	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW	NA	70	81015	AD
81	18-Mar-17	211090	2013	Whitehorse Springs	Whitehorse Pond	STIL	NA	72	81017	AD
81	14-Apr-17	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW	NA	59	84960	AD
81	22-Apr-17	636813	2014	Finch Cr 16.0222	Hoodsport Hatchery	WDFW	NA	53	84906	AD
81	22-Apr-17	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	65	84907	AD
81	22-Apr-17	636814	2014	Kendall Cr 01.0406	Kendall Cr Hatchery	WDFW	NA	69	84908	AD
81	22-Apr-17	211123	2014	Tulalip Cr 07.0001	Bernie Gobin Hatch	TULA	211122	55	84909	AD
81	22-Apr-17	211133	2014	Co Line Pd2 03.1853B	Marblemount Hatchery	WDFW	NA	58	84950	AD
81	23-Apr-17	636636	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	NA	75	84912	AD
81	23-Apr-17	636822	2014	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW	NA	71	84913	AD
81	23-Apr-17	636789	2014	Icy Cr 09.0125	Icy Cr Hatchery	WDFW	NA	58	84914	AD
81	28-Apr-17	182694	2014	R-Capilano R	H-Capilano River H	CDFO	NA	70	84957	AD

Appendix 2.5 Coded-wire tag (CWT) recoveries from the 2016-17 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	1-Nov-16	211134	2014	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636815	56	74497	AD
82	5-Nov-16	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	58	99301	AD
82	26-Nov-16	211134	2014	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636815	52	74498	AD
82	28-Nov-16	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW	NA	54	74500	AD
82	14-Dec-16	636636	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	NA	58	84662	AD
82	17-Dec-16	211132	2014	Whitehorse Springs	Whitehorse Pond	STIL	NA	57	80777	AD
82	28-Dec-16	636822	2014	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW	NA	56	80845	AD
82	12-Feb-17	182695	2014	R-Sandy Cv	H-Sandy Cove Seapen	CDFO	NA	59	80846	AD
82	23-Feb-17	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	58	80883	AD
82	25-Feb-17	211148	2014	Kalama Cr 11.0017	Kalama Cr Hatchery	NISQ	NA	61	84927	AD
82	5-Mar-17	211132	2014	Whitehorse Springs	Whitehorse Pond	STIL	NA	75	80886	AD
82	18-Mar-17	636636	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	NA	71	81074	AD
82	19-Mar-17	211134	2014	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636815	55	80977	AD
82	19-Mar-17	636813	2014	Finch Cr 16.0222	Hoodsport Hatchery	WDFW	NA	57	80983	AD
82	19-Mar-17	211132	2014	Whitehorse Springs	Whitehorse Pond	STIL	NA	61	80984	AD
82	24-Mar-17	636636	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	NA	61	80889	AD
82	1-Apr-17	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	56	80890	AD
82	2-Apr-17	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW	NA	53	80985	AD
82	15-Apr-17	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW	NA	58	80893	AD
82	22-Apr-17	636636	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	NA	79	84910	AD
82	23-Apr-17	211123	2014	Tulalip Cr 07.0001	Bernie Gobin Hatch	TULA	211122	76	84911	AD
82	23-Apr-17	636636	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	NA	81	84915	AD
82	29-Apr-17	636669	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	636670	69	80894	AD
82	29-Apr-17	636810	2014	Minter Cr 15.0048	Minter Cr Hatchery	WDFW	NA	53	84958	UNK

Appendix 2.6 Coded-wire tag (CWT) recoveries from the 2016-17 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	17-Feb-17	211123	2014	Tulalip Cr 07.0001	Bernie Gobin Hatch	TULA	211122	63	80847	AD
9	17-Feb-17	211090	2013	Whitehorse Springs	Whitehorse Pond	STIL	NA	74	80848	AD
9	17-Feb-17	636667	2013	Finch Cr 16.0222	Hoodsport Hatchery	WDFW	NA	69	84710	AD
9	18-Feb-17	211132	2014	Whitehorse Springs	Whitehorse Pond	STIL	NA	68	80849	AD
9	18-Feb-17	636669	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	636670	75	80979	AD
9	18-Feb-17	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW	NA	51	80980	AD
9	18-Feb-17	636635	2013	Finch Cr 16.0222	Hoodsport Hatchery	WDFW	NA	59	80981	AD
9	18-Feb-17	636299	2012	Wallace R 07.0940	Wallace R Hatchery	WDFW	636364	78	84709	AD
9	18-Feb-17	636819	2014	Friday Cr 03.0017	Samish Hatchery	WDFW	NA	57	87615	AD
9	19-Feb-17	636635	2013	Finch Cr 16.0222	Hoodsport Hatchery	WDFW	NA	67	80850	AD
9	19-Feb-17	182695	2014	R-Sandy Cv	H-Sandy Cove Seapen	CDFO	NA	65	80882	AD
9	19-Feb-17	636823	2014	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW	NA	54	80982	UM
9	23-Feb-17	636498	2013	Minter Cr Tr 15.0051	Hupp Springs Rearing	WDFW	NA	68	80884	AD
9	25-Feb-17	636669	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	636670	71	81180	AD
9	1-Mar-17	636636	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	NA	68	97420	AD
9	1-Mar-17	636669	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	636670	71	97426	AD
9	16-Mar-17	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW	NA	60	97437	AD
9	16-Mar-17	636661	2013	Friday Cr 03.0017	Samish Hatchery	WDFW	636662	70	77270	AD
9	17-Mar-17	182695	2014	R-Sandy Cv	H-Sandy Cove Seapen	CDFO	NA	64	97431	AD
9	17-Mar-17	636635	2013	Finch Cr 16.0222	Hoodsport Hatchery	WDFW	NA	79	97432	AD
9	17-Mar-17	636495	2013	Cascade R 03.1411	Marblemount Hatchery	WDFW	636496	76	80887	AD
9	17-Mar-17	636822	2014	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW	NA	55	81089	AD
9	18-Mar-17	636894	2014	East Sound Bay (San)	Glenwood Springs	COOP	NA	59	81016	AD

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9	18-Mar-17	636781	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW	NA	62	81073	AD
9	1-Apr-17	636498	2013	Minter Cr Tr 15.0051	Hupp Springs Rearing	WDFW	NA	64	97429	AD
9	2-Apr-17	636291	2012	Cascade R 03.1411	Marblemount Hatchery	WDFW	636290	70	81066	AD
9	8-Apr-17	636789	2014	Icy Cr 09.0125	Icy Cr Hatchery	WDFW	NA	57	97424	AD
9	9-Apr-17	636827	2014	Purdy Cr 16.0005	George Adams Hatchery	WDFW	636828	59	97434	AD
9	11-Apr-17	636659	2013	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW	636660	71	97423	AD
9	11-Apr-17	636667	2013	Finch Cr 16.0222	Hoodsport Hatchery	WDFW	NA	59	80891	AD
9	11-Apr-17	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW	NA	69	80892	AD
9	15-Apr-17	211123	2014	Tulalip Cr 07.0001	Bernie Gobin Hatch	TULA	211122	63	97409	AD
9	15-Apr-17	211091	2013	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636499	53	97459	AD
9	15-Apr-17	636636	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	NA	67	80986	AD
9	15-Apr-17	636794	2014	Wallace R 07.0940	Wallace R Hatchery	WDFW	NA	54	81179	AD
9	15-Apr-17	211132	2014	Whitehorse Springs	Whitehorse Pond	STIL	NA	62	81181	AD
9	15-Apr-17	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	54	87616	AD
9	15-Apr-17	636822	2014	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW	NA	54	87617	AD

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Appendix 2.7 Coded-wire tag (CWT) recoveries from the 2016-17 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	19-Nov-16	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW	NA	60	87612	AD
10	20-Nov-16	636635	2013	Finch Cr 16.0222	Hoodsport Hatchery	WDFW	NA	64	80978	AD
10	15-Jan-17	183091	2014	R-Cowichan R	H-Cowichan River H	CDFO	NA	54	87614	AD

Appendix 2.8 Coded-wire tag (CWT) recoveries from the 2016-17 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	3/17/2017	211133	2014	Co Line Pd2 03.1853B	Marblemount Hatchery	WDFW		54	85181	AD

Appendix 2.9 Coded-wire tag (CWT) recoveries from the 2016-17 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	19-Feb-17	636813	2014	Finch Cr 16.0222	Hoodsport Hatchery	WDFW	NA	59	87998	AD
12	4-Mar-17	636813	2014	Finch Cr 16.0222	Hoodsport Hatchery	WDFW	NA	57	51930	AD
12	4-Mar-17	636827	2014	Purdy Cr 16.0005	George Adams Hatchery	WDFW	636828	58	51940	AD
12	4-Mar-17	636827	2014	Purdy Cr 16.0005	George Adams Hatchery	WDFW	636828	53	87995	AD
12	19-Mar-17	636814	2014	Kendall Cr 01.0406	Kendall Cr Hatchery	WDFW	NA	68	87996	AD
12	19-Mar-17	211123	2014	Tulalip Cr 07.0001	Bernie Gobin Hatch	TULA	211122	69	87997	AD
12	2-Apr-17	636813	2014	Finch Cr 16.0222	Hoodsport Hatchery	WDFW	NA	54	56534	AD
12	8-Apr-17	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	60	87994	AD

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Appendix 2.10 Coded-wire tag (CWT) recoveries from the 2016-17 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	3/11/2017	636810	2014	Minter Cr 15.0048	Minter Cr Hatchery	WDFW		67	87917	AD