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**2017 Summer Mark-Selective Recreational Chinook Fisheries  
In Marine Areas 5, 6, 7, 9, 11, 12 and 13**

**Post-season Report**

**DRAFT**

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## INTRODUCTION

In the marine environments of the Strait of Juan de Fuca and Puget Sound, abundant runs of hatchery Chinook salmon (*Oncorhynchus tshawytscha*) have been mixed with depressed runs of natural-origin Chinook salmon. Providing recreational anglers with opportunities to harvest abundant hatchery stocks while simultaneously protecting weaker, natural-origin stocks has proven to be a significant conservation and management challenge. The combination of large-scale hatchery marking (i.e., fin clipping) programs and mark-selective harvest regulations makes it possible for anglers to pursue and harvest hatchery Chinook salmon while minimally impacting natural-origin salmon populations. In such “mark-selective fisheries” (MSFs), anglers are generally allowed to retain adipose-fin clipped (“marked”) hatchery fish and are required to release unharmed any unclipped (“unmarked”, predominantly natural-origin) salmon encountered<sup>1</sup>.

Since the Washington Department of Fish and Wildlife (WDFW) implemented the first marine mark-selective Chinook salmon fishery in Marine Catch Areas 5 and 6 (Strait of Juan de Fuca) in 2003 based on state-tribal agreements (Thiesfeld and Hagen-Breaux 2005a, WDFW 2008a), mark-selective Chinook salmon fishing regulations have been implemented in multiple Puget Sound Marine Catch Areas during both the summer and winter seasons. As of the close of the summer 2017 fishing season, *summer* Chinook MSFs have occurred in Areas 5 and 6 for fifteen consecutive seasons, in Areas 9, 10, 11, and 13 for eleven consecutive seasons and in Area 12 for six consecutive seasons, Area 7 for its second season. Additionally, *winter* Chinook MSFs have occurred in Areas 8-1 and 8-2 for twelve consecutive seasons, in Areas 7, and 9 for ten consecutive seasons, in Areas 11 and 12 for eight consecutive seasons, in Area 6 for five seasons and in Area 5 for its third season<sup>2</sup>.

During the 2017 summer season, May through September, WDFW implemented six mark-selective Chinook salmon fisheries in Areas 5, 6, 7, 9, 10, 11, 12 and 13. The Chinook MSF seasons in each area were scheduled as follows:

- Areas 5 and 6 from July 1 through August 15, 2017;
- Area 7 from July 1 through July 31, 2017;
- Area 9 from July 16 through August 15, 2017;
- Area 10 from July 16 through August 15, 2017;
- Area 11 from June 1 through September 30, 2017;
- Area 12 from July 1 through September 30, 2017; and
- Area 13 from May 1 through September 30, 2017.

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<sup>1</sup>The regulations specific to summer mark-selective fisheries in Puget Sound Marine Catch Areas allowed for the retention of up to two legal-sized ( $\geq 22$  inches [56 cm]) marked Chinook salmon per day and required the immediate release of all unmarked or sublegal Chinook salmon. 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.

<sup>2</sup> 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>.

## **RESULTS**

### **1) Marine Area 5 Summer Mark-Selective Chinook Fishery**

The Washington Department of Fish and Wildlife (WDFW) implemented a fifteenth consecutive summer Chinook MSF in Marine Area 5 from July 1 through August 15, 2017. WDFW's Puget Sound Sampling Unit (PSSU) implemented an intensive monitoring program in Area 5 throughout the season to collect the data needed to estimate key parameters characterizing the fishery and its impacts on unmarked salmon. Sampling activities included dockside creel sampling and intensive efforts to distribute and collect voluntary trip reports (VTRs) from the angling public. During the summer 2017 mark-selective Chinook salmon fishery in Area 5 we maintained our enhanced VTR program to improve the return rate of VTRs, which provide estimates of Chinook salmon encounter rates by size class (legal or sublegal) and mark status (ad-marked or unmarked). **Table 1.1** summarizes the parameters estimated and the sampling activities associated with each parameter. Specific procedures used for collecting these data and estimating critical data parameters are presented in detail in our separate Methods Report (WDFW 2012a). In this section we present results from our monitoring activities during the Area 5 summer Chinook MSF.

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

Activity	Focal Parameter(s)	Secondary Parameter(s)	Sample Unit(s)	Finest Estimation Time Step	Comments
Dockside Creel Sampling	Fishing effort (boat & angler trips); kept and released fish <sup>1</sup>	Catch rates (CPUE); length, age, and CWT composition of harvest <sup>1</sup> ; 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	2 weekend boat surveys and 2 weekday surveys were conducted during the 2017 Area 5 summer Chinook MSF. As in-season observations suggested that sites and effort patterns did not change substantially in 2017 compared to past years, we incorporated data from these surveys into recent average site weights to compute catch and effort estimates.
Voluntary Trip Reports (VTRs)	Size (legal/sublegal) and mark-status (marked/unmarked) composition of encountered Chinook salmon	Encounter data for non-Chinook salmon species (e.g., Coho salmon) that the angler may record on the VTR form	Fish encounter	Season	We used VTR data to estimate the size/mark-status proportions (LM = 15%, LU = 9%, SM = 50%, SU = 25%; <b>Table 1.4</b> ) needed to produce encounter and mortality estimates.
Overall Fishery Impacts Estimation	Total Chinook salmon encounters and mortalities by size/mark-status group	Ratios of encounters and mortalities per kept Chinook salmon	N/A	Season	Estimated on a monthly time step but considered at the season-total level.
Coded-wire tag (CWT) Impacts Estimation	Marked/unmarked double-index tag (DIT) encounters and mortalities	N/A	N/A	Season	The temporal resolution of DIT impacts is constrained by the total number of tags recovered.

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



**Table 1.2** Estimates of total fishing effort and total salmon catch (harvest and releases) during the 2017 summer Chinook MSF in Marine Area 5. Values may not add exactly due to rounding error. AD = marked (adipose-clipped), UM = unmarked.

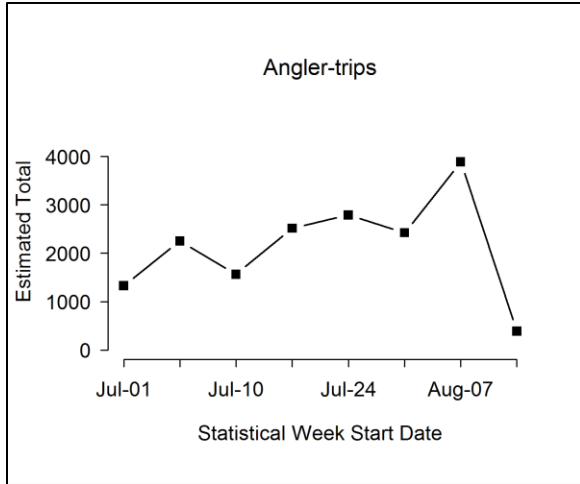
Month	Stat Week	Start Date	End Date	Est. Effort		Est. Retained Chinook		Est. Released Chinook		Total Est. Chinook Encounters
				Boats	Anglers	AD	UM	AD	UM	
July	27	1-Jul	2-Jul	549	1,330	141	3	541	360	1,045
	28	3-Jul	9-Jul	956	2,250	251	0	965	647	1,863
	29	10-Jul	16-Jul	743	1,564	308	0	1182	793	2,282
	30	17-Jul	23-Jul	1110	2,514	593	4	2280	1525	4,402
	31	24-Jul	30-Jul	1146	2,790	441	0	1693	1135	3,269
August	32	31-Jul	6-Aug	1043	2,422	229	0	881	591	1,700
	33	7-Aug	13-Aug	1,528	3,888	292	0	1123	753	2,168
	34	14-Aug	15-Aug	147	387	54	0	207	138	399
<b>Season Total:</b>				<b>7,221</b>	<b>17,144</b>	<b>2,309</b>	<b>7</b>	<b>8,871</b>	<b>5,942</b>	<b>17,129</b>
<b>Variance:</b>				173,410	1,090,410	42,153	15	2,108,681	670,632	6,515,230
<b>SE:</b>				416	1044	205	4	1,452	819	2,552
<b>CV (%):</b>				6	6	9	58	16	14	15
<b>95% CI:</b>				6,405 - 8,038	15,098 - 19,191	1,907- 2,712	0 - 14	6,025 - 11,717	4,337 - 7,547	12,126 - 22,132

**Table 1.3** Number of total length samples collected from retained Chinook salmon collected during dockside angler interviews in the 2017 summer Chinook MSF in Marine Area 5.

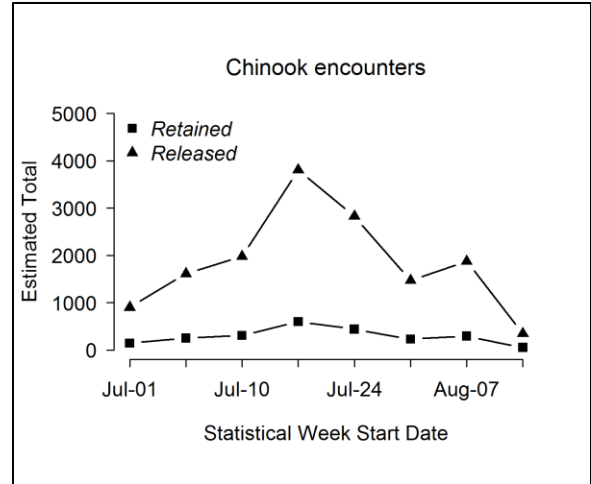
Mark Type	Number Sampled		
	Legal-size	Sublegal-size	Total
Marked	741	36	777
Unmarked	2	4	6
<b>Total</b>	<b>743</b>	<b>40</b>	<b>783</b>

**Table 1.4** Total Chinook salmon encountered (retained and released) by private-boat anglers logging their trips on voluntary trip reports (VTRs) during the 2017 summer Chinook MSF in Marine Area 5, 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.

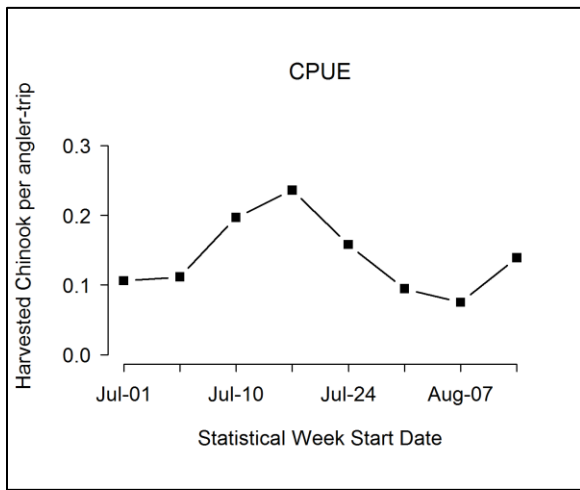
Data Source	Effort and Sample Size	Legal		Sublegal		Totals	Mark Rate	
		AD	UM	AD	UM		Overall	Legal
Private VTR	66 1-trip VTRs, 159 Angler Trips	60	38	205	103	406	0.65	0.61
Size/mark-status composition:		0.15	0.09	0.50	0.25			
Variance:		(0.0003)	(0.0002)	(0.0006)	(0.0005)			



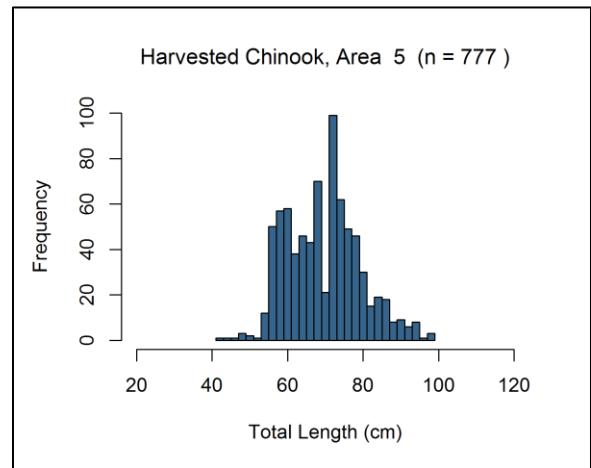
**Figure 1.1** Temporal patterns in fishing effort during the 2017 summer Chinook MSF in Marine Area 5.



**Figure 1.3** Temporal patterns in Chinook salmon encounters (retained and released) during the 2017 summer Chinook MSF in Marine Area 5.



**Figure 1.2** Temporal patterns in CPUE (landed Chinook salmon per angler trip) during the 2017 summer Chinook MSF in Marine Area 5.



**Figure 1.4** Length-frequency distribution of retained marked Chinook salmon sampled in dockside angler interviews during the 2017 summer Chinook MSF in Marine Area 5.

**Table 1.5** Summary of coded-wire tags recovered from Chinook salmon harvested during the 2017 summer Chinook MSF in Marine Area 5. The field "Number DITs" corresponds to the number of tags that belonged to double-index tag groups.

Release Domain	Release Region	Release Site	Rearing Location	CWTs Recovered	No. DITs
BC	Fraser River – Thompson River (10.2%)	Harrison R	Chehalis River H	1 (1.7%)	0
		Chilliwack R	Chilliwack River H	3 (5.1%)	0
		Shuswap R Low	Shuswap River, Middle,	2 (3.4%)	0
	Georgia Strait (3.4%)	Sandy Cv	Sandy Cove Seapen	1 (1.7%)	0
		Cowichan R	Cowichan River H	1 (1.7%)	0
WA	N Washington (3.4%)	Kendall Cr 01.0406	Kendall Cr Hatchery	1 (1.7%)	0
		East Sound Bay (San)	Glenwood Springs	1 (1.7%)	0
	N Washington Coast (3.4%)	Sol Duc R 20.0096	Lonesome Cr Hatchery	1 (1.7%)	0
		Tsoo-Yess R 20.0015	Makah NFH On Tsoo-Yess R	1 (1.7%)	0
	Strait Of Juan De Fuca (3.4%)	Hoko R 19.0148	Hoko Falls Hatchery	1 (1.7%)	0
		Elwha R 18.0272	Elwha Hatchery	1 (1.7%)	0
	Hood Canal (15.3%)	Purdy Cr 16.0005	George Adams Hatchery	4 (6.8%)	4
		Finch Cr 16.0222	Hoodsport Hatchery	5 (8.5%)	0
	N Puget Sound (6.8%)	Wallace R 07.0940	Wallace R Hatchery	1 (1.7%)	1
		Tulalip Cr 07.0001	Bernie Gobin Hatch	2 (3.4%)	2
		Whitehorse Springs	Whitehorse Pond	1 (1.7%)	0
	Skagit River (8.5%)	Co Line Pd2 03.1853B	Marblemount Hatchery	4 (6.8%)	0
		Cascade R 03.1411	Marblemount Hatchery	1 (1.7%)	0
	Mid Puget Sound (18.6%)	Big Soos Cr 09.0072	Soos Creek Hatchery	4 (6.8%)	0
		Grovers Cr 15.0299	Grovers Cr Hatchery	2 (3.4%)	2
		Voight Cr 10.0414	Voights Cr Hatchery	4 (6.8%)	0
		White R 10.0031	White River Hatchery	1 (1.7%)	0
	S Puget Sound (18.6%)	Clear Cr 11.0013C	Clear Creek Hatchery	4 (6.8%)	4
		Kalama Cr 11.0017	Kalama Cr Hatchery	3 (5.1%)	0
		Minter Cr 15.0048	Minter Cr Hatchery	3 (5.1%)	0
Minter Cr 15.0048		Hupp Springs Rearing	1 (1.7%)	0	
Col Riv.	Upper Columbia R (1.7%)	Omak Pond	Chief Joseph Hatchery	1 (1.7%)	0
	Central Columbia River (1.7%)	Spring Cr 29.0159	Spring Cr NFH	1 (1.7%)	0
	Lower Columbia River (3.4%)	Cowlitz R 26.0002	Cowlitz Salmon Hatchery	1 (1.7%)	0
		McKenzie R 1	McKenzie Hatchery	1 (1.7%)	0
	Snake River (1.7%)	Magruder Corridor	Nez Perce Tribal Hatchery	1 (1.7%)	0
<b>Total</b>				<b>59</b>	<b>13</b>

**Table 1.6** Summary of season-wide fishery impact estimates for the 2017 summer Chinook MSF in Marine Area 5. 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	2,531	2,202	329	49	2,252	44,717	211	1,837 - 2,666	9
Legal UM	1,603	2	1,601	240	242	2,639	51	142 - 343	21
Sublegal AD	8,649	107	8,542	1708	1,815	73,933	272	1,282 - 2,348	15
Sublegal UM	4,346	4	4,341	868	873	22,146	149	581 - 1,164	17
<b>Total</b>	<b>17,129</b>	<b>2,316</b>	<b>14,813</b>	<b>2,866</b>	<b>5,182</b>	<b>143,435</b>	<b>379</b>	<b>4,440 - 5,924</b>	<b>7</b>

**Table 1.7** Comparison of modeled (FRAM model run 2017) and estimated total Chinook salmon encounters for the 2017 summer Chinook MSF in Marine Area 5. 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	9,420	2,885	6,535	29
	AD	11,703	5,055	6,648	4,398
	Total	21,123	7,940	13,183	4,427
	% Marked	55	64	50	99
Estimated (Creel) Encounters	UM	5,949	1,603	4,346	7
	AD	11,180	2,531	8,649	2,309
	Total	17,129	4,135	12,995	2,316
	% Marked	65	61	67	100

**Table 1.8** Comparison of modeled (FRAM model run 2017) and estimated total Chinook salmon mortalities for the 2017 summer Chinook MSF in Marine Area 5. 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)	1,766	6,047	7,813	1,115	4,067	5,182
Released Legal	430	319	749	240	49	290
Released Sublegal	1307	1,330	2,637	868	1708	2,577
Landed Only	29	4,398	4,427	7	2,309	2,316

**Table 1.9** Summary of double-index tagged (DIT) Chinook salmon kept by anglers, and estimated total mortality of unmarked DIT Chinook salmon due to hook-and-release impacts resulting from the 2017 summer Chinook MSF in Marine Area 5. AD = marked (adipose-clipped), UM = unmarked.

Hatchery	Brood Year	DITs Obs	Est.AD	Var (Est.AD)	UM DIT Enc	Est.UM	Var (Est.UM)	SE (Est.UM)
Bernie Gobin Hatch	2014	2	5.9	11.58	5.7	0.6	0.109	0.47
Clear Creek Hatchery	2014	4	11.8	23.16	12	1.2	0.238	0.98
George Adams Hatchery	2014	4	11.8	23.16	11.8	1.2	0.232	0.96
Grovers Cr Hatchery	2013	1	3	5.79	2.9	0.3	0.056	0.24
Grovers Cr Hatchery	2014	1	3	5.79	3	0.3	0.061	0.25
Wallace R Hatchery	2013	1	3	5.79	3	0.3	0.06	0.24
<b>Total</b>		<b>13</b>	<b>38.5</b>	<b>75.28</b>	<b>38.5</b>	<b>3.9</b>	<b>0.756</b>	<b>3.13</b>

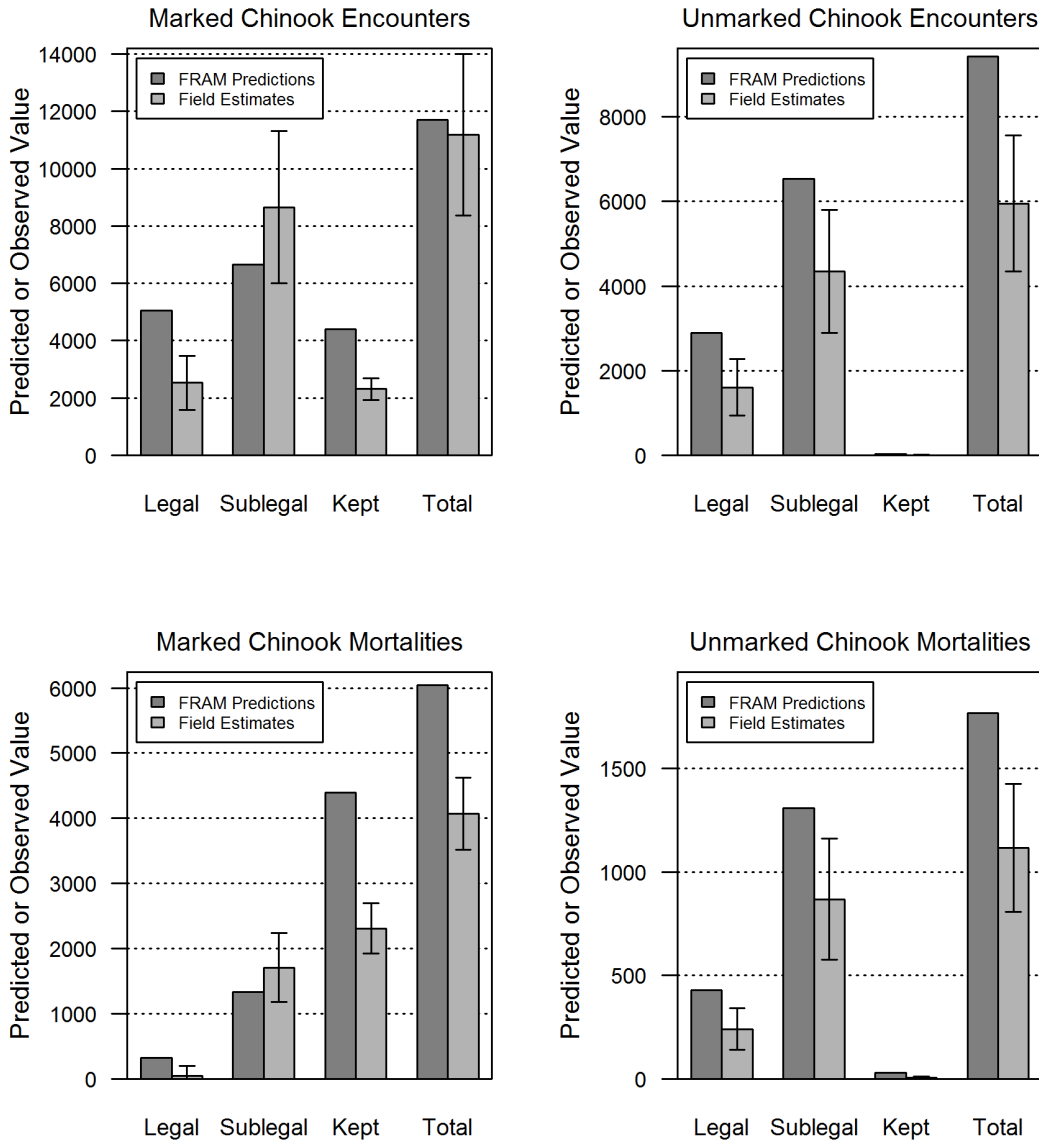
**Table 1.10** Monthly sample rates (Total retained Chinook salmon sampled<sup>1</sup> / Estimated retained Chinook salmon) for the 2017 summer Chinook MSF in Marine Area 5. AD = marked (adipose-clipped), UM = unmarked.

Time period			Estimated Retained Chinook			Number of Chinook sampled			Sample Rate
Month	Stat Weeks	Dates	AD	UM	Total	AD	UM	Total	
July	27 - 31	01 Jul - 30 Jul	1,734	7	1,741	555	3	558	32.10%
August	32 - 34	31 Jul - 15 Aug	575	0	575	222	3	225	39.10%
<b>Season Total</b>			<b>2,309</b>	<b>7</b>	<b>2,316</b>	<b>777</b>	<b>6</b>	<b>783</b>	<b>33.80%</b>

<sup>1</sup> Number of retained Chinook salmon sampled includes all retained Chinook salmon inspected for CWT's, from all sites sampled during the 2017 summer Chinook MSF in Marine Area 5 (creel estimates and fish sampled as part of baseline sampling).

**Table 1.11** Fishery-total estimates of retained and released salmon (*other than Chinook salmon*) for the 2017 summer Chinook MSF in Marine Area 5 and the 2017 Baseline Non-Selective Coho fishery in Marine Area 5. Values may not add exactly due to rounding error. AD = marked (adipose-clipped), UM = unmarked.

Stat Week	Start Date	End Date	Retained Salmon			Released Salmon		
			Coho AD	Pink	Sockeye	Coho AD	Coho UM	Coho UK
27	1-Jul	2-Jul	35	7	0	27	23	34
28	3-Jul	9-Jul	22	7	0	69	73	46
29	10-Jul	16-Jul	26	9	0	29	86	41
30	17-Jul	23-Jul	75	132	0	32	150	55
31	24-Jul	30-Jul	94	148	0	21	225	55
32	31-Jul	6-Aug	62	81	0	53	632	72
33	7-Aug	13-Aug	90	58	7	52	705	55
34	14-Aug	15-Aug	76	10	0	5	66	0
<b>Season Total:</b>			<b>480</b>	<b>450</b>	<b>7</b>	<b>286</b>	<b>1961</b>	<b>357</b>
<b>Variance:</b>			3,421	14,843	38	2,813	426,513	20,803
<b>Standard Error:</b>			58	122	6	53	653	144
<b>CV (%):</b>			12	27	91	19	33	40
<b>95% CI:</b>			366 - 595	212 - 689	0 - 19	182 - 390	681 - 3,241	75 - 640
<b>8/16 - 8/31 Non-Selective Baseline Coho Fishery</b>								
Stat Week	Start Date	End Date	Retained Salmon			Released Salmon		
			Coho AD	Coho UM	Pink	Coho AD	Coho UM	Coho UK
34	16-Aug	20-Aug	236	32	0	27	343	70
35	21-Aug	27-Aug	353	0	27	26	269	219
36	28-Aug	31-Aug	1601	0	38	587	2507	1014
<b>Total</b>			<b>2190</b>	<b>32</b>	<b>65</b>	<b>639</b>	<b>3119</b>	<b>1303</b>



**Figure 1.5** Comparison of modeled (using FRAM, model run 2017) and estimated total Chinook salmon encounters and mortalities for the 2017 summer Chinook MSF in Marine Area 5. Error bars represent approximate 95% confidence intervals for field estimates.

**Table 1.12** Summary of the total number of anglers intercepted during on-the-water surveys conducted for the 2017 summer Chinook MSF in Marine Area 5. Sites in bold represent those included in the dockside sample frame.

Site Name	Weekday Anglers	Season Total (unadjusted) Size Measure	Weekend Anglers	Season Total (unadjusted) Size Measure
Coho Resort	19	0.09	12	0.04
<b>Curley's Resort</b>	<b>14</b>	<b>0.06</b>	<b>27</b>	<b>0.09</b>
Olalla Public Ramp	0	0.00	49	0.16
<b>Olson's East Docks</b>	<b>71</b>	<b>0.32</b>	<b>81</b>	<b>0.27</b>
<b>Olson's Ramp &amp; Docks</b>	<b>39</b>	<b>0.18</b>	<b>18</b>	<b>0.06</b>
<b>Olson's Resort</b>	<b>0</b>	<b>0.00</b>	<b>6</b>	<b>0.02</b>
Olson's West Docks	7	0.03	7	0.02
Olson's South Dock	3	0.01	0	0.00
Sekiu Beach General	7	0.03	0	0.00
<b>Van Riper's North</b>	<b>38</b>	<b>0.17</b>	<b>60</b>	<b>0.20</b>
<b>Van Riper's South</b>	<b>22</b>	<b>0.10</b>	<b>40</b>	<b>0.13</b>
<b>Total Anglers</b>	<b>220</b>	<b>1</b>	<b>300</b>	<b>1</b>

**Table 1.13** Season-total estimates of Chinook salmon encounters by size/mark-status and total estimates of angler effort, summarized for all seasons to date of the Area 5 summer Chinook MSF. Values may not add exactly due to rounding error.

Season Dates	Effort (Angler -trips)	Retained Chinook				Released Chinook				Total Encounters
		LM	LU	SM	SU	LM	LU	SM	SU	
Jul 5 - Aug 3, 2003	19,398	2,251	53	225	0	336	3,435	1,656	5,174	13,131
Jul 1 - Aug 10, 2004	25,174	2,706	0	194	0	404	4,017	1,167	2,462	10,950
Jul 1 - Aug 10, 2005	30,115	1,520	23	100	26	227	1,418	1,210	1,459	5,984
Jul 1 - Aug 14, 18-21, 2006	23,177	3,105	10	196	7	464	3,125	1,010	2,212	10,129
Jul 1 - Aug 9, 2007	18,830	2,969	23	280	94	444	2,509	1,371	1,118	8,808
Jul 1 - Aug 10, 2008	13,004	2,773	0	45	0	414	1,869	65	330	5,496
Jul 1 - Aug 6, 2009	23,662	4,843	78	1,115	362	724	6,210	9,823	14,309	37,463
Jul 1 - Aug 15, 2010	16,806	5,461	14	242	0	816	4,961	3,163	4,140	18,796
Jul 1 - Aug 15, 2011	24,848	4,259	70	276	22	636	9,275	1,593	5,319	21,450
Jul 1 - Aug 15, 2012	21,074	5,437	9	242	9	812	4,617	3,105	4,765	18,996
Jul 1 - Aug 15, 2013	25,725	7,473	77	933	81	1,117	7,188	8,173	8,702	33,743
Jul 1 - Aug 15, 2014	23,310	4,684	41	401	8	700	3,005	3,707	7,359	19,905
Jul 1 - Aug 15, 2015	21,313	4,434	35	316	17	663	7,562	14,302	8,445	35,774
Jul 1 - Aug 15, 2016	14,684	3,113	2	230	0	465	1,248	14,903	6,122	26,083
Jul 1 - Aug 15, 2017	17,144	2,202	2	107	4	329	1,601	8,542	4,341	17,129



## 2) Marine Area 6 Summer Mark-Selective Chinook Fishery

The Washington Department of Fish and Wildlife (WDFW) implemented a fifteenth consecutive summer Chinook MSF in Marine Area 6 from July 1 through August 15, 2017. WDFW's Puget Sound Sampling Unit (PSSU) implemented a "Baseline Sampling" program (see WDFW 2012a for details) consisting of dockside angler interviews with catch sampling along with intensive efforts to distribute and collect voluntary trip reports (VTRs) from the angling public. We maintained our enhanced VTR program to improve the return rate of voluntary trip reports, which provide estimates of Chinook salmon encounter rates by size class (legal or sublegal) and mark status (ad-marked or unmarked).

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

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

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

Activity	Focal Parameter(s)	Secondary Parameter(s)	Sample Unit(s)	Finest Estimation Time Step	Comments
Dockside Angler Interviews (Baseline Sampling)	Observed (in-sample) fishing effort (boat & angler trips); kept and released fish.	Catch rates (CPUE); length, age, and CWT composition of harvest <sup>1</sup> ; collection of angler fishing methods.	Angler trip; kept fish; reported fish release	Week	Observed catch per angler trip and species composition data obtained from baseline sampling will ultimately be combined with Catch Record Card (CRC) data to produce fishery-total estimates at a later time (approximately one year following the fishery).
Voluntary Trip Reports (VTRs)	Size (legal/sublegal) and mark-status composition (marked, unmarked) of encountered Chinook salmon	Encounter data for non-Chinook salmon species (e.g., Coho salmon) that the angler may record on the VTR form	Fish encounter	Season	When CRC-based retained Chinook salmon estimates become available VTR data will be used in the estimation of total Chinook salmon encounters by size/mark group (LM = 61%, LU = 11%, SM = 23%, SU = 3%; <b>Table 2.5</b> ), along with associated impacts, using the methods described in WDFW & NWIFC (2013).
Overall Fishery Impacts Estimation	Total Chinook salmon encounters and mortalities by size/mark-status group	Ratios of encounters and mortalities per kept Chinook salmon	N/A	Season	Will be estimated at a later date using the CRC-based retained Chinook salmon estimate, when it becomes available.
Coded-wire tag (CWT) Impacts Estimation	Marked/unmarked double-index tag (DIT) encounters and mortalities	N/A	N/A	Season	Will be estimated at a later date using the CRC-based retained Chinook salmon estimate, when it becomes available. The temporal resolution of DIT impacts is constrained by the total number of tags recovered.

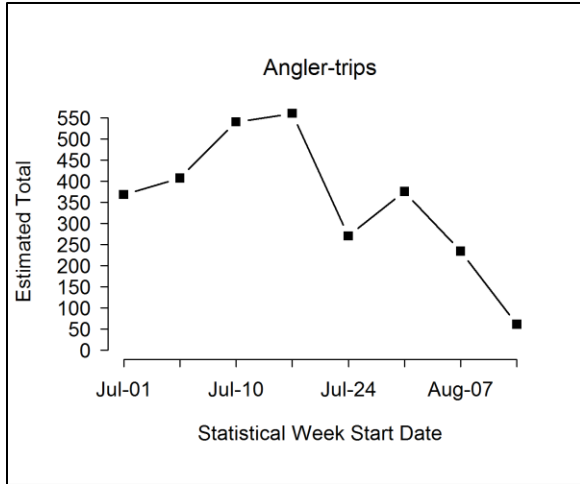
<sup>1</sup> The length and CWT composition of landed catch was assessed on a season-wide basis for impact estimation.

**Table 2.2** Observations of fishing effort, salmon harvest, and reported salmon releases, by week, for the 2017 summer Chinook MSF in Marine Area 6. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates. AD = marked (adipose-clipped), UM = unmarked, UK = unknown mark status.

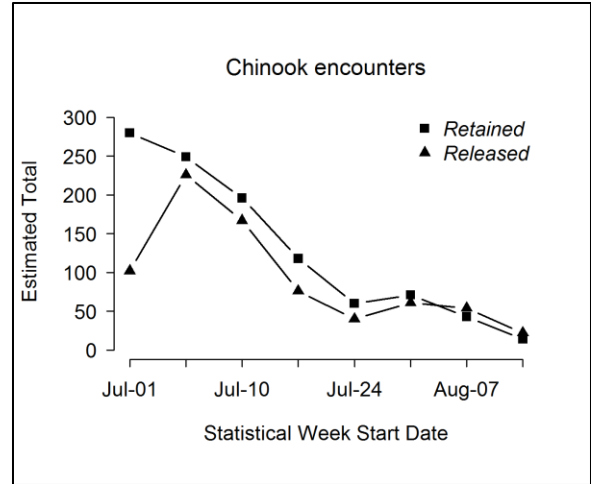
Stat Wk	Start	End	Effort		Retained Fish						Released Fish							
			Boats	Anglers	Chin AD	Chin UM	Chin UNK	Coho AD	Coho UM	Pink	Chin AD	Chin UM	Chin UK	Coho AD	Coho UM	Coho UNK	Pink	UNK
27	1-Jul	2-Jul	166	368	280	0	0	2	1	0	66	36	59	0	0	1	2	0
28	3-Jul	9-Jul	207	407	249	0	0	0	0	0	144	82	33	3	0	0	7	7
29	10-Jul	16-Jul	272	540	194	2	0	0	0	0	104	63	6	0	1	0	0	0
30	17-Jul	23-Jul	289	560	118	0	0	1	0	1	29	47	9	0	2	0	4	0
31	24-Jul	30-Jul	138	270	60	0	0	0	0	2	10	30	2	0	3	0	0	0
32	31-Jul	6-Aug	199	375	71	0	1	0	0	9	15	46	9	1	3	1	2	0
33	7-Aug	13-Aug	125	234	43	0	0	0	0	15	20	34	1	0	1	2	2	0
34	14-Aug	15-Aug	33	61	14	0	0	0	0	11	16	6	0	0	0	0	0	0
<b>Season Total</b>			<b>1429</b>	<b>2815</b>	<b>1029</b>	<b>2</b>	<b>1</b>	<b>3</b>	<b>1</b>	<b>38</b>	<b>404</b>	<b>344</b>	<b>119</b>	<b>4</b>	<b>10</b>	<b>4</b>	<b>17</b>	<b>7</b>

**Table 2.3** Number of total length samples from retained Chinook salmon collected during dockside angler interviews in the 2017 summer Chinook MSF in Marine Area 6.

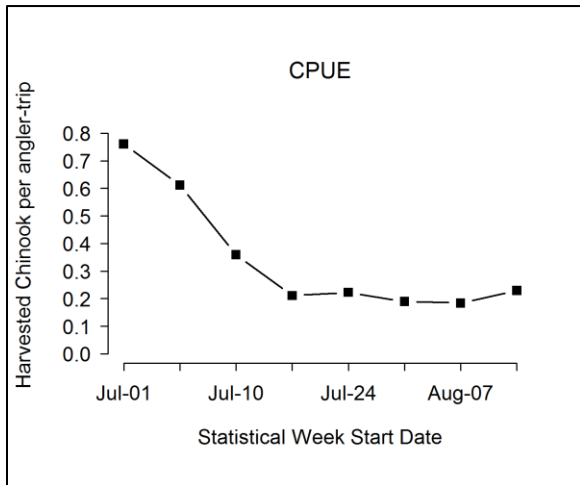
Mark Type	Number Sampled		
	Legal-size	Sublegal-size	Total
Marked	923	10	933
Unmarked	0	0	0
<b>Total</b>	<b>923</b>	<b>10</b>	<b>933</b>



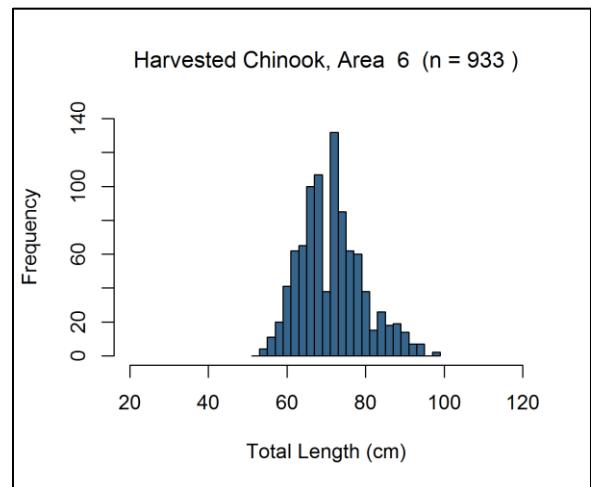
**Figure 2.1** Temporal patterns in fishing effort during the 2017 summer Chinook MSF in Marine Area 6. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates.



**Figure 2.3** Temporal patterns in Chinook salmon encounters (retained and released) during the 2017 summer Chinook MSF in Marine Area 6. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates.



**Figure 2.2** Temporal patterns in CPUE (landed Chinook salmon per angler trip) during the 2017 summer Chinook MSF in Marine Area 6. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates.



**Figure 2.4** Length-frequency distributions of retained marked Chinook salmon sampled in dockside angler interviews during the 2017 summer Chinook MSF in Marine Area 6.

**Table 2.4** Summary of coded-wire tags recovered from Chinook salmon harvested during the 2017 summer Chinook MSF in Marine Area 6. The field “Number DITs” corresponds to the number of tags that belonged to double-index tag groups.

Release Domain	Release Region	Release Site	Rearing Location	CWTs Recovered	No. DITs
WA	N Washington (12.2%)	East Sound Bay (San)	Glenwood Springs	1 (2.4%)	0
		Friday Cr 03.0017	Samish Hatchery	4 (9.8%)	0
	Strait Of Juan De Fuca (4.9%)	Elwha R 18.0272	Elwha Hatchery	2 (4.9%)	0
	Hood Canal (31.7%)	Purdy Cr 16.0005	George Adams Hatchery	8 (19.5%)	5
		Finch Cr 16.0222	Hoodsport Hatchery	5 (12.2%)	0
	N Puget Sound (9.8%)	Wallace R 07.0940	Wallace R Hatchery	4 (9.8%)	3
	Skagit River (4.9%)	Co Line Pd2 03.1853B	Marblemount Hatchery	1 (2.4%)	0
		Cascade R 03.1411	Marblemount Hatchery	1 (2.4%)	0
	Mid Puget Sound (14.6%)	Big Soos Cr 09.0072	Soos Creek Hatchery	3 (7.3%)	1
		Grovers Cr 15.0299	Grovers Cr Hatchery	1 (2.4%)	1
		Voight Cr 10.0414	Voights Cr Hatchery	1 (2.4%)	0
		Palmer Hatchery	Keta Creek Complex	1 (2.4%)	0
	Southern Puget Sound (14.6%)	Clear Cr 11.0013C	Clear Creek Hatchery	2 (4.9%)	2
		Kalama Cr 11.0017	Kalama Cr Hatchery	3 (7.3%)	0
Minter Cr 15.0048		Minter Cr Hatchery	1 (2.4%)	0	
Col. Riv	Cen Columbia River (2.4%)	Spring Cr 29.0159	Spring Cr NFH	1 (2.4%)	0
OR	S Oregon Coast (2.4%)	Elk R	Elk R Hatchery	1 (2.4%)	0
CA	Cen California Coast (2.4%)	Mare Island Net Pen	Feather R Hatchery	1 (2.4%)	0
<b>Total</b>				<b>41</b>	<b>12</b>

**Table 2.5** Total Chinook salmon encountered (retained and released) by private-boat anglers logging their trips on voluntary trip reports (VTRs) during the 2017 summer Chinook MSF in Marine Area 6, 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	52 1-trip VTRs, 92 Angler Trips	93	17	35	4	149	0.86	0.85
Size/mark-status composition:		0.62	0.11	0.23	0.03			
Variance:		(0.0016)	(0.0007)	(0.0012)	(0.0002)			

**Table 2.6** List of sites sampled with the number of sampling events (site-days) during the 2017 summer Chinook MSF in Marine Area 6.

Location	Site-Days Sampled per Month		Total Site-Days	% of Total
	July (1-31)	August (1-15)		
Cornett Bay Public Ramp	11	4	15	13.51%
Deception Pass State Park Beach	1	0	1	0.90%
Ediz Hook, Port Angeles Public Ramp	24	13	37	33.33%
Everett Ramp	0	1	1	0.90%
Fort Casey Public Ramp and Shore	2	0	2	1.80%
Fort Worden Ramp	2	0	2	1.80%
Freshwater Bay Ramp	13	4	17	15.32%
Point Defiance Boathouse	1	0	1	0.90%
Point Wilson Beach	1	2	3	2.70%
Port Angeles West Ramp	20	7	27	24.32%
Port Townsend Boat Haven Ramp	4	0	4	3.60%
Washington Park Launch Ramp	1	0	1	0.90%
<b>Grand Total</b>	<b>80</b>	<b>31</b>	<b>111</b>	<b>1</b>

### **3) Marine Area 7 Summer Mark-Selective Chinook Fishery**

The Washington Department of Fish and Wildlife (WDFW) implemented the second consecutive summer Chinook MSF in Marine Area 7 from July 1 through July 30, 2017. WDFW's Puget Sound Sampling Unit (PSSU) implemented an intensive monitoring program in Area 7 throughout the season to collect the data needed to estimate key parameters characterizing the fishery and its impacts on unmarked salmon. Sampling activities included intensive dockside creel sampling, on-the-water effort surveys, test fishing and collection of voluntary trip reports (VTRs) from the angling public. **Table 3.1** summarizes the parameters estimated and the sampling activities associated with each parameter. Specific procedures used for collecting these data and estimating critical data parameters are presented in detail in our separate Methods Report (WDFW 2012a). In this section we present results from our monitoring activities during the Area 7 summer Chinook MSF.

**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 <sup>1</sup> ; 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 <b>Table 3.12</b> $n=5$ surveys conducted out of $N=31$ days available in the season). Season-wide sample fraction was calculated as the average sample fraction over the 5 individual aerial surveys.
Test Fishing	Size (legal/sublegal) and mark-status (marked/unmarked) composition of encountered Chinook salmon	Chinook salmon length, age, and DNA-based <sup>2</sup> stock composition; species composition of non-Chinook salmon encounters	Fish encounter	Season	Only test fishing proportions (LM = 30%, LU = 22%, SM = 30%, SU = 17%; <b>Table 3.13</b> ) were used in the Area 7 summer selective fishery.
Voluntary Trip Reports (VTRs)	Size (legal/sublegal) and mark-status (marked/unmarked) composition of encountered Chinook salmon	Encounter data for non-Chinook salmon species (e.g., Coho salmon) that the angler may record on the VTR form	Fish encounter	Season	VTR data ( <b>Table 3.4</b> ) was not combined with test fishing data due to test fishing and VTR datasets not being significant. See comment in row above.
Overall Fishery Impacts Estimation	Total Chinook salmon encounters and mortalities by size/mark-status group	Ratios of encounters and mortalities per kept Chinook salmon	N/A	Season	Estimated on a monthly time step but considered at the season-total level.
Coded-wire tag (CWT) Impacts Estimation	Marked/unmarked double-index tag (DIT) encounters and mortalities	N/A	N/A	Season	The temporal resolution of DIT impacts is constrained by the total number of tags recovered.

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

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



**Table 3.2** Estimates of total fishing effort and total salmon catch (harvest and releases) during the 2017 Summer Chinook MSF in Marine Area 7. Values may not add exactly due to rounding error. AD = marked (adipose-clipped), UM = unmarked.

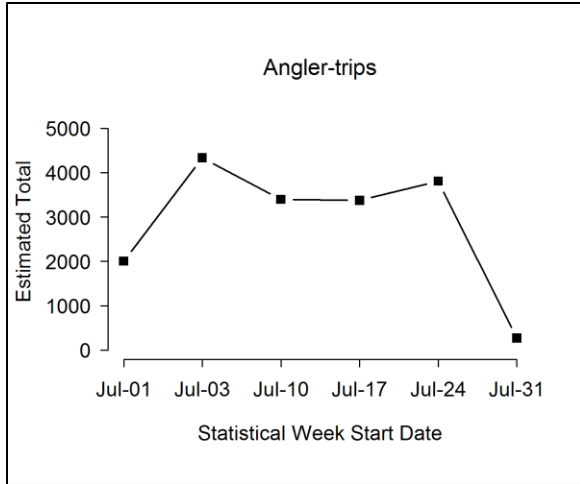
Month	Stat Week	Start Date	End Date	Est. Effort		Est. Retained Chinook		Est. Released Chinook		Total Est. Chinook Encounters
				Boats	Anglers	AD	UM	AD	UM	
July	27	1-Jul	2-Jul	838	2,002	649	0	840	958	2,447
	28	3-Jul	9-Jul	2054	4,332	1433	0	1855	2113	5,401
	29	10-Jul	16-Jul	1946	3,393	826	0	1069	1218	3113
	30	17-Jul	23-Jul	1442	3,371	269	22	348	375	1014
	31	24-Jul	30-Jul	1623	3805	248	0	322	366	936
	32	31-Jul	31-Jul	120	267	22	0	28	32	82
<b>Sub-Total</b>				8023	17,170	3447	22	4462	5063	12,993
<b>Bellingham Derby</b>				164	365	168	0	217	248	633
<b>Season Total:</b>				<b>8,187</b>	<b>17,535</b>	<b>3,615</b>	<b>22</b>	<b>4,680</b>	<b>5,310</b>	<b>13,627</b>
<b>Variance:</b>				1,369,172	6,399,772	389,203	306	8,082,462	4,218,624	24,822,653
<b>SE:</b>				1170	2530	624	17	2,843	2054	4,982
<b>CV (%):</b>				14	14	17	81	61	39	37
<b>95% CI:</b>				5,894 - 10,481	12,577 - 22,493	2,392 - 4,838	0 - 56	0 - 10,252	1,285 - 9,336	3,861 - 23,392

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

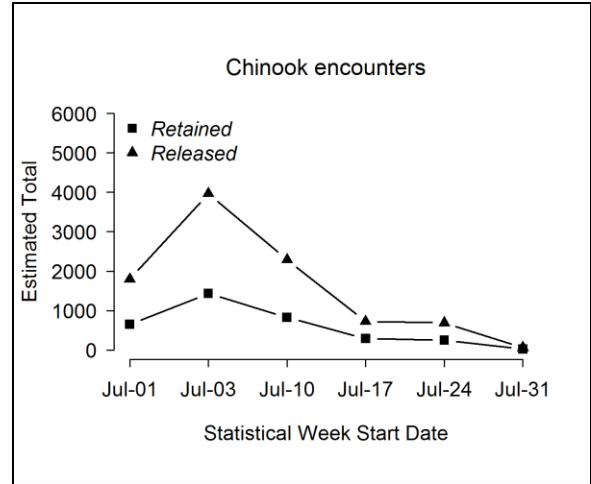
Marked Type	Number Sampled		
	Legal-size	Sublegal-Size	Total
Marked	528	1	529
Unmarked	3	0	3
<b>Total</b>	<b>531</b>	<b>1</b>	<b>532</b>

**Table 3.4** Total Chinook salmon encountered (retained and released) by private-boat anglers logging their trips on VTRs, with estimates of legal-size and overall (legal and sublegal) mark rates during the 2017 summer 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.

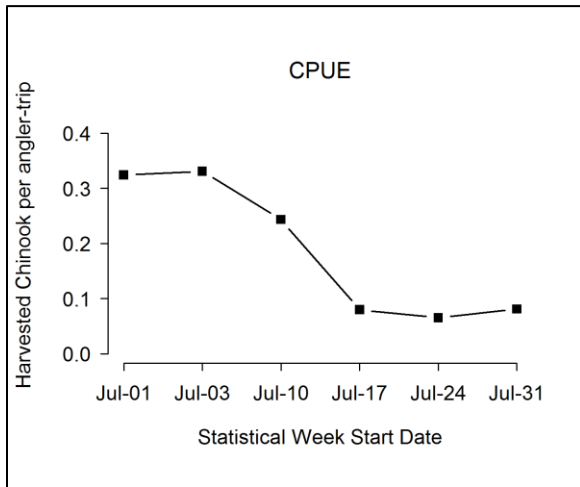
Data Source	Effort and Sample Size	Legal		Sublegal		Totals	Mark Rate	
		AD	UM	AD	UM		Overall	Legal
Private VTR	7 1-trip VTRs, 44 Angler Trips	10	0	1	0	11	1.00	1.00
Size/mark-status composition:		0.91	0.00	0.09	0.00			
Variance:		(0.0083)	(0.0000)	(0.0083)	(0.0000)			



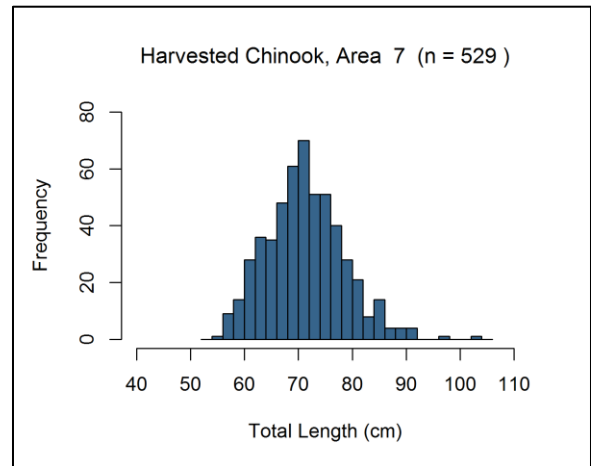
**Figure 3.1** Temporal patterns in fishing effort during the 2017 summer Chinook MSF in Marine Area 7.



**Figure 3.3** Temporal patterns in Chinook salmon encounters (number retained and released) during the 2017 summer Chinook MSF in Marine Area 7.



**Figure 3.2** Temporal patterns in CPUE (number of Chinook salmon landed per angler trip) during the 2017 summer Chinook MSF in Marine Area 7



**Figure 3.4** Length-frequency distribution of retained marked Chinook salmon sampled in dockside angler interviews during the 2017 summer Chinook MSF in Marine Area

**Table 3.5** Summary of CWTs recovered from Chinook salmon harvested during the 2017 summer 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 (13.5%)	Shuswap R Middle	Shuswap River, Middle,	1 (2.7%)	0
		Chilliwack R	Chilliwack River H	2 (5.4%)	0
		Shuswap R Low	Shuswap River, Middle,	2 (5.4%)	0
	Georgia Strait (8.1%)	Cowichan R	Cowichan River H	3 (8.1%)	0
WA	N Washington (21.6%)	East Sound Bay (San)	Glenwood Springs	5 (13.5%)	0
		Friday Cr 03.0017	Samish Hatchery	3 (8.1%)	0
	Hood Canal (21.6%)	Finch Cr 16.0222	Hoodsport Hatchery	2 (5.4%)	0
		Purdy Cr 16.0005	George Adams Hatchery	6 (16.2%)	5
	N Puget Sound (5.4%)	Wallace R 07.0940	Wallace R Hatchery	2 (5.4%)	2
	Skagit River (2.7%)	Cascade R 03.1411	Marblemount Hatchery	1 (2.7%)	0
		Voight Cr 10.0414	Voights Cr Hatchery	1 (2.7%)	0
	Mid Puget Sound (16.2%)	Grovers Cr 15.0299	Grovers Cr Hatchery	1 (2.7%)	1
		Big Soos Cr 09.0072	Soos Creek Hatchery	4 (10.8%)	1
		S Puget Sound (10.8%)	Clear Cr 11.0013C	Clear Creek Hatchery	3 (8.1%)
Minter Cr 15.0048	Minter Cr Hatchery		1 (2.7%)	0	
<b>Total</b>				<b>37</b>	<b>12</b>

**Table 3.6** Summary of double-index tagged (DIT) Chinook salmon kept by anglers, and estimated total mortality of unmarked DIT Chinook salmon due to hook-and-release impacts resulting from the 2017 summer Chinook MSF in Marine Area 7. AD = marked (adipose-clipped), UM = unmarked

Hatchery	Brood Year	DITs Obs	Est. AD	var(Est. AD)	UM DIT Enc	Est. UM	var(Est. UM)	SE(Est. UM)
Clear Creek Hatchery	2014	3	20.5	119.67	20.8	2.1	1.23	1.92
George Adams Hatchery	2014	5	34.2	199.45	34.2	3.4	1.997	3.16
Grovers Cr Hatchery	2014	1	6.8	39.89	7	0.7	0.422	0.65
Soos Creek Hatchery	2013	1	6.8	39.89	6.8	0.7	0.397	0.63
Wallace R Hatchery	2013	1	6.8	39.89	6.9	0.7	0.412	0.64
Wallace R Hatchery	2014	1	0	0	6.8	6.8	39.891	6.32
<b>Total</b>		<b>12</b>	<b>75.2</b>	<b>438.8</b>	<b>82.6</b>	<b>14.4</b>	<b>44.348</b>	<b>13.32</b>

**Table 3.7** Summary of season-wide fishery impact estimates for the 2017 summer 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.

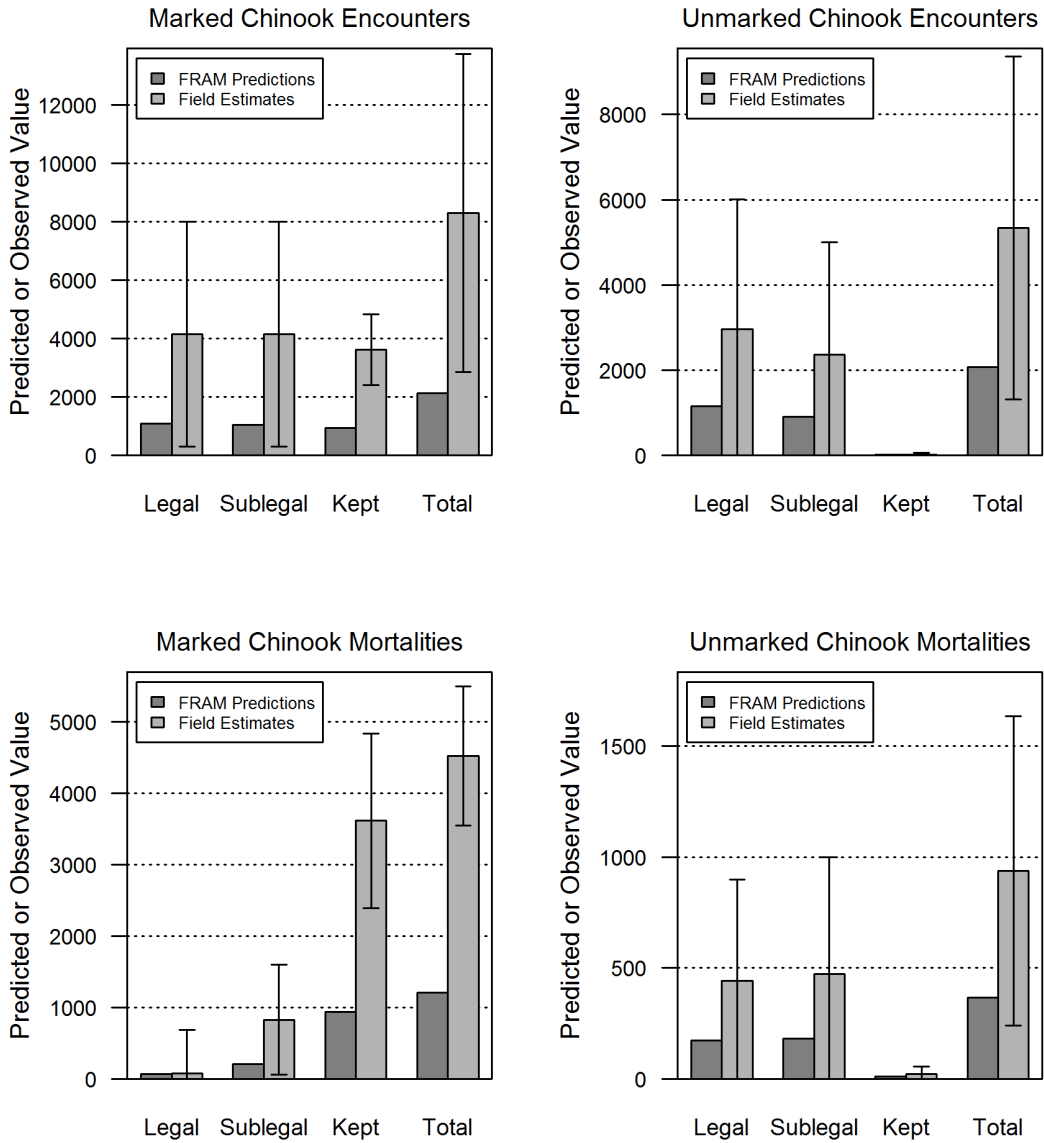
Size/mark group	Encounters	Retained	Released	Release Mortality	Total Mortality	Var	SE	95% CI	CV (%)
Legal AD	4,147	3,608	539	81	3,689	483,063	695	2,327 - 5,051	19%
Legal UM	2,962	22	2941	441	463	54697	234	4 - 921	51%
Sublegal AD	4,147	7	4,140	828	835	153,937	392	66 - 1,604	47%
Sublegal UM	2370	0	2370	474	474	72,050	268	0 - 1,000	57%
<b>Total</b>	<b>13,627</b>	<b>3,637</b>	<b>9,990</b>	<b>1824</b>	<b>5,461</b>	<b>763,747</b>	<b>874</b>	<b>3,748 - 7,173</b>	<b>16%</b>

**Table 3.8** Comparison of modeled (FRAM model run 2017) and estimated total Chinook salmon encounters for the 2017 summer 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	2064	1157	907	12
	AD	2,116	1,079	1,037	938
	Total	4,180	2,236	1,944	950
	% Marked	51	48	53	99
Estimated (Creel) Encounters	UM	5,332	2962	2370	22
	AD	8,294	4,147	4,147	3,615
	Total	13,627	7,110	6,517	3,637
	% Marked	61	58	64	99

**Table 3.9** Comparison of modeled (FRAM model run 2017) and estimated total Chinook salmon mortalities for the 2017 summer 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)	365	1,213	1,578	937	4524	5461
Released Legal	172	68	240	441	81	522
Released Sublegal	181	207	388	474	828	1302
Landed Only	12	938	950	22	3615	3637



**Figure 3.5** Comparison of modeled (FRAM model run 2017) and estimated total Chinook salmon encounters and mortalities for the 2017 summer Chinook MSF in Marine Area 7. Error bars represent approximate 95% confidence intervals for field estimates

**Table 3.10** Monthly sample rates (Total retained Chinook salmon sampled / Estimated retained Chinook salmon) for the 2017 summer Chinook MSF in Marine Area 7. AD = marked (adipose-clipped), UM = unmarked.

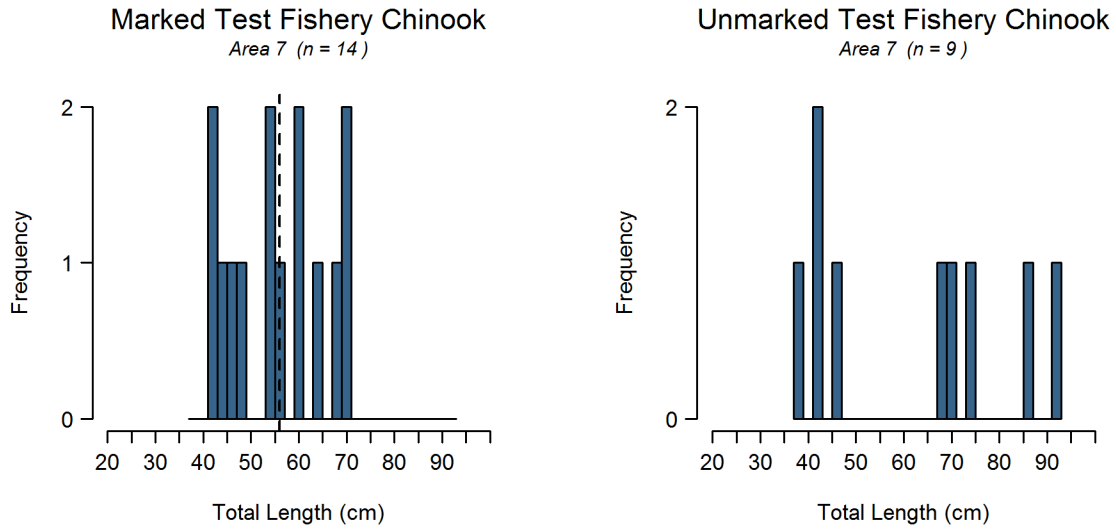
Time period			Estimated Retained Chinook			Number of Chinook sampled			Sample Rate
Month	Stat Weeks	Dates	AD	UM	Total	AD	UM	Total	
July	27 - 31	1 Jul - 31 Jul	3615	22	3637	529	3	532	14.6
<b>Season Total</b>			<b>3,615</b>	<b>22</b>	<b>3,637</b>	<b>529</b>	<b>3</b>	<b>532</b>	<b>14.6</b>

**Table 3.11** Fishery-total estimates of retained and released salmon (other than Chinook salmon) during the 2017 summer 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	Kept Salmon		Released Salmon
			Pink	Sockeye	Coho Unk
27	1-Jul	2-Jul	5	0	0
28	3-Jul	9-Jul	14	0	17
29	10-Jul	16-Jul	4	0	10
30	17-Jul	23-Jul	7	0	0
31	24-Jul	30-Jul	0	8	0
32	31-Jul	31-Jul	0	0	0
<b>Season Total:</b>			<b>30</b>	<b>8</b>	<b>26</b>
<b>Variance:</b>			<b>181</b>	<b>37</b>	<b>356</b>
<b>Standard Error:</b>			<b>13</b>	<b>6</b>	<b>19</b>
<b>CV (%):</b>			<b>45</b>	<b>81</b>	<b>71</b>
<b>95% CI:</b>			<b>4-56</b>	<b>0 - 19</b>	<b>0 - 63</b>

**Table 3.12** Summary of aerial survey and dockside data used to estimate the fraction of effort captured in the three-site sample frame during the 2017 summer 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, $S_{ijk}$	
1-Jul	1-Jul	WE	12:20	13:33	362	76	61	451
12-Jul	6-Jul	WD	9:36	10:53	154	46	25	283
17-Jul	12-Jul	WD	9:40	11:08	113	27	19	161
20-Jul	22-Jul	WE	12:23	13:42	199	78	66	235
23-Jul	30-Jul	WE	12:28	13:40	342	75	64	401
<b>Season Totals:</b>				1170	302	235	1531	
Mean:				234	60.4	47	306.2	0.2016
St Dev:				100	20	21	106	
CV(%):				8.6%	6.8%	8.7%	7.0%	



**Figure 3.6** Length-frequency distributions of marked (left panel) and unmarked (right panel) Chinook salmon encountered by test fishers during the 2017 summer 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 3.13** Composition of test fishery Chinook salmon encounters and associated mark-rate and size/mark-status proportion estimates from the 2017 summer Chinook MSF in Marine Area 7. AD = marked (adipose-clipped), UM = unmarked.

Stat Week	Fishing Effort		Legal		Sublegal		Total
	Days	Hrs Fished	AD	UM	AD	UM	
28	2	13.00	1	2	0	0	3
29	5	32.02	3	3	2	0	8
30	4	27.77	2	0	4	1	7
31	4	28.97	1	0	1	1	3
32	1	6.87	0	0	0	2	2
<b>Total</b>	<b>16</b>	<b>108.63</b>	<b>7</b>	<b>5</b>	<b>7</b>	<b>4</b>	<b>23</b>
<b>Size/mark-status composition:</b>			0.30	0.22	0.30	0.17	
<b>Legal size mark rate:</b>			0.58				
<b>Overall mark rate:</b>			0.61				

Size and mark-status proportions were significantly different between private boat VTR and test fishery data (df=3, p-value= 0.01). Due to the assumption that test fishing data is more accurate, only test fishing numbers were used in the estimate.

**Table 3.14** Season-total estimates of Chinook salmon encounters by size/mark-status and total estimates of angler effort, summarized for all seasons to date of the Area 7 Summer 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	Jul 1, 2016 - Jul 31, 2016	9,553	1,292	0	42	0	193	1,485	1443	637	5,092
7	Jul 1, 2017 - Jul 31, 2017	17,535	3,608	22	7	0	539	2,941	4140	2370	13,627

#### **4) Marine Area 9 Summer Mark-Selective Chinook Fishery**

The Washington Department of Fish and Wildlife (WDFW) implemented a eleventh consecutive summer Chinook MSF in Marine Area 9 from July 16 through August 15, 2017. Due to harvest quota as agreed to at North of Falcon in 2017, in-season action was taken and the Area 9 summer fishery was closed on July 30. WDFW's Puget Sound Sampling Unit (PSSU) implemented an intensive monitoring program in Area 9 throughout the season to collect the data needed to estimate key parameters characterizing the fishery and its impacts on unmarked salmon. Sampling activities included intensive dockside creel sampling, on-the-water effort surveys, test fishing and collection of voluntary trip reports (VTRs) from the angling public. **Table 4.1** summarizes the parameters estimated and the sampling activities associated with each parameter. Specific procedures used for collecting these data and estimating critical data parameters are presented in detail in our separate Methods Report (WDFW 2012a). In this section we present results from our monitoring activities during the Area 9 summer Chinook MSF.



**Table 4.1** Sampling/estimation details on target parameters associated with the overall Area 9 summer mark-selective fishery monitoring program.

Activity	Focal Parameter(s)	Secondary Parameter(s)	Sample Unit(s)	Finest Estimation Time Step	Comments
Dockside Creel Sampling	Fishing effort (boat & angler trips); kept and released fish	Catch rates (CPUE); length, age, and CWT composition of harvest <sup>1</sup> ; collection of angler fishing methods.	Angler trip; kept fish; reported fish release	One week	Within weeks, estimates were produced by day-type strata (weekday/weekend). Each week we sampled every Friday, Saturday and Sunday, and we randomly selected $n=2$ out of $N=4$ weekdays (Monday-Thursday) for sampling.
On-the-water Surveys	Proportion of total angler effort that uses sample-frame sites (i.e., site “size measures”) versus out-of-frame sites.	Total on-water boat and angler counts at assumed peak effort time interval (instantaneous count); spatial distribution of recreational fishing boats in the area.	Boats and anglers	Month	A total of 4 boat surveys (2 weekday and 2 weekend) were conducted during the two week fishery.
Test Fishing	Size (legal/sublegal) and mark-status (marked/unmarked) composition of encountered Chinook salmon	Chinook salmon length, age, and DNA-based <sup>2</sup> stock composition; species composition of non-Chinook salmon encounters	Fish encounter	Season	Given sufficient sample size ( $n=46$ ) of fish caught in the test fishery, we used the test fishery data only to estimate the size/mark-status proportions (LM = 32%, LU = 7%, SM = 50%, SU = 12%; <b>Table 4.13</b> ) needed to produce encounter and mortality estimates.
Voluntary Trip Reports (VTRs)	Size (legal/sublegal) and mark-status (marked/unmarked) composition of encountered Chinook salmon	Encounter data for non-Chinook salmon species (e.g., Coho salmon) that the angler may record on the VTR form	Fish encounter	Season	The size/mark-status proportions of VTR data (LM = 36%, LU = 4%, SM = 51%, SU = 9%; <b>Table 4.12</b> ) were not significantly different than those of the test fishery data. However, VTR data were not used in impact estimation due to the assumed higher data quality and sufficient sample sizes of the test fishery data.
Overall Fishery Impacts Estimation	Total Chinook salmon encounters and mortalities by size/mark-status group	Ratios of encounters and mortalities per kept Chinook salmon	N/A	Season	Estimated on a monthly time step but considered at the season-total level.
Coded-wire tag (CWT) Impacts Estimation	Marked/unmarked double-index tag (DIT) encounters and mortalities	N/A	N/A	Season	The temporal resolution of DIT impacts is constrained by the total number of tags recovered.

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

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

**Table 4.2** Estimates of total fishing effort and total salmon catch (harvest and releases) during the 2017 summer Chinook MSF in Marine Area 9. Values may not add exactly due to rounding error. AD = marked (adipose-clipped), UM = unmarked.

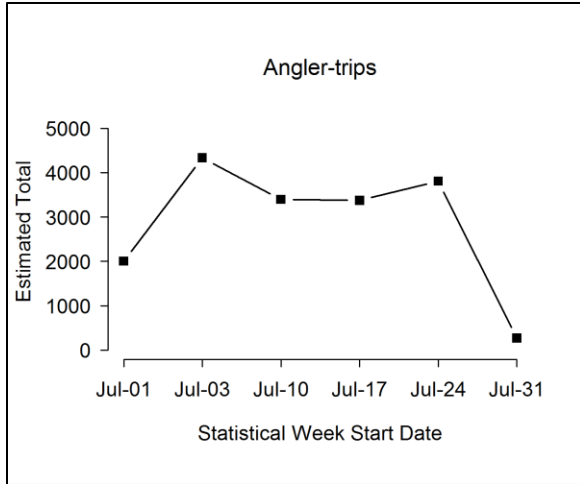
Month	Stat Week	Start Date	End Date	Est. Effort		Est. Retained Chinook		Est. Released Chinook		Total Est. Chinook Encounters
				Boats	Anglers	AD	UM	AD	UM	
July	29	16-Jul	16-Jul	967	2,354	1040	0	1,940	673	3,653
	30	17-Jul	23-Jul	3750	8,330	2327	3	4,341	1503	8,173
	31	24-Jul	30-Jul	3652	7,864	2088	0	3894	1351	7,333
<b>Season Total:</b>				<b>8,369</b>	<b>18,548</b>	<b>5,455</b>	<b>3</b>	<b>10,175</b>	<b>3,526</b>	<b>19,160</b>
<b>Variance:</b>				145,979	1,016,314	498,363	3	8,506,328	1,082,389	16,764,330
<b>SE:</b>				382	1008	706	2	2,917	1040	4,094
<b>CV (%):</b>				5	5	13	57	29	30	21
<b>95% CI:</b>				7,620 - 9,117	16,572 - 20,524	4,072 - 6,839	0 - 6	4,458 - 15,891	1,487 - 5,566	11,135 - 27,185

**Table 4.3** Number of total length samples collected from retained Chinook salmon collected during dockside angler interviews in the 2017 summer Chinook MSF in Marine Area 9.

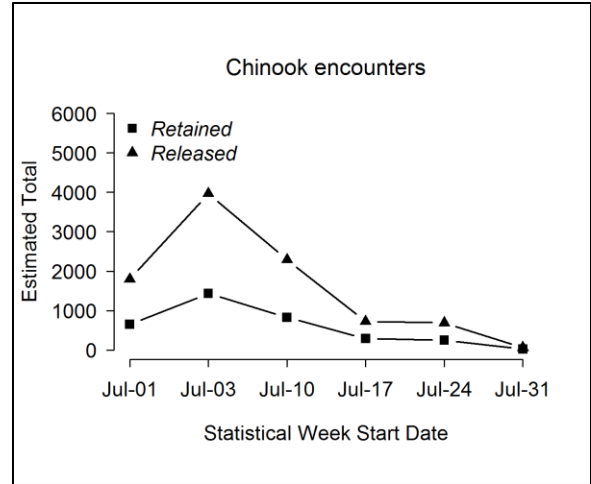
Mark Type	Number Sampled		
	Legal-size	Sublegal-size	Total
Marked	1045	38	1083
Unmarked	0	0	0
<b>Total</b>	<b>1045</b>	<b>38</b>	<b>1083</b>

**Table 4.4** Summary of coded-wire tags recovered from Chinook salmon harvested during the 2017 summer Chinook MSF in Marine Area 9. The field "Number DITs" corresponds to the number of recovered CWTs that belonged to double-index tag groups.

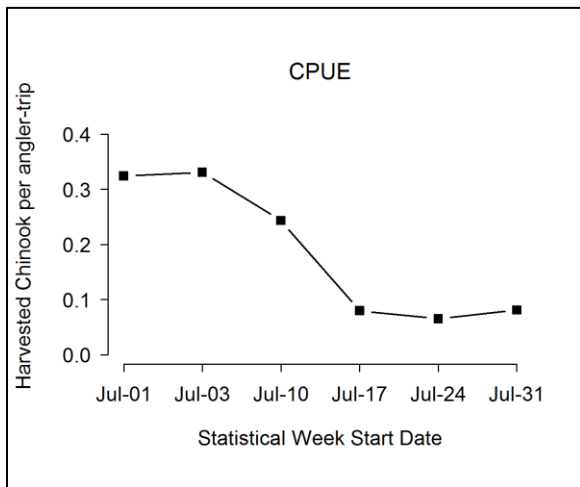
Release Domain	Release Region	Release Site	Rearing Location	CWTs Recovered	No. DITs
BC	Georgia Strait (1.5%)	Cowichan R	H-Cowichan River H	1 (1.5%)	0
WA	Hood Canal (30.8%)	Purdy Cr 16.0005	George Adams Hatchery	12 (18.5%)	8
		Finch Cr 16.0222	Hoodsport Hatchery	8 (12.3%)	0
	N Puget Sound (6.2%)	Tulalip Cr 07.0001	Bernie Gobin Hatch	1 (1.5%)	1
		Wallace R 07.0940	Wallace R Hatchery	3 (4.6%)	1
	Mid Puget Sound (46.2%)	Big Soos Cr 09.0072	Soos Creek Hatchery	7 (10.8%)	2
		Clarks Crk Hatchery	Clarks Crk Hatchery	2 (3.1%)	0
		Grovers Cr 15.0299	Grovers Cr Hatchery	13 (20%)	13
		Icy Cr 09.0125	Icy Cr Hatchery	5 (7.7%)	0
		Voight Cr 10.0414	Voights Cr Hatchery	3 (4.6%)	0
	S Puget Sound (13.8%)	Clear Cr 11.0013C	Clear Creek Hatchery	4 (6.2%)	4
Kalama Cr 11.0017		Kalama Cr Hatchery	1 (1.5%)	0	
Minter Cr 15.0048		Minter Cr Hatchery	4 (6.2%)	0	
Col. Riv.	Upper Columbia R (1.5%)	Similkameen R 490325	Similkameen Hatchery	1 (1.5%)	0
<b>Total</b>				<b>65</b>	<b>29</b>



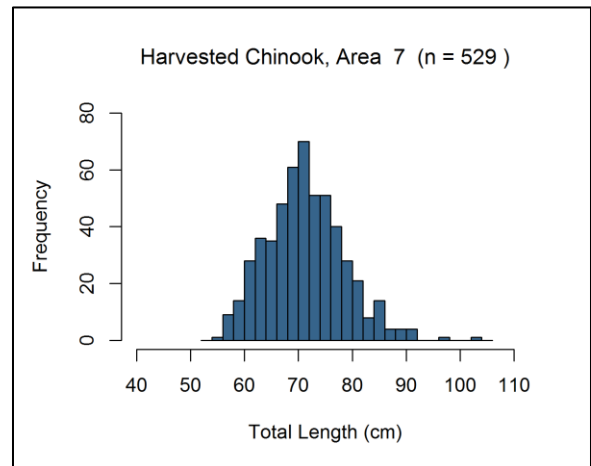
**Figure 4.1** Temporal patterns in fishing effort during the 2017 summer Chinook MSF in Marine Area 9.



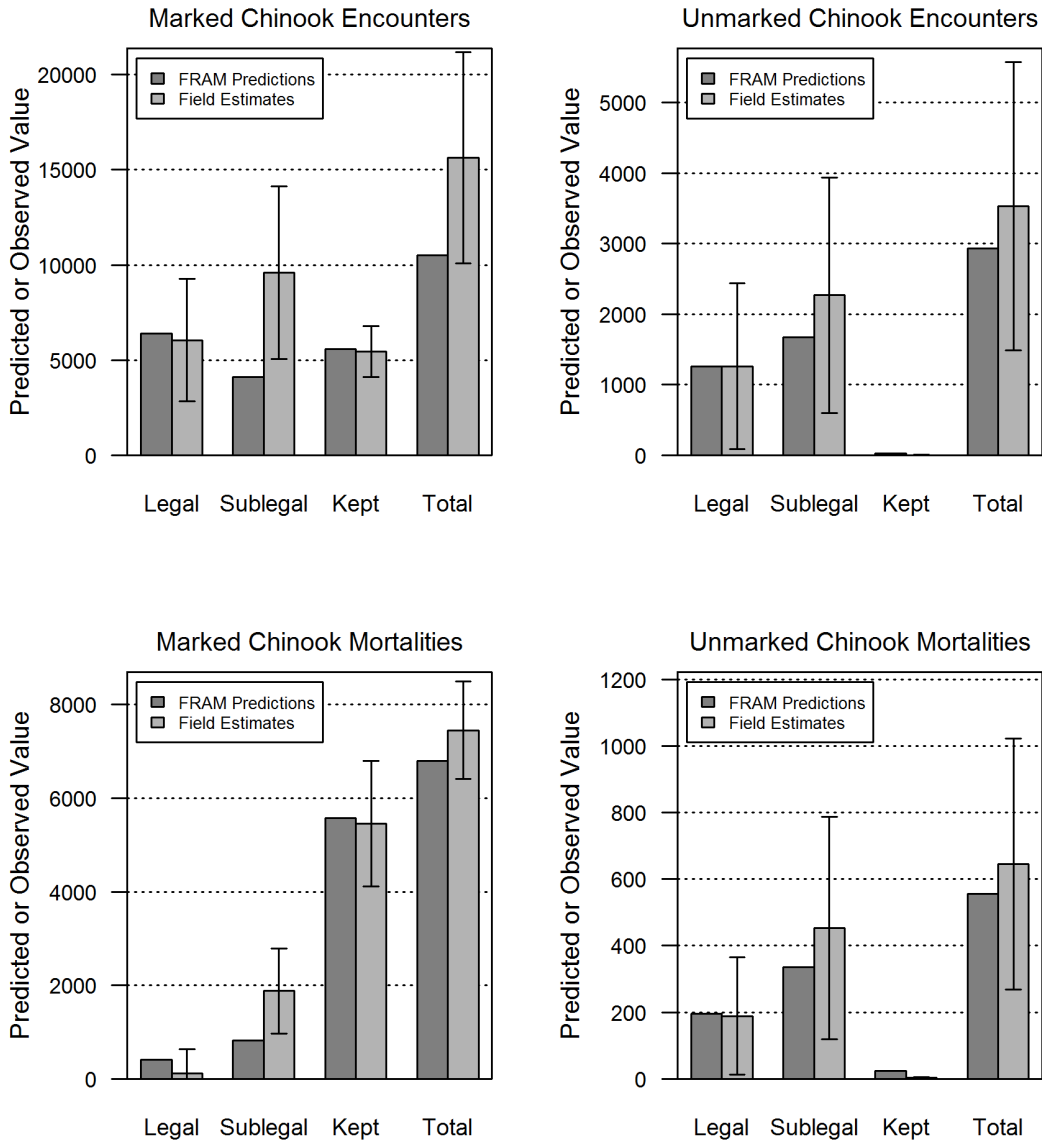
**Figure 4.3** Temporal patterns in Chinook salmon encounters (retained and released) during the 2017 summer Chinook MSF in Marine Area 9.



**Figure 4.2** Temporal patterns in CPUE (landed Chinook salmon per angler trip) during the 2017 summer Chinook MSF in Marine Area 9.



**Figure 4.4** Length-frequency distribution of retained marked Chinook salmon sampled in dockside angler interviews during the 2017 summer Chinook MSF in Marine Area 9.



**Figure 4.5** Comparison of modeled (using FRAM, model run 2017) and estimated total Chinook salmon encounters and mortalities for the 2017 summer Chinook MSF in Marine Area 9. Error bars represent approximate 95% confidence intervals for field estimates.

**Table 4.5** Summary of double-index tagged (DIT) Chinook salmon kept by anglers and estimated total mortality of unmarked DIT Chinook salmon due to hook-and-release impacts resulting from the 2017 summer Chinook MSF in Marine Area 9. AD = marked (adipose-clipped), UM = unmarked.

Hatchery	Brood Year	DITs Obs	Est.AD	var(Est.AD)	UM DIT Enc	Est.UM	var(Est.UM)	SE(Est.UM)
Bernie Gobin Hatch	2013	1	5	20.36	5	0.5	0.201	0.45
Clear Creek Hatchery	2014	4	20.2	81.45	20.4	2	0.837	1.83
George Adams Hatchery	2014	8	40.3	162.89	40.3	4	1.631	3.61
Grovers Cr Hatchery	2012	1	5	20.36	5	0.5	0.201	0.45
Grovers Cr Hatchery	2014	12	60.5	244.34	62.2	6.2	2.585	5.57
Soos Creek Hatchery	2013	2	10.1	40.72	10.1	1	0.406	0.9
Wallace R Hatchery	2013	1	5	20.36	5.1	0.5	0.21	0.46
<b>Total</b>		<b>29</b>	<b>146.2</b>	<b>590.48</b>	<b>148.2</b>	<b>14.8</b>	<b>6.07</b>	<b>13.27</b>

**Table 4.6** Monthly sample rates (Total retained Chinook salmon sampled<sup>1</sup> / Estimated retained Chinook salmon) in the 2017 summer 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	
July	29 - 31	16 Jul - 31 Jul	5,455	3	5,458	1083	0	1083	19.80%
<b>Season Total</b>			<b>5,455</b>	<b>3</b>	<b>5,458</b>	<b>1083</b>	<b>0</b>	<b>1083</b>	<b>19.80%</b>

<sup>1/</sup> Number of retained Chinook salmon sampled includes all retained Chinook salmon inspected for CWT's, from all sites sampled during the 2017 Area 9 selective fishery

**Table 4.7** Comparison of modeled (FRAM model run 2017) and estimated total Chinook salmon encounters for the 2017 summer 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	2,931	1258	1673	25
	AD	10,510	6,407	4,103	5,574
	Total	13,441	7,665	5,776	5,599
	% Marked	78	84	71	100
Estimated (Creel) Encounters	UM	3529	1261	2269	3
	AD	15,630	6,050	9580	5,455
	Total	19,160	7,311	11,849	5,458
	% Marked	82	83	81	100

**Table 4.8** Comparison of modeled (FRAM model run 2017) and estimated total Chinook salmon mortalities for the 2017 summer Chinook MSF in Marine Area 9. 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)	556	6,799	7,355	645	7,451	8,096
Released Legal	196	404	600	189	118	307
Released Sublegal	335	821	1156	453	1878	2331
Landed Only	25	5,574	5,599	3	5,455	5,458

**Table 4.9** Summary of season-wide fishery impact estimates for the 2017 summer 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.

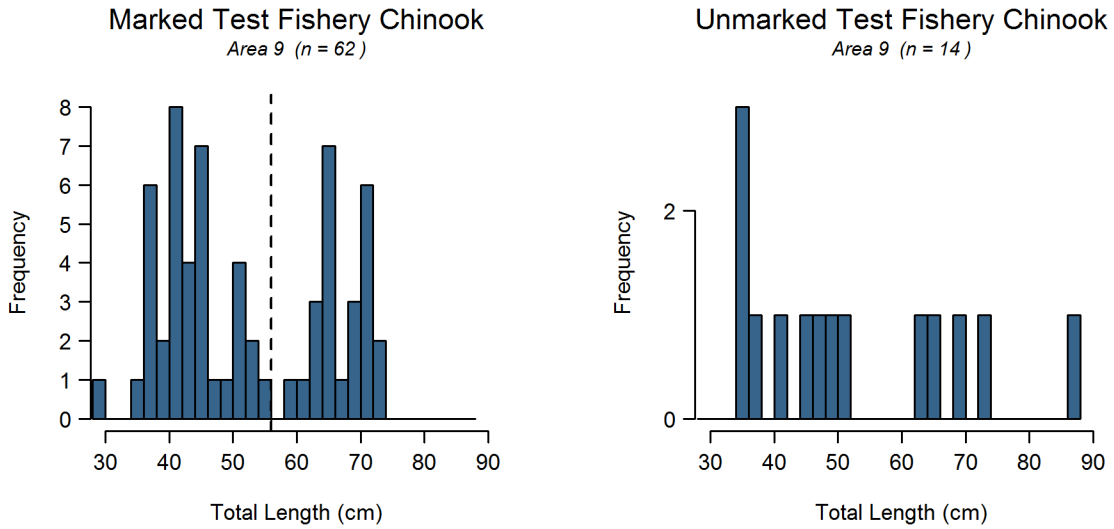
Size/mark group	Encounters	Retained	Released	Release Mortality	Total Mortality	Var	SE	95% CI	CV (%)
Legal AD	6,050	5,264	787	118	5,382	535,703	732	3,947 - 6,816	14
Legal UM	1261	0	1261	189	189	8,092	90	13 - 365	48
Sublegal AD	9,580	191	9,388	1878	2069	215,944	465	1,158 - 2,980	22
Sublegal UM	2269	3	2266	453	456	28913	170	123 - 789	37
<b>Total</b>	<b>19,160</b>	<b>5,458</b>	<b>13,701</b>	<b>2638</b>	<b>8,096</b>	<b>788,652</b>	<b>888</b>	<b>6,356 - 9,837</b>	<b>11</b>

**Table 4.10** Fishery-total estimates of retained and released salmon (*other than Chinook salmon*) in the 2017 summer 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	Retained Salmon			Released Salmon		
			Coho AD	Coho UM	Pink	Coho AD	Coho UM	Coho UK
29	16-Jul	16-Jul	0	0	0	31	62	28
30	17-Jul	23-Jul	335	12	6	130	231	174
31	24-Jul	30-Jul	175	6	22	115	243	198
<b>Season Total:</b>			<b>510</b>	<b>18</b>	<b>28</b>	<b>276</b>	<b>537</b>	<b>399</b>
<b>Variance:</b>			8037	45	36	1790	8141	4731
<b>Standard Error:</b>			90	7	6	42	90	69
<b>CV (%):</b>			18	36	21	15	17	17
<b>95% CI:</b>			335 - 686	5 - 32	16 - 40	193 - 359	360 - 713	264 - 534

**Table 4.11** Summary of the total number of anglers intercepted during on-the-water surveys conducted for the 2017 summer Chinook MSF in Marine Area 9. Sites in bold represent those included in the dockside sample frame

Site Name	Weekday Anglers	Season Total (unadjusted) Size Measure	Weekend Anglers	Season Total (unadjusted) Size Measure
Armeni Public Ramp	0	0.000	2	0.004
Bayside Marina/Drystack	3	0.006	1	0.002
Brownsville Marina/Dock/Ramp	3	0.006	0	0.000
Bush Point Ramp and Beach	9	0.017	7	0.014
Camano Island State Park Public Ramp	6	0.011	3	0.006
Coupeville Public Ramp	21	0.039	6	0.012
Dagmar's Landing, Forklift Launch	7	0.013	7	0.014
Des Moines Marina (Moorage)	0	0.000	2	0.004
Driftwood Key Marina	19	0.035	12	0.023
Eagle Harbor Waterfront Park	4	0.007	0	0.000
Edmonds Boat Basin (Public Sling)	19	0.035	17	0.033
<b>Edmonds Dry Storage</b>	<b>8</b>	<b>0.015</b>	<b>11</b>	<b>0.021</b>
Edmonds Marina	58	0.107	34	0.066
Eglon Public Ramp	4	0.007	4	0.008
Elliott Bay Marina	0	0.000	2	0.004
Everett Marina	28	0.051	22	0.043
<b>Everett Ramp</b>	<b>115</b>	<b>0.211</b>	<b>96</b>	<b>0.186</b>
<b>Fort Casey Public Ramp and Shore</b>	<b>28</b>	<b>0.051</b>	<b>52</b>	<b>0.101</b>
Fort Flagler Ramps-Marrowstone Is	9	0.017	4	0.008
Fort Worden Ramp	11	0.020	10	0.019
Gardiner Ramp	0	0.000	1	0.002
Gig Harbor Ramp	2	0.004	0	0.000
Hadlock Public Ramp	0	0.000	4	0.008
John Wayne Marina	0	0.000	2	0.004
<b>Kingston Marina</b>	<b>12</b>	<b>0.022</b>	<b>2</b>	<b>0.004</b>
Kingston Public Ramp	8	0.015	24	0.046
Lagoon Point Ramp and Beach	15	0.028	8	0.015
Langley Marina/Ramp	0	0.000	3	0.006
<b>Mukilteo Lighthouse Park</b>	<b>20</b>	<b>0.037</b>	<b>31</b>	<b>0.060</b>
Mutiny Bay Public Ramp	6	0.011	5	0.010
New Marysville Public Ramp	0	0.000	2	0.004
Oak Bay Beach Ramp	4	0.007	0	0.000
Point Hudson Marina	2	0.004	4	0.008
Point No Point Beach	3	0.006	0	0.000
Port Ludlow Marina/Beach Launch	9	0.017	10	0.019
Port Madison Marina	2	0.004	0	0.000
Port Orchard Marina	0	0.000	3	0.006
Port Townsend Boat Haven	8	0.015	4	0.008
<b>Port Townsend Boat Haven Ramp</b>	<b>53</b>	<b>0.097</b>	<b>59</b>	<b>0.114</b>
Possession Waterfront Beach Park	0	0.000	2	0.004
Private	7	0.013	20	0.039
Salmon Club Ramp	0	0.000	4	0.008
Salsbury County Park Ramp	14	0.026	18	0.035
Sandy Point Marina/Ramp	0	0.000	1	0.002
Shilshole Marina	12	0.022	9	0.017
Shilshole Public Ramp	11	0.020	9	0.017
Unknown	2	0.004	0	0.000
Useless Bay Ramp	2	0.004	0	0.000
<b>Total Anglers</b>	<b>544</b>	<b>1</b>	<b>517</b>	<b>1</b>



**Figure 4.6** Length-frequency distributions of marked (left panel) and unmarked (right panel) Chinook salmon encountered by test fishers during the 2017 summer 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 4.12** Total Chinook salmon encountered (retained and released) by private-boat anglers logging their trips on voluntary trip reports (VTRs), with estimates of legal-size and overall (legal and sublegal) mark rates during the 2017 summer 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
Private VTR	22 1-trip VTRs, 48 Angler Trips	25	3	36	6	70	0.87	0.89
Size/mark-status composition:		0.36	0.04	0.51	0.09			
Variance:		(0.0033)	(0.0006)	(0.0036)	(0.0011)			

Size and mark-status proportions were not significantly different between private boat VTR and test fishery data (df=3, p-value=.81). We used only test fishery data to estimate the size/mark-status proportions needed to produce Chinook salmon encounter and mortality estimates for the Area 9 summer Chinook MSF due to the assumption that test fishing data is more accurate.



**Table 4.13** Observations of fishing effort, salmon harvest, and reported salmon releases, by week, for the 2017 summer shore Coho MSF in Marine Area 9. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates. AD = marked (adipose-clipped), UM = unmarked, UK = unknown mark status.

Month	Stat Week	Effort	Retained Fish								Released Fish								
		Anglers	Chinook			Coho			Pink	Sockeye	Chinook			Coho			Cutthroat	Pink	Salmon UNK
			AD	UM	UD	AD	UM	UD			AD	UM	UK	AD	UM	UK			
Aug	34	426	1	0	0	96	3	1	17	0	9	15	10	58	51	136	2	61	75
	35	626	0	0	1	71	3	0	34	1	7	5	0	73	45	89	1	2	41
Sep	36	512	0	0	0	52	2	0	22	0	5	2	2	76	45	51	1	4	29
	37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>			<b>1</b>	<b>0</b>	<b>1</b>	<b>219</b>	<b>8</b>	<b>1</b>	<b>73</b>	<b>1</b>	<b>21</b>	<b>22</b>	<b>12</b>	<b>207</b>	<b>141</b>	<b>276</b>	<b>4</b>	<b>67</b>	<b>145</b>

**Table 4.14** Composition of test fishery Chinook salmon encounters and associated mark-rate and size/mark-status proportion estimates for the 2017 summer 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.

Stat Week	Fishing Effort		Legal		Sublegal		Total
	Days	Hrs Fished	AD	UM	AD	UM	
30	5	30.23	10	4	19	4	37
31	5	32.15	14	1	19	5	39
<b>Total</b>	<b>10</b>	<b>62.39</b>	<b>24</b>	<b>5</b>	<b>38</b>	<b>9</b>	<b>76</b>
<b>Size/mark-status composition:</b>			0.32	0.07	0.50	0.12	
<b>Legal size mark rate:</b>			0.83				
<b>Overall mark rate:</b>			0.82				

**Table 4.15** Season-total estimates of Chinook salmon encounters by size/mark-status and total estimates of angler effort, summarized for all seasons to date of the Area 9 summer Chinook MSF. Values may not add exactly due to rounding error.

Season Dates	Effort (Angler-trips)	Retained Chinook				Released Chinook				Total Encounters
		LM	LU	SM	SU	LM	LU	SM	SU	
Jul 16 - Jul 31, 2007	18,160	5,094	13	146	20	711	1,111	1,286	317	8,697
Jul 16 - Aug 15, 2008	20,399	4,035	3	10	0	597	1,608	3,212	3,826	13,290
Jul 16 - Aug 31, 2009	42,219	3,090	20	139	0	462	1,272	8,256	2,905	16,143
Jul 16 - Aug 31, 2010	31,200	5,282	33	10	6	740	2,125	750	249	9,194
Jul 16 - Aug 31, 2011	37,862	2,285	19	78	6	339	1,142	2,150	1,070	7,090
Jul 16 - Aug 19, 2012	24,886	6,972	12	101	2	1,039	2,351	5,168	4,721	20,366
Jul 16 - Aug 4, 2013	20,501	4,667	18	39	0	697	1,174	1,750	397	8,742
Jul 16 - Aug 15, 2014	23,113	2,865	6	4	0	428	668	745	299	5,015
Jul 16 - Jul 26, 2015	14,118	2,277	13	35	7	340	1,502	1,481	131	5,786
Jul 16, 2016 - Aug 15, 2016	14,911	2,861	9	112	0	427	912	4,886	2104	11,311
Jul 16, 2017 - Jul 30, 2017	18,548	5,264	0	191	3	787	1261	9,388	2266	19,160

## **5) Marine Area 10 Summer Mark-Selective Chinook Fishery**

The Washington Department of Fish and Wildlife (WDFW) implemented a tenth summer Chinook MSF in Marine Area 10 from July 16 through August 15, 2017. WDFW's Puget Sound Sampling Unit (PSSU) implemented an intensive monitoring program in Area 10 throughout the season in order to collect the data needed to estimate key parameters characterizing the fishery and its impacts on unmarked salmon. Sampling activities included intensive dockside creel sampling, on-the-water effort surveys, test fishing and collection of voluntary trip reports (VTRs) from the angling public. **Table 5.1** summarizes the parameters estimated and the sampling activities associated with each parameter. Specific procedures used for collecting these data and estimating critical data parameters are presented in detail in our separate Methods Report (WDFW 2012a). In this section we present results from our monitoring activities during the Area 10 summer Chinook MSF.

**Table 5.1** Sampling/estimation details on target parameters associated with the overall Area 10 summer mark-selective fishery monitoring program.

Activity	Focal Parameter(s)	Secondary Parameter(s)	Sample Unit(s)	Finest Estimation Time Step	Comments
Dockside Creel Sampling	Fishing effort (boat & angler trips); kept and released fish	Catch rates (CPUE); length, age, and CWT composition of harvest <sup>1</sup> ; collection of angler fishing methods.	Angler trip; kept fish; reported fish release.	One week	Within weeks, estimates were produced by day-type strata (weekday/weekend). Each week we sampled every Friday, Saturday and Sunday, and we randomly selected $n=2$ out of $N=4$ weekdays (Monday-Thursday) for sampling.
On-the-water Surveys	Proportion of total angler effort that uses sample-frame sites (i.e., site “size measures”) versus out-of-frame sites.	Total on-water boat and angler counts at assumed peak effort time interval (instantaneous count); spatial distribution of recreational fishing boats in the area.	Boats and anglers	Month	A total of 7 boat surveys (3 weekday and 4 weekend) were conducted during the 3 week fishery.
Test Fishing	Size (legal/sublegal) and mark-status composition (marked, unmarked) of encountered Chinook salmon	Chinook salmon length, age, and DNA-based <sup>2</sup> stock composition; species composition of non-Chinook salmon encounters	Fish encounter	Season	A sufficient number of fish caught in the test fishery ( $n=161$ ; LM=28%, LU=9%, SM=50%, SU=13 %; <b>Table 5.13</b> ) so on test fishing numbers were used.
Voluntary Trip Reports (VTRs)	Size (legal/sublegal) and mark-status composition (marked, unmarked) of encountered Chinook salmon	Encounter data for non-Chinook salmon species (e.g., Coho salmon) that the angler may record on the VTR form	Fish encounter	Season	The size/mark-status proportions of VTR data (LM = 27%, LU = 14%, SM = 47%, SU = 12%; <b>Table 5.12</b> ) were similar to those of the test fishery data, but with the large size of the test fishing data set and the assumption that test fishing data was more accurate only test fishing data was used.
Overall Fishery Impacts Estimation	Total Chinook salmon encounters and mortalities by size/mark-status group	Ratios of encounters and mortalities per kept Chinook salmon	N/A	Season	Estimated on a monthly time step but considered at the season-total level.
Coded-wire tag (CWT) Impacts Estimation	Marked/unmarked double-index tag (DIT) encounters and mortalities	N/A	N/A	Season	The temporal resolution of DIT impacts is constrained by the total number of tags recovered.

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

**Table 5.2** Method 2 estimates of total fishing effort and total salmon catch (harvest and releases) during the 2017 summer Chinook MSF in Marine Area 10. Values may not add exactly due to rounding error. AD = marked (adipose-clipped), UM = unmarked.

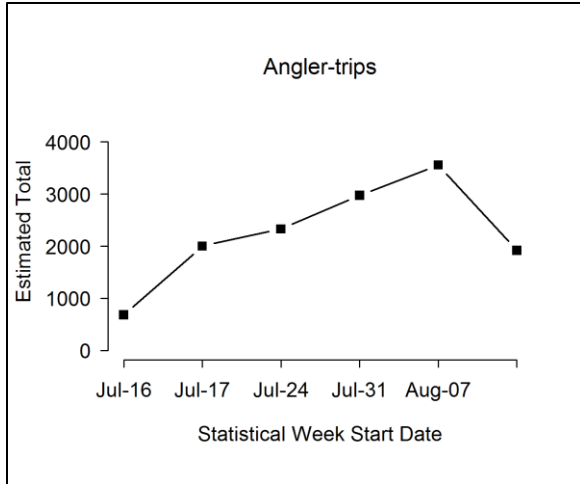
Month	Stat Week	Start Date	End Date	Estimated Effort		Est. Retained Chinook		Est. Released Chinook		Total Est. Chinook Encounters
				Boats	Anglers	AD	UM	AD	UM	
Jul	29	16-Jul	16-Jul	309	683	74	0	148	62	285
	30	17-Jul	23-Jul	1054	2,002	148	0	295	123	565
	31	24-Jul	30-Jul	1,160	2,330	134	0	267	111	512
Aug	32	31-Jul	6-Aug	1,536	2,976	288	0	575	240	1102
	33	7-Aug	13-Aug	1,830	3,556	1070	0	2137	891	4097
	34	14-Aug	15-Aug	1031	1919	512	0	1022	426	1960
<b>Season Total:</b>				<b>6,920</b>	<b>13,466</b>	<b>2,226</b>	<b>0</b>	<b>4,444</b>	<b>1853</b>	<b>8,522</b>
<b>Variance:</b>				66,570	296,720	30,163	0	763,865	125,361	1,619,442
<b>Standard Error:</b>				258	545	174	0	874	354	1273
<b>CV (%):</b>				4	4	8	0	20	19	15
<b>95% CI:</b>				6,415 - 7,426	12,399 - 14,534	1,885 - 2,566	0 - 0	2,731 - 6,157	1,159 - 2,547	6,028 - 11,016

**Table 5.3** Number of total length samples collected from retained Chinook salmon collected during dockside angler interviews in the 2017 summer Chinook MSF in Marine Area 10.

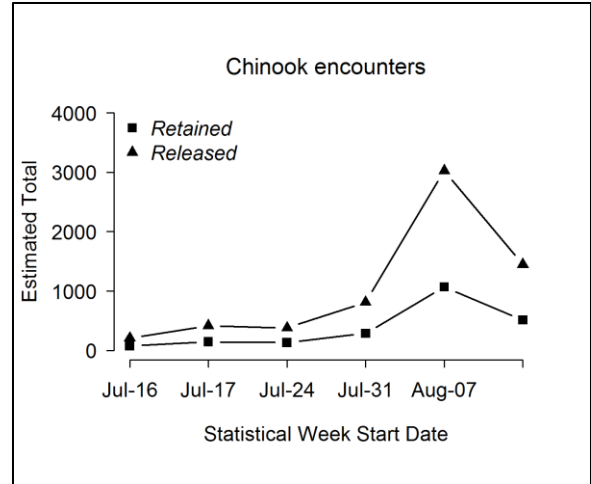
Mark Type	Number Sampled		
	Legal-size	Sublegal-size	Total
Marked	689	51	740
Unmarked	2	1	3
<b>Total</b>	<b>691</b>	<b>52</b>	<b>743</b>

**Table 5.4** Summary of coded-wire tags recovered from Chinook salmon harvested during the 2017 summer Chinook MSF in Marine Area 10. The field “Number DITs” corresponds to the number of recovered CWTs that belonged to double-index tag

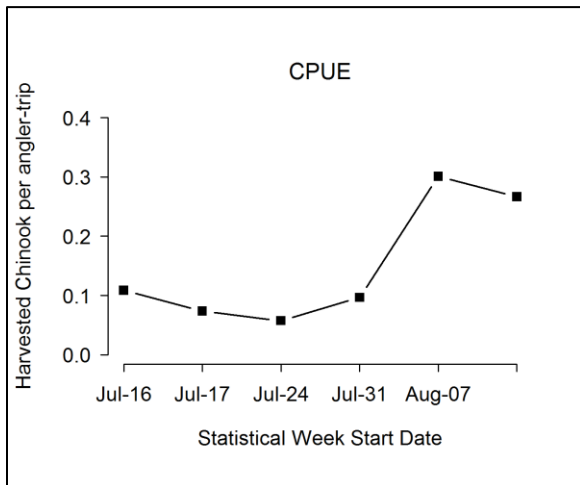
Release Domain	Release Region	Release Site	Rearing Location	CWTs Recovered	No. DITs	
BC	Fraser River – Thompson River (1.6%)	R-Chilliwack R	H-Chilliwack River H	1 (1.6%)	0	
WA	Hood Canal (7.8%)	Purdy Cr 16.0005	George Adams Hatchery	1 (1.6%)	1	
		Finch Cr 16.0222	Hoodsport Hatchery	4 (6.2%)	0	
	Mid Puget Sound (54.7%)	N Puget Sound (1.6%)	Wallace R 07.0940	Wallace R Hatchery	1 (1.6%)	1
			Big Soos Cr 09.0072	Soos Creek Hatchery	7 (10.9%)	2
		Clarks Crk Hatchery	Clarks Crk Hatchery	2 (3.1%)	0	
		Gorst Cr 15.0216	Gorst Cr Rearing Pnd	1 (1.6%)	0	
		Grovers Cr 15.0299	Grovers Cr Hatchery	7 (10.9%)	7	
		Icy Cr 09.0125	Icy Cr Hatchery	3 (4.7%)	0	
		Voight Cr 10.0414	Voights Cr Hatchery	14 (21.9%)	0	
		Palmer Hatchery	Keta Creek Complex	1 (1.6%)	0	
	S Puget Sound (34.4%)	Clear Cr 11.0013C	Clear Creek Hatchery	13 (20.3%)	12	
		Kalama Cr 11.0017	Kalama Cr Hatchery	3 (4.7%)	0	
Minter Cr 15.0048		Minter Cr Hatchery	6 (9.4%)	0		
<b>Total</b>				<b>64</b>	<b>23</b>	



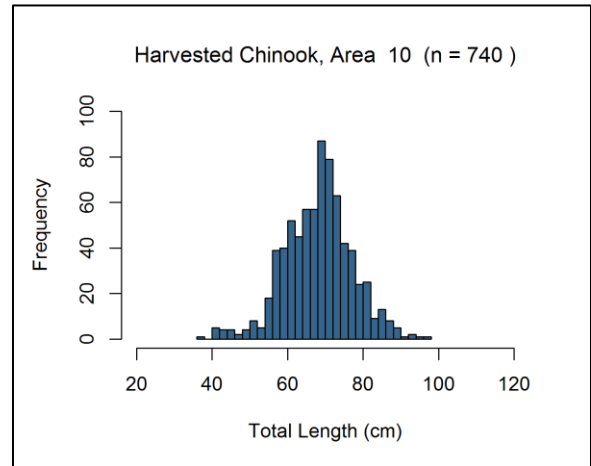
**Figure 5.1** Temporal patterns in fishing effort during the 2017 summer Chinook MSF in Marine Area 10.



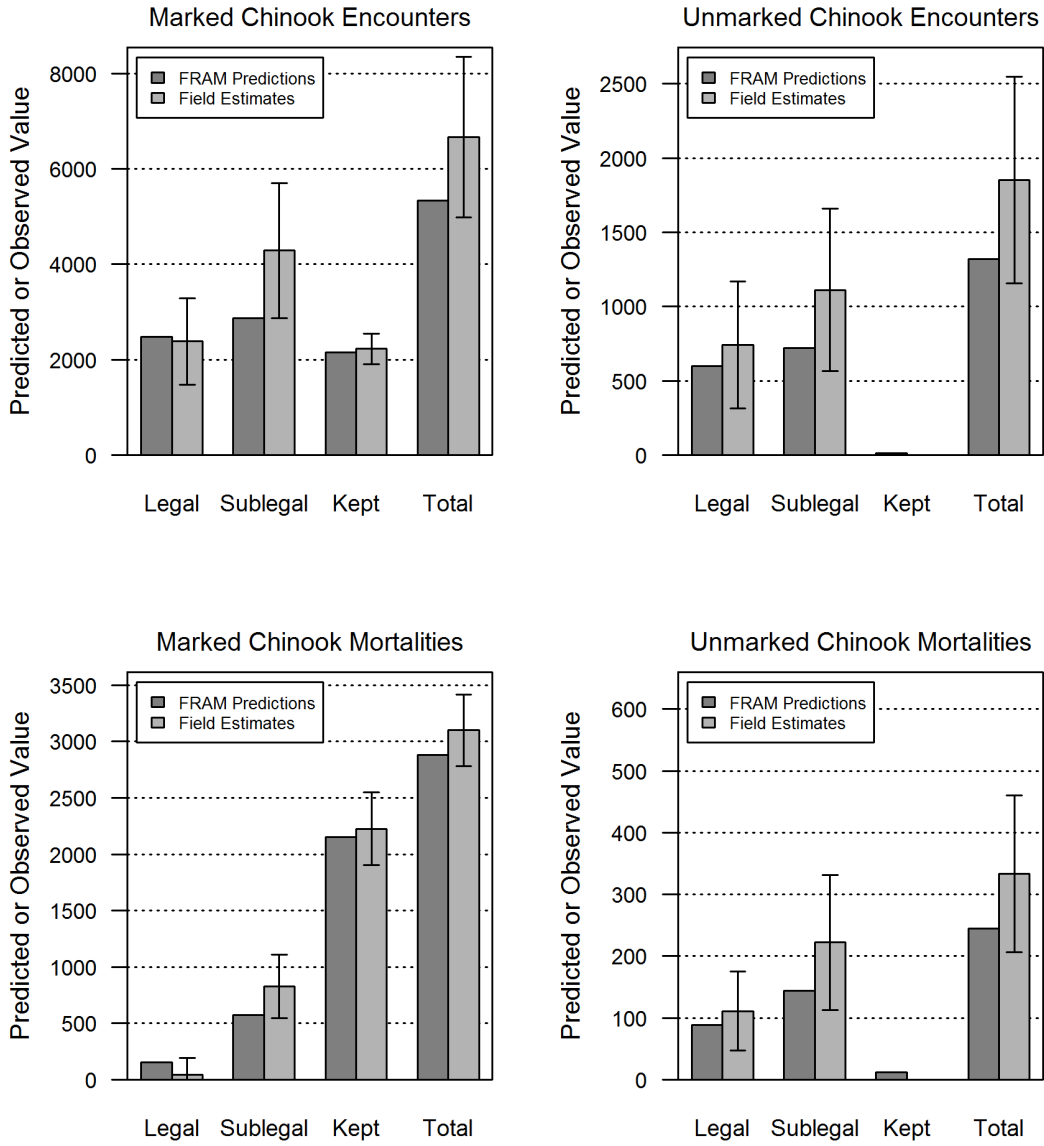
**Figure 5.3** Temporal patterns in Chinook salmon encounters (retained and released) during the 2017 summer Chinook MSF in Marine Area 10.



**Figure 5.2** Temporal patterns in CPUE (landed Chinook salmon per angler trip) during the 2017 summer Chinook MSF in Marine Area 10.



**Figure 5.4** Length-frequency distribution of retained marked Chinook salmon sampled in dockside angler interviews during the 2017 summer Chinook MSF in Marine Area 10.



**Figure 5.5** Comparison of modeled (using FRAM model run 2017) and estimated total Chinook salmon encounters and mortalities for the 2017 summer Chinook MSF in Marine Area 10. Error bars represent approximate 95% confidence intervals for field estimates.

**Table 5.5** Summary of season-wide fishery impact estimates for the 2017 summer 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	2,382	2,072	310	46	2,119	32,031	179	1,768 - 2,469	8
Legal UM	741	0	741	111	111	1068	33	47 - 175	29
Sublegal AD	4,287	153	4,134	827	980	21,427	146	693 - 1,267	15
Sublegal UM	1112	0	1112	222	222	3,115	56	113 - 332	25
<b>Total</b>	<b>8,522</b>	<b>2,226</b>	<b>6,296</b>	<b>1207</b>	<b>3,432</b>	<b>57,642</b>	<b>240</b>	<b>2,962 - 3,903</b>	<b>7</b>

**Table 5.6** Comparison of modeled (FRAM model run 2017) and estimated total Chinook salmon encounters for the 2017 summer 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	1,322	600	722	12
	AD	5,343	2,476	2,867	2,154
	Total	6,665	3,076	3,589	2,166
	% Marked	80	80	80	99
Estimated (Creel) Encounters	UM	1853	741	1112	0
	AD	6,669	2,382	4,287	2,226
	Total	8,522	3,123	5,399	2,226
	% Marked	78	76	79	100

**Table 5.7** Comparison of modeled (FRAM model run 2017) and estimated total Chinook salmon mortalities for the 2017 summer 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)	245	2,883	3,128	333	3,099	3,432
Released Legal	89	156	245	111	46	158
Released Sublegal	144	573	717	222	827	1049
Landed Only	12	2,154	2,166	0	2,226	2,226

**Table 5.8** Monthly sample rates (Total retained Chinook salmon sampled<sup>1/</sup> Estimated retained Chinook salmon) in the 2017 summer 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	
July	29 - 31	16 Jul - 31 Jul	356	0	356	107	1	108	30.40%
August	32 - 34	1 Aug - 15 Aug	1870	0	1870	633	2	635	34.00%
<b>Season Total</b>			<b>2,226</b>	<b>0</b>	<b>2,226</b>	<b>740</b>	<b>3</b>	<b>743</b>	<b>33.40%</b>

<sup>1/</sup> Number of retained Chinook salmon sampled includes all retained Chinook salmon inspected for CWT's, from all sites sampled during the summer 2017 Area 10 Chinook MSF (creel estimates and the fish sampled as part of baseline sampling).

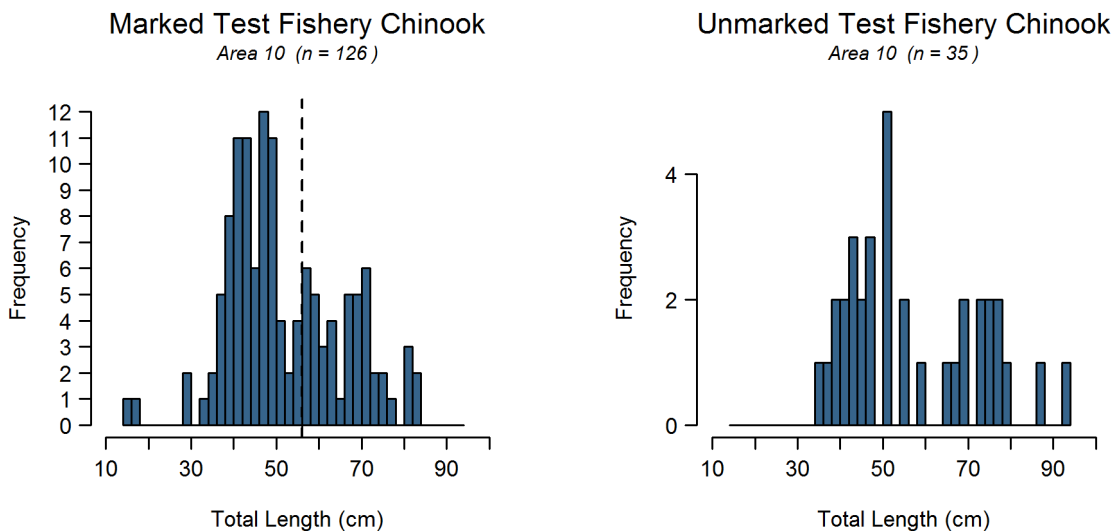


**Table 5.9** Summary of double-index tagged (DIT) Chinook salmon kept by anglers, and estimated total mortality of unmarked DIT Chinook salmon due to hook-and-release impacts resulting from the 2017 summer Chinook MSF in Marine Area 10. AD = marked (adipose-clipped), UM = unmarked.

Hatchery	Brood Year	DITs Obs	Est.AD	var(Est.AD)	UM DIT Enc	Est.UM	var(Est.UM)	SE(Est.UM)
Clear Creek Hatchery	2013	1	5	20.36	5	0.5	0.201	0.45
Clear Creek Hatchery	2014	11	55.4	223.97	56.2	5.6	2.301	5.03
George Adams Hatchery	2014	1	5	20.36	5	0.5	0.204	0.45
Grovers Cr Hatchery	2013	1	5	20.36	5	0.5	0.198	0.45
Grovers Cr Hatchery	2014	6	30.2	122.17	31.1	3.1	1.293	2.78
Soos Creek Hatchery	2013	2	10.1	40.72	10.1	1	0.406	0.9
Wallace R Hatchery	2013	1	5	20.36	5.1	0.5	0.21	0.46
<b>Total</b>		<b>23</b>	<b>115.9</b>	<b>468.31</b>	<b>117.5</b>	<b>11.8</b>	<b>4.813</b>	<b>10.52</b>

**Table 5.10** Total Chinook salmon encountered (retained and released) by private-boat anglers logging their trips on voluntary trip reports (VTRs), with estimates of legal-size and overall (legal and sublegal) mark rates during the 2017 summer 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.

Data Source	Effort and Sample Size	Legal		Sublegal		Totals	Mark Rate	
		AD	UM	AD	UM		Overall	Legal
Private VTR	37 1-trip VTRs, 63 Angler Trips	30	15	52	13	110	0.75	0.67
Size/mark-status composition:		0.27	0.14	0.47	0.12			
Variance:		(0.0018)	(0.0011)	(0.0023)	(0.0010)			



**Figure 5.6** Length-frequency distributions of marked (left panel) and unmarked (right panel) Chinook salmon encountered by test fishers during the 2017 summer 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 5.11** Composition of test fishery Chinook salmon encounters and associated mark-rate and size/mark-status proportion estimates for the 2017 summer 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.

Stat Week	Fishing Effort		Legal		Sublegal		Total
	Days	Hrs Fished	AD	UM	AD	UM	
30	5	32.18	3	0	14	6	23
31	6	26.53	5	3	15	6	29
32	7	37.05	5	2	12	3	22
33	7	43.07	20	4	20	4	48
34	4	23.29	12	5	20	2	39
<b>Total</b>	<b>29</b>	<b>162.12</b>	<b>45</b>	<b>14</b>	<b>81</b>	<b>21</b>	<b>161</b>
<b>Size/mark-status composition:</b>			0.28	0.09	.50	.13	
<b>Legal size mark rate:</b>			0.76				
<b>Overall mark rate:</b>			0.78				

Size and mark-status proportions were not significantly different between private boat VTR and test fishery data (df=3, p-value=0.67). However, based on sufficient sample size and assumed higher data quality, we used only test fishery data to estimate the size/mark-status proportions needed to produce Chinook salmon encounter and mortality estimates for the Area 10 summer Chinook MSF.

**Table 5.12** Fishery-total estimates of retained and released salmon (*other than Chinook salmon*) in the 2017 summer 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.

Week	Start Date	End Date	Retained Salmon				Released Salmon		
			Coho AD	Coho UM	Coho UK	Pink	Coho AD	Coho UM	Coho UK
29	16-Jul	16-Jul	77	0	0	0	25	40	84
30	17-Jul	23-Jul	166	0	3	0	149	104	106
31	24-Jul	30-Jul	338	8	0	8	326	246	294
32	31-Jul	6-Aug	250	5	0	31	237	135	206
33	7-Aug	13-Aug	232	10	0	58	254	246	182
34	14-Aug	15-Aug	76	0	0	37	62	53	173
<b>Season Total:</b>			<b>1139</b>	<b>23</b>	<b>3</b>	<b>134</b>	<b>1052</b>	<b>824</b>	<b>1045</b>
<b>Variance:</b>			7861	24	2	122	11794	6813	3908
<b>Standard Error:</b>			89	5	1	11	109	83	63
<b>CV (%):</b>			8	21	52	8	10	10	6
<b>95% CI:</b>			965 - 1,313	13 - 33	0 - 5	112 - 155	839 - 1,265	662 - 986	923 - 1,168

**Table 5.13** Summary of the total number of anglers intercepted during on-the-water surveys conducted for the 2017 summer Chinook MSF in Marine Area 10. Sites in bold represent those included in the dockside sample frame.

Site Name	Weekday Anglers	Season Total (unadjusted) Size Measure	Weekend Anglers	Season Total (unadjusted) Size Measure
<b>Armeni Public Ramp</b>	<b>50</b>	<b>0.130</b>	<b>271</b>	<b>0.239</b>
<b>Brownsville Marina/Dock/Ramp</b>	<b>8</b>	<b>0.021</b>	<b>22</b>	<b>0.019</b>
Commencement Bay Marina Services (Foss Harbor Marina)	0	0.000	3	0.003
Dagmar's Landing, Forklift Launch	2	0.005	0	0.000
Des Moines Marina (Moorage)	0	0.000	8	0.007
Driftwood Key Marina	0	0.000	2	0.002
Eagle Harbor Waterfront Park	4	0.010	17	0.015
Edmonds Boat Basin (Public Sling)	3	0.008	33	0.029
Edmonds Dry Storage (Boat Loft (Priv. fork lift))	18	0.047	34	0.030
Edmonds Marina	65	0.168	90	0.079
Eglon Public Ramp	0	0.000	1	0.001
Elliott Bay Marina	6	0.016	90	0.079
Everett Marina	10	0.026	6	0.005
Everett Ramp	3	0.008	31	0.027
First Avenue South Public Ramp	0	0.000	25	0.022
Gig Harbor Marina	0	0.000	3	0.003
Kingston Marina	15	0.039	23	0.020
<b>Kingston Public Ramp</b>	<b>28</b>	<b>0.073</b>	<b>59</b>	<b>0.052</b>
<b>Manchester Public Ramp</b>	<b>6</b>	<b>0.016</b>	<b>8</b>	<b>0.007</b>
Mukilteo Lighthouse Park	0	0.000	11	0.010
Narrows Marina	0	0.000	2	0.002
Point Defiance Public Ramp	1	0.003	11	0.010
Port Ludlow Marina/Beach Launch	0	0.000	2	0.002
Port Madison Marina	3	0.008	5	0.004
Port Orchard Marina	0	0.000	8	0.007
Port Orchard Public Ramp	2	0.005	9	0.008
Possession Waterfront Beach Park	3	0.008	1	0.001
Poulsbo Ramp/Marina	0	0.000	2	0.002
Private	25	0.065	66	0.058
Seacrest Boathouse (Lloyds)	0	0.000	1	0.001
Shilshole Marina	55	0.142	82	0.072
<b>Shilshole Public Ramp</b>	<b>78</b>	<b>0.202</b>	<b>196</b>	<b>0.173</b>
Silverdale Waterfront Ramp	0	0.000	2	0.002
Suquamish Public Ramp	1	0.003	2	0.002
Winslow City Ramp	0	0.000	2	0.002
Winslow Marina	0	0.000	5	0.004
<b>Total Anglers</b>	<b>386</b>	<b>1</b>	<b>1133</b>	<b>1</b>

**Table 5.14** Season-total estimates of Chinook salmon encounters by size/mark-status and total estimates of angler effort, summarized for all seasons to date of the Area 10 summer Chinook MSF. Values may not add exactly due to rounding error.

Season Dates	Effort (Angler-trips)	Retained Chinook				Released Chinook				Total Encounters
		LM	LU	SM	SU	LM	LU	SM	SU	
Jul 16 - Jul 28, 2007	8,374	1,469	30	70	8	209	497	3,101	723	6,107
Jul 16 - Aug 15, 2008	13,808	1,027	3	4	0	128	510	189	385	2,246
Jul 16 - Aug 31, 2009	23,179	1,505	22	116	0	220	82	2,488	1,017	5,450
Jul 16 - Aug 31, 2010	21,636	2,950	33	37	9	432	1,026	1,024	1,665	7,178
Jul 16 - Aug 31, 2011	27,753	2,548	14	94	14	372	1,872	964	694	6,573
Jul 16 - Aug 19, 2012	17,823	2,976	17	88	17	443	377	6,343	1,950	12,212
Jul 16 - Aug 18, 2013	27,317	3,434	6	77	17	512	298	2,149	1,603	8,097
Jul 16 - Aug 7, 2014	11,892	1,063	4	0	4	159	322	1,629	322	3,503
Jul 16, - Aug 15, 2016	9,314	1,032	0	53	0	154	274	1,087	593	3,192
Jul 16, - Aug 15, 2017	13,466	2,072	0	153	0	310	741	4,134	1112	8,522

## **6) Marine Area 11 Summer Mark-Selective Chinook Fishery**

The Washington Department of Fish and Wildlife (WDFW) implemented its eleventh consecutive summer Chinook MSF in Marine Area 11 from June 1 through September 30, 2017. WDFW's Puget Sound Sampling Unit (PSSU) implemented an intensive monitoring program in Area 11 throughout the season in order to collect the data needed to estimate key parameters characterizing the fishery and its impacts on unmarked salmon. Sampling activities included dockside creel sampling and collection of voluntary trip reports (VTRs) from the angling public. **Table 6.1** summarizes the parameters estimated and the sampling activities associated with each parameter. Specific procedures used for collecting these data and estimating critical data parameters are presented in detail in our separate Methods Report (WDFW 2012a). In this section, we present results from our monitoring activities during the Area 11 summer Chinook MSF.

**Table 6.1** Sampling/estimation details on target parameters associated with the overall Area 11 winter mark-selective fishery monitoring program.

Activity	Focal Parameter(s)	Secondary Parameter(s)	Sample Unit(s)	Finest Estimation Time Step	Comments
Dockside Creel Sampling	Fishing effort (boat & angler trips); kept and released fish	Catch rates (CPUE); length, age, and CWT composition of harvest <sup>1</sup> ; 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 weekday and 4 weekend boat surveys were conducted during the four month fishery.
Voluntary Trip Reports (VTRs)	Size (legal/sublegal) and mark-status (marked/unmarked) composition of encountered Chinook salmon	Encounter data for non-Chinook salmon species (e.g., Coho salmon) that the angler may record on the VTR form	Fish encounter	Season	We used VTR data to estimate the size/mark-status proportions (LM = 38%, LU = 11%, SM = 33%, SU = 18%; <b>Table 6.5</b> ) needed to produce encounter and mortality estimates.
Overall Fishery Impacts Estimation	Total Chinook salmon encounters and mortalities by size/mark-status group	Ratios of encounters and mortalities per kept Chinook salmon	N/A	Season	Estimated on a monthly time step but considered at the season-total level.
Coded-wire tag (CWT) Impacts Estimation	Marked/unmarked double-index tag (DIT) encounters and mortalities	N/A	N/A	Season	The temporal resolution of DIT impacts is constrained by the total number of tags recovered.

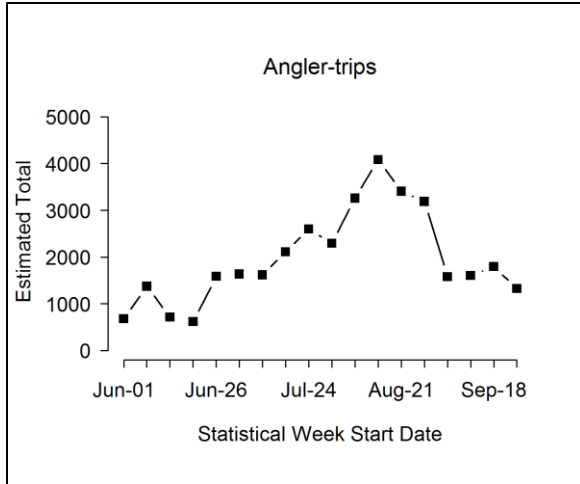
<sup>1</sup> The length and CWT composition of landed catch was assessed on a season-wide basis for impact estimation.

**Table 6.2** Estimates of total fishing effort and total salmon catch (harvest and releases) during the 2017 summer Chinook MSF in Marine Area 11. Values may not add exactly due to rounding error. AD = marked (adipose-clipped), UM = unmarked.

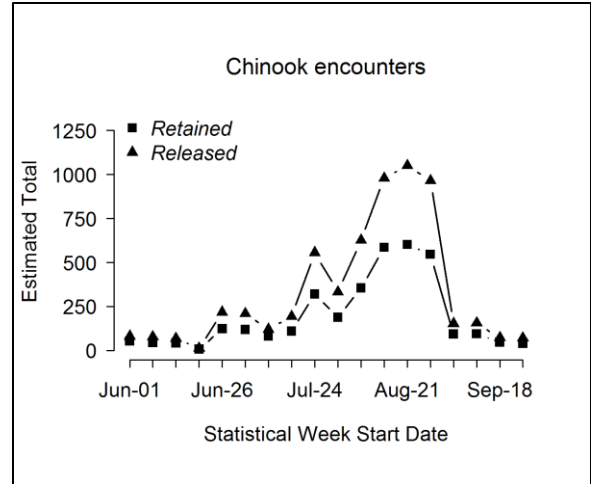
Month	Stat Week	Start Date	End Date	Est. Effort		Est. Retained Chinook		Est. Released Chinook		Est. Total Chinook Encounters
				Boats	Anglers	AD	UM	AD	UM	
<b>Jun</b>	23	1-Jun	4-Jun	397	677	49	5	47	34	134
	24	5-Jun	11-Jun	866	1,374	44	0	42	34	120
	25	12-Jun	18-Jun	431	712	40	2	39	29	111
	26	19-Jun	25-Jun	337	616	7	0	7	6	20
	27	26-Jun	2-Jul	931	1,585	123	0	120	97	341
<b>Jul</b>	28	3-Jul	9-Jul	968	1,632	119	0	116	94	328
	29	10-Jul	16-Jul	913	1,616	73	9	71	49	202
	30	17-Jul	23-Jul	1,149	2,109	110	0	107	87	304
	31	24-Jul	30-Jul	1,480	2,599	317	3	309	247	876
	32	31-Jul	6-Aug	1,317	2,293	188	0	184	149	521
<b>Aug</b>	33	7-Aug	13-Aug	1,757	3,260	355	0	346	280	981
	34	14-Aug	20-Aug	2,114	4,084	566	20	552	428	1565
	35	21-Aug	27-Aug	1884	3,406	598	4	582	468	1652
	36	28-Aug	3-Sep	1,852	3,188	547	0	533	432	1511
<b>Sep</b>	37	4-Sep	10-Sep	942	1,579	89	4	87	66	245
	38	11-Sep	17-Sep	1,001	1,602	91	4	88	68	251
	39	18-Sep	24-Sep	1,026	1,796	43	4	42	30	119
	40	25-Sep	30-Sep	868	1326	40	0	39	32	111
<b>Subtotal</b>				<b>20,235</b>	<b>35,453</b>	<b>3398</b>	<b>56</b>	<b>3312</b>	<b>2628</b>	<b>9394</b>
<b>RCAW Derby</b>				78	98	10	0	10	8	28
<b>PSA 7-UP Derby</b>				166	277	72	0	70	57	199
<b>Gig Harbor Derby</b>				32	71	61	0	59	48	169
<b>Season Total:</b>				<b>20,511</b>	<b>35,899</b>	<b>3,541</b>	<b>56</b>	<b>3,451</b>	<b>2741</b>	<b>9,789</b>
<b>Variance:</b>				905,222	2,187,576	161,103	256	1,367,500	377,186	2,941,636
<b>SE:</b>				951	1479	401	16	1169	614	1715
<b>CV (%):</b>				5	4	11	29	34	22	18
<b>95% CI:</b>				18,646 - 22,375	33,000 - 38,798	2,754 - 4,328	24 - 87	1,159 - 5,743	1,538 - 3,945	6,427 - 13,151

**Table 6.3** Number of total length samples collected from retained Chinook salmon collected during dockside angler interviews in the 2017 summer Chinook MSF in Marine Area 11.

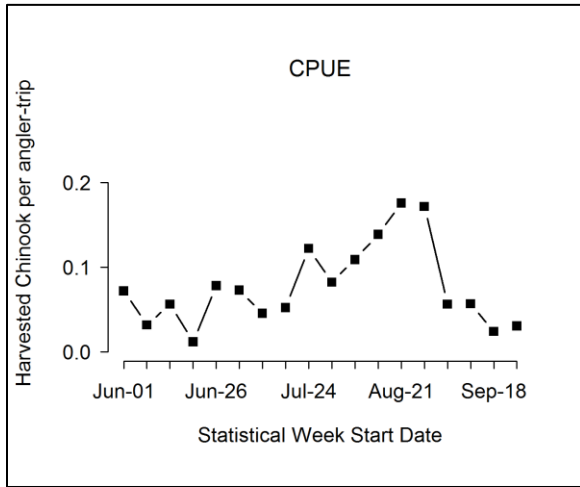
Mark Type	Number Sampled		
	Legal-size	Sublegal-size	Total
Marked	950	77	1027
Unmarked	6	11	17
<b>Total</b>	<b>956</b>	<b>88</b>	<b>1044</b>



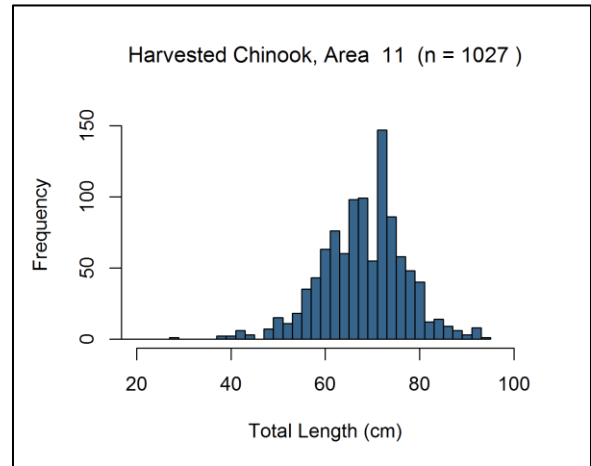
**Figure 6.1** Temporal patterns in fishing effort during the 2017 summer Chinook MSF in Marine Area 11.



**Figure 6.3** Temporal patterns in Chinook salmon encounters (retained and released) during the 2017 summer Chinook MSF in Marine Area 11.



**Figure 6.2** Temporal patterns in CPUE (landed Chinook salmon per angler trip) during the 2017 summer Chinook MSF in Marine Area 11.



**Figure 6.4** Length-frequency distributions of retained marked Chinook salmon sampled in dockside angler interviews during the 2017 summer Chinook MSF in Marine Area 11.



**Table 6.4** Summary of coded-wire tags recovered from Chinook salmon harvested during the 2017 summer Chinook MSF in Marine Area 11. The field “Number DITs” corresponds to the number of tags that belonged to double-index tag groups.

Release Domain	Release Region	Release Site	Rearing Location	CWTs Recovered	No. DITs
BC	Fraser River – Thompson River (6.6%)	Chilliwack R	Chilliwack River H	1 (1.6%)	0
		Harrison R	Chehalis River H	3 (4.9%)	0
WA	Hood Canal (4.9%)	Purdy Cr 16.0005	George Adams Hatchery	1 (1.6%)	0
		Finch Cr 16.0222	Hoodspout Hatchery	2 (3.3%)	0
	N Puget Sound (6.6%)	Wallace R 07.0940	Wallace R Hatchery	1 (1.6%)	0
		Whitehorse Springs	Whitehorse Pond	3 (4.9%)	0
	Skagit River (1.6%)	Cascade R 03.1411	Marblemount Hatchery	1 (1.6%)	0
		Mid Puget Sound (39.3%)	Grovers Cr 15.0299	Grovers Cr Hatchery	1 (1.6%)
	Clarks Crk Hatchery		Clarks Crk Hatchery	1 (1.6%)	0
	Big Soos Cr 09.0072		Soos Creek Hatchery	4 (6.6%)	0
	Icy Cr 09.0125		Icy Cr Hatchery	4 (6.6%)	0
	White R 10.0031		White River Hatchery	1 (1.6%)	0
	Voight Cr 10.0414		Voights Cr Hatchery	13 (21.3%)	0
	S Puget Sound (37.7%)		Clear Cr 11.0013C	Clear Creek Hatchery	10 (16.4%)
		Kalama Cr 11.0017	Kalama Cr Hatchery	4 (6.6%)	0
		Minter Cr 15.0048	Minter Cr Hatchery	5 (8.2%)	0
		Minter Cr Tr 15.0051	Hupp Springs Rearing	4 (6.6%)	0
Col. Riv.	Lower Columbia River (1.6%)	McKenzie R 1	McKenzie Hatchery	1 (1.6%)	0
NA	NA (1.6%)	NA	NA	1 (1.6%)	0
<b>Total</b>				<b>61</b>	<b>9</b>

**Table 6.5** Total Chinook salmon encountered (retained and released) by private-boat anglers logging their trips on voluntary trip reports (VTRs) during the 2017 summer 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	47 1-trip VTRs, 79 Angler Trips	35	10	30	16	91	0.71	0.78
Size/mark-status composition:		0.38	0.11	0.33	0.18			
Variance:		(0.0026)	(0.0011)	(0.0025)	(0.0016)			

**Table 6.6** Summary of season-wide fishery impact estimates for the 2017 summer Chinook MSF in Marine Area 11. 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.

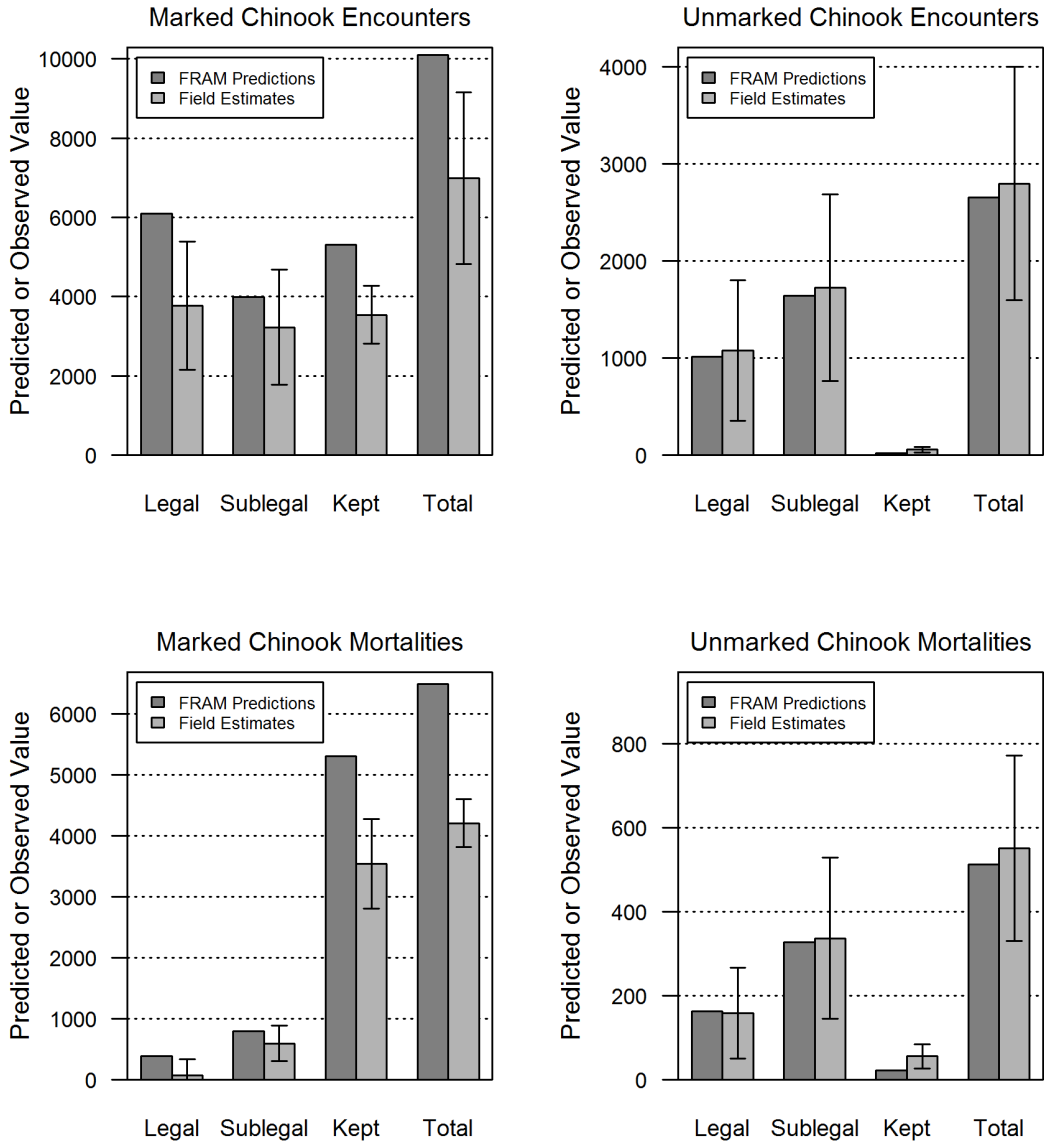
Size/mark group	Encounters	Retained	Released	Release Mortality	Total Mortality	Var	SE	95% CI	CV (%)
Legal AD	3,765	3,276	489	73	3,349	157,027	396	2,572 - 4,126	12
Legal UM	1076	20	1056	158	178	3144	56	68 - 288	32
Sublegal AD	3,227	265	2,962	592	858	23,653	154	556 - 1,159	18
Sublegal UM	1721	36	1685	337	373	9773	99	179 - 567	27
<b>Total</b>	<b>9,789</b>	<b>3,597</b>	<b>6,193</b>	<b>1161</b>	<b>4,758</b>	<b>193,598</b>	<b>440</b>	<b>3,895 - 5,620</b>	<b>9</b>

**Table 6.7** Comparison of modeled (FRAM model run 2017) and estimated total Chinook salmon encounters for the 2017 summer Chinook MSF in Marine Area 11. 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	2655	1013	1642	22
	AD	10,093	6,096	3997	5,303
	Total	12,748	7,109	5,639	5,325
	% Marked	79	86	71	100
Estimated (Creel) Encounters	UM	2797	1076	1721	56
	AD	6,992	3,765	3,227	3,541
	Total	9,789	4,841	4,948	3,597
	% Marked	71	78	65	98

**Table 6.8** Comparison of modeled (FRAM model run 2017) and estimated total Chinook salmon mortalities for the 2017 summer Chinook MSF in Marine Area 11. 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)	513	6,486	6,999	551	4,207	4,758
Released Legal	163	384	547	158	73	232
Released Sublegal	328	799	1127	337	592	929
Landed Only	22	5,303	5,325	56	3,541	3,597



**Figure 6.5** Comparison of modeled (FRAM model run 2017) and estimated total Chinook salmon encounters and mortalities for the 2017 summer Chinook MSF in Marine Area 11. Error bars represent approximate 95% confidence intervals for field estimates.

**Table 6.9** Summary of double-index tagged (DIT) Chinook salmon kept by anglers, and estimated total mortality of unmarked DIT Chinook salmon due to hook-and-release impacts resulting from the 2017 summer Chinook MSF in Marine Area 11. 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)
Clear Creek Hatchery	2014	8	20.7	40.53	21	2.1	0.417	1.71
Grovers Cr Hatchery	2014	1	3	5.79	3	0.3	0.061	0.25
<b>Total</b>		<b>9</b>	<b>23.7</b>	<b>46.32</b>	<b>24</b>	<b>2.4</b>	<b>0.478</b>	<b>1.96</b>

**Table 6.10** Monthly sample rates (Total retained Chinook salmon sampled<sup>1</sup> / Estimated retained Chinook salmon) in the 2017 summer Chinook MSF in Marine Area 11. AD = marked (adipose-clipped), UM = unmarked.

Time period			Estimated Retained Chinook			Number of Chinook sampled			Sample Rate
Month	Stat Weeks	Dates	AD	UM	Total	AD	UM	Total	
June	23 - 27	1 Jun - 2 Jul	263	7	270	100	3	103	38.20%
July	28 - 31	3 Jul - 30 Jul	619	12	631	150	4	154	24.40%
August	32 - 36	31 Jul - 3 Sep	2254	24	2278	732	7	739	32.40%
September	37 - 40	4 Sep - 30 Sep	263	12	275	45	3	48	17.50%
<b>Season Total</b>			<b>1,477</b>	<b>4</b>	<b>1,480</b>	<b>445</b>	<b>4</b>	<b>449</b>	<b>30.30%</b>

<sup>1/</sup> Number of retained Chinook salmon sampled includes all retained Chinook salmon inspected for CWT's, from all sites sampled during the summer 2017 Area 11 Chinook MSF (creel estimates and the fish sampled as part of baseline sampling).

**Table 6.11** Fishery-total estimates of retained and released salmon (other than Chinook salmon) for the 2017 summer Chinook MSF in Marine Area 11. AD = marked (adipose-clipped), UM = unmarked, UK = unknown mark-status. Values may not add exactly due to rounding error.

Stat Week	Start Date	End Date	Retained Salmon			Released Salmon		
			Coho AD	Coho UM	Pink	Coho AD	Coho UM	Coho UK
23	1-Jun	4-Jun	0	0	0	0	0	2
24	5-Jun	11-Jun	0	0	0	0	0	7
25	12-Jun	18-Jun	0	5	0	17	0	0
26	19-Jun	25-Jun	2	5	0	5	0	0
27	26-Jun	2-Jul	10	6	3	3	7	0
28	3-Jul	9-Jul	36	6	0	7	11	3
29	10-Jul	16-Jul	33	14	0	69	5	27
30	17-Jul	23-Jul	118	50	25	145	44	35
31	24-Jul	30-Jul	190	29	56	84	33	133
32	31-Jul	6-Aug	177	40	85	76	15	101
33	7-Aug	13-Aug	185	45	106	54	8	131
34	14-Aug	20-Aug	206	51	64	186	97	449
35	21-Aug	27-Aug	236	65	167	49	37	183
36	28-Aug	3-Sep	141	80	107	72	36	78
37	4-Sep	10-Sep	190	44	18	109	50	128
38	11-Sep	17-Sep	321	39	6	66	18	132
39	18-Sep	24-Sep	526	53	29	130	102	432
40	25-Sep	30-Sep	240	15	0	48	50	289
<b>Season Total:</b>			<b>2611</b>	<b>546</b>	<b>665</b>	<b>1120</b>	<b>511</b>	<b>2130</b>
<b>Variance:</b>			57449	5171	16748	31425	9454	135110
<b>Standard Error:</b>			240	72	129	177	97	368
<b>CV (%):</b>			9	13	19	16	19	17
<b>95% CI:</b>			2,142 - 3,081	405 - 687	412 - 919	773 - 1,468	321 - 702	1,409 - 2,850

**Table 6.12** Summary of the total number of anglers intercepted during on-the-water surveys conducted for the 2017 summer Chinook MSF in Marine Area 11. Sites in bold represent those included in the dockside sample frame.

Site Name	Weekday Anglers	Season Total (unadjusted) Size Measure	Weekend Anglers	Season Total (unadjusted) Size Measure
Alki Point	0	0.000	1	0.004
Arcadia Ramp	0	0.000	1	0.006
<b>Armeni Public Ramp</b>	<b>26</b>	<b>0.058</b>	<b>3</b>	<b>0.022</b>
Breakwater Marina (Warters)	13	0.029	2	0.043
Browns Point Ramp	1	0.002	1	0.058
Brownsville Marina/Dock/Ramp	6	0.013	3	0.006
Commencement Bay Marina	15	0.033	1	0.020
Cromwell Beach	2	0.004	2	0.000
Dash Point Shore	2	0.004	1	0.006
Delin Docks	5	0.011	18	0.000
Des Moines Marina (Moorage)	56	0.124	7	0.080
Dockton Ramp, Vashon Is	3	0.007	1	0.020
Eagle Harbor Waterfront Park	9	0.020	3	0.007
Edmonds Marina	3	0.007	10	0.000
Elliott Bay Marina	3	0.007	13	0.000
Evergreen Park Ramp	2	0.004	5	0.000
First Avenue South Public Ramp	0	0.000	1	0.004
Foss Tug Dock	0	0.000	1	0.006
Gig Harbor Marina	8	0.018	4	0.020
<b>Gig Harbor Ramp</b>	<b>29</b>	<b>0.064</b>	<b>6</b>	<b>0.063</b>
Horsehead Bay Ramp	0	0.000	1	0.004
Hylebos Boat Haven	0	0.000	1	0.015
Manchester Public Ramp	21	0.046	1	0.022
Narrows Marina	8	0.018	43	0.026
Olalla Public Ramp	2	0.004	52	0.004
Point Defiance Beach	0	0.000	1	0.002
<b>Point Defiance Boathouse</b>	<b>33</b>	<b>0.073</b>	<b>2</b>	<b>0.078</b>
<b>Point Defiance Public Ramp</b>	<b>112</b>	<b>0.248</b>	<b>2</b>	<b>0.205</b>
Port Orchard Marina	2	0.004	18	0.000
Port Orchard Public Ramp	3	0.007	12	0.000
Private	19	0.042	0	0.069
<b>Redondo Ramp</b>	<b>48</b>	<b>0.106</b>	<b>2</b>	<b>0.121</b>
Shilshole Marina	14	0.031	1	0.034
Shilshole Public Ramp	3	0.007	2	0.000
Solo Point	0	0.000	2	0.004
Tyee Marina/Ramp	4	0.009	4	0.047
Unknown	0	0.000	3	0.004
Wollochet Bay Public Ramp	0	0.000	0	0.002
<b>Total Anglers</b>	<b>452</b>	<b>1</b>	<b>231</b>	<b>1</b>

**Table 6.13** Season-total estimates of Chinook salmon encounters by size/mark-status and total estimates of angler effort, summarized for all seasons to date of the Area 11 summer Chinook MSF. Values may not add exactly due to rounding error.

Season Dates	Effort (Angler-trips)	Retained Chinook				Released Chinook				Total Encounters
		LM	LU	SM	SU	LM	LU	SM	SU	
Jun 1 - Sept 30, 2007	78,958	10,192	74	354	21	1,511	3,015	8,033	2,357	25,558
Jun 1 - Sept 30, 2008	65,728	7,277	18	100	5	1,087	1,999	1,969	248	12,703
Jun 1 - Sept 30, 2009	80,157	3,149	20	117	17	470	1,269	3,820	3,302	12,164
Jun 1 - Sept 30, 2010	54,594	3,883	64	27	0	580	1,105	900	405	6,965
Jun 1 - Sept 30, 2011	69,919	2,559	9	77	12	382	2,120	1,932	1,579	8,670
Jun 1 - Sept 30, 2012	56,065	4,894	57	72	14	731	2,665	2,649	1,157	12,240
Jun 1 - Sept 30, 2013	64,509	3,056	35	55	0	457	1,289	1,214	669	6,774
Jun 1 - Sept 30, 2014	39,426	2,912	20	11	0	435	1,585	2,142	861	7,966
Jun 1 - Sept 30, 2015	40,858	1,447	10	41	3	216	748	2,491	1599	6,556
Jun 24 - Aug 19, 2016	13,766	1,437	4	40	0	215	443	1,359	298	3,794
Jun 1 - Sep 30, 2017	35,899	3,276	20	265	36	489	1056	2,962	1685	9,789

## 7) Marine Area 12 Summer Mark-Selective Chinook Fishery

The Washington Department of Fish and Wildlife (WDFW) implemented a fifth consecutive summer Chinook MSF in Marine Area 12 from July 1 through September 30, 2017. WDFW's Puget Sound Sampling Unit (PSSU) implemented a "Baseline Sampling" program (see WDFW 2012a for details) consisting of dockside angler interviews with catch sampling along with efforts to distribute and collect voluntary trip reports (VTRs) from the angling public.

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

**Table 7.1** summarizes the parameters estimated and the sampling activities associated with each parameter. Specific procedures used for collecting these data and estimating critical data parameters are presented in detail in our separate Methods Report (WDFW 2012a). In this section we present results from our monitoring activities during the Area 12 summer Chinook MSF, including relative catch and effort patterns over the course of the season based on the assumption that baseline-sampling observations of these parameters are good indicators of associated fishery-wide trends.



**Table 7.1** Sampling/estimation details on target parameters associated with the overall Area 12 mark-selective fishery monitoring program.

Activity	Focal Parameter(s)	Secondary Parameter(s)	Sample Unit(s)	Finest Estimation Time Step	Comments
Dockside Angler Interviews (Baseline Sampling)	Observed (in-sample) fishing effort (boat & angler trips); kept and released fish.	Catch rates (CPUE); length, age, and CWT composition of harvest <sup>1</sup> ; collection of angler fishing methods.	Angler trip; kept fish; reported fish release	Week	Observed catch per angler trip and species composition data obtained from baseline sampling will ultimately be combined with Catch Record Card (CRC) data to produce fishery-total estimates at a later time (approximately one year following the fishery).
Voluntary Trip Reports (VTRs)	Size (legal/sublegal) and mark-status composition (marked, unmarked) of encountered Chinook salmon	Encounter data for non-Chinook salmon species (e.g., Coho salmon) that the angler may record on the VTR form	Fish encounter	Season	When CRC-based retained Chinook salmon estimates become available VTR data may be used in the estimation of total Chinook salmon encounters by size/mark group (LM = 3%, LU = 11%, SM = 64%, SU = 22%; <b>Table 7.5</b> ), along with associated impacts, using the methods described in WDFW & NWIFC (2013).
Overall Fishery Impacts Estimation	Total Chinook salmon encounters and mortalities by size/mark-status group	Ratios of encounters and mortalities per kept Chinook salmon	N/A	Season	Will be estimated at a later date using the CRC-based retained Chinook salmon estimate, when it becomes available.
Coded-wire tag (CWT) Impacts Estimation	Marked/unmarked double-index tag (DIT) encounters and mortalities	N/A	N/A	Season	Will be estimated at a later date using the CRC-based retained Chinook salmon estimate, when it becomes available. The temporal resolution of DIT impacts is constrained by the total number of tags recovered.

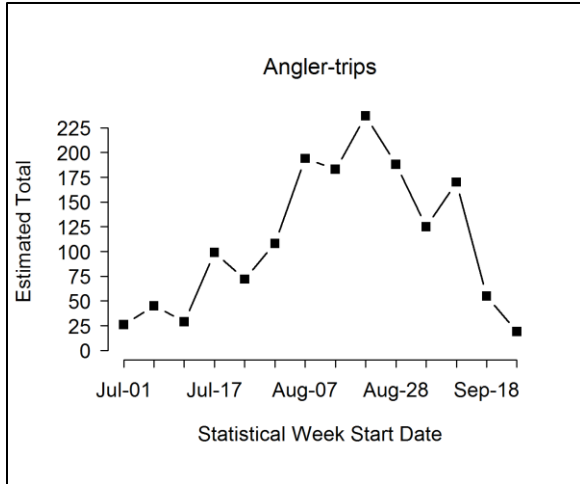
<sup>1</sup> The length and CWT composition of landed catch was assessed on a season-wide basis for impact estimation.

**Table 7.2** Observations of fishing effort, salmon harvest, and reported salmon releases, by week, for the 2017 summer 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.

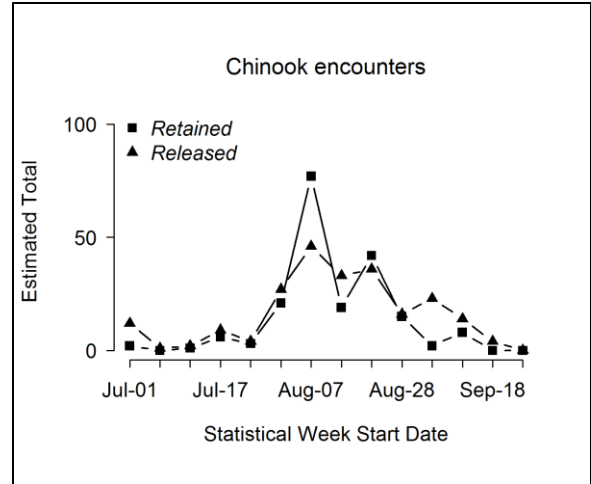
Month	Stat Week	Effort		Retained Fish						Released Fish									
		Boats	Anglers	Chinook			Coho		Pink	Chinook			Coho			Unk. Salmon	Pink	Steelhead	Cutthroat
				AD	UM	UNK	AD	UM		AD	UM	UK	AD	UM	UK				
Jul	27	14	26	2	0	0	0	0	0	6	6	7	0	0	0	2	0	0	0
	28	17	45	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	16
	29	16	29	1	0	0	0	0	0	2	0	7	0	0	1	0	0	0	0
	30	54	99	6	0	0	0	0	0	8	1	6	0	0	4	4	0	0	0
	31	37	72	3	0	0	0	0	0	2	2	13	1	0	3	8	0	0	0
Aug	32	61	108	21	0	0	1	0	0	9	18	26	0	0	1	30	3	0	0
	33	91	194	77	0	0	1	0	0	29	17	15	1	0	0	4	0	0	12
	34	89	183	19	0	0	7	1	0	26	7	43	0	1	15	28	0	0	26
	35	116	237	42	0	0	44	7	1	21	15	24	4	1	8	26	3	0	9
Sept	36	96	188	15	0	0	78	20	2	3	13	46	1	1	7	8	6	2	3
	37	69	125	2	0	0	51	8	0	13	10	40	0	2	7	65	2	0	0
	38	101	170	8	0	1	30	6	0	12	2	54	2	1	14	23	0	0	19
	39	36	55	0	0	0	1	1	0	4	0	23	0	0	3	8	0	0	69
	40	15	19	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0	8
<b>Total</b>		<b>812</b>	<b>1550</b>	<b>196</b>	<b>0</b>	<b>1</b>	<b>213</b>	<b>44</b>	<b>3</b>	<b>135</b>	<b>92</b>	<b>306</b>	<b>9</b>	<b>6</b>	<b>63</b>	<b>208</b>	<b>14</b>	<b>2</b>	<b>162</b>

**Table 7.3** Number of total length samples collected from retained Chinook salmon collected during dockside angler interviews in the 2017 summer Chinook MSF in Marine Area 12.

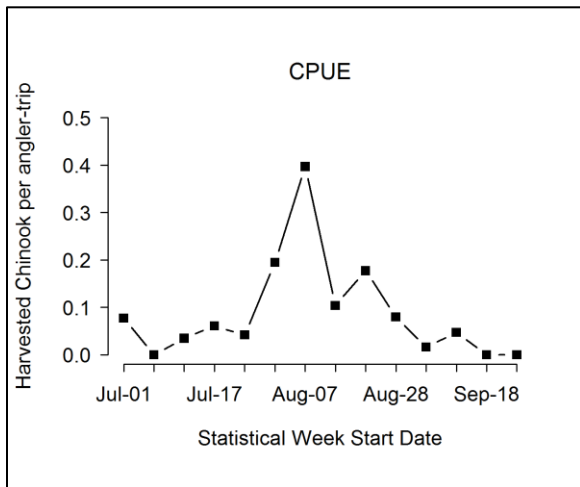
Mark Type	Number Sampled		
	Legal-size	Sublegal-size	Total
Marked	187	6	193
Unmarked	0	0	0
<b>Total</b>	<b>187</b>	<b>6</b>	<b>193</b>



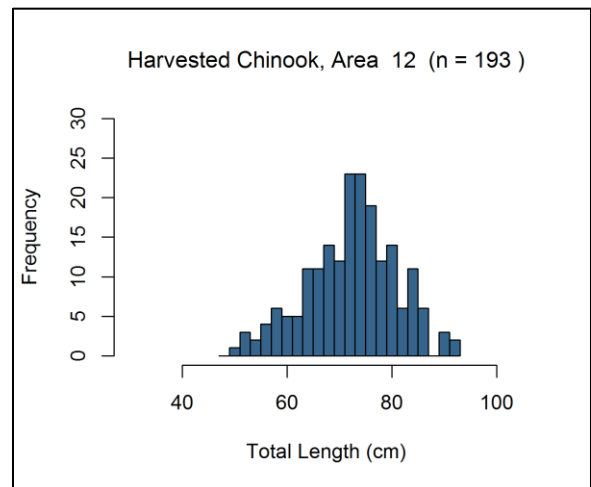
**Figure 7.1** Temporal patterns in fishing effort during the 2017 summer Chinook MSF in Marine Area 12. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates.



**Figure 7.3** Temporal patterns in Chinook salmon encounters (retained and released) during the 2017 summer Chinook MSF in Marine Area 12. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates.



**Figure 7.2** Temporal patterns in CPUE (landed Chinook salmon per angler trip) during the 2017 summer Chinook MSF in Marine Area 12. 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 salmon sampled in dockside angler interviews during the 2017 summer Chinook MSF in Marine Area 12.

**Table 7.4** List of sites sampled with the number of sampling events (site-days) during the 2017 summer Chinook MSF in Marine Area 12.

Location Name	Number of Site Days Sampled Per Month			Total Site-Days	% of Total
	July	August	September		
Armeni Public Ramp	0	1	0	1	0.66%
Big Beef Beach	0	0	3	3	1.97%
Hood Canal Bridge Pier	0	1	0	1	0.66%
Hoodsport Shore	3	1	2	6	3.95%
Misery Point Ramp	0	1	5	6	3.95%
Pleasant Harbor Boat Ramp (WDFW)	0	2	2	4	2.63%
Pleasant Harbor Marina	0	0	3	3	1.97%
Quilcene Bay Ramp	0	9	11	20	13.16%
Salsbury County Park Ramp	0	4	2	6	3.95%
Saltwater Park Ramp	21	23	18	62	40.79%
Termination Point Ramp	0	0	1	1	0.66%
Twanoh State Park	1	1	0	2	1.32%
Union Ramp	6	19	12	37	24.34%
<b>Grand Total</b>	<b>31</b>	<b>62</b>	<b>59</b>	<b>152</b>	<b>1</b>

**Table 7.5** Total Chinook salmon encountered (retained and released) by private-boat anglers logging their trips on voluntary trip reports (VTRs) during the 2017 summer 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)			

**Table 7.6** Summary of coded-wire tags recovered from Chinook salmon harvested during the 2017 summer Chinook MSF in Marine Area 12. The field “Number DITs” corresponds to the number of recovered CWTs that belonged to double-index tag

Release Domain	Release Region	Release Site	Rearing Location	CWTs Recovered	No. DITs
BC	Georgia Strait (1.5%)	Cowichan R	Cowichan River H	1 (1.5%)	0
WA	Hood Canal (30.8%)	Purdy Cr 16.0005	George Adams Hatchery	12 (18.5%)	8
		Finch Cr 16.0222	Hoodsport Hatchery	8 (12.3%)	0
	Northern Puget Sound (6.2%)	Tulalip Cr 07.0001	Bernie Gobin Hatch	1 (1.5%)	1
		Wallace R 07.0940	Wallace R Hatchery	3 (4.6%)	1
	Mid Puget Sound (46.2%)	Big Soos Cr 09.0072	Soos Creek Hatchery	7 (10.8%)	2
		Clarks Crk Hatchery	Clarks Crk Hatchery	2 (3.1%)	0
		Grovers Cr 15.0299	Grovers Cr Hatchery	13 (20%)	13
		Icy Cr 09.0125	Icy Cr Hatchery	5 (7.7%)	0
		Voight Cr 10.0414	Voights Cr Hatchery	3 (4.6%)	0
	Southern Puget Sound (13.8%)	Clear Cr 11.0013C	Clear Creek Hatchery	4 (6.2%)	4
		Kalama Cr 11.0017	Kalama Cr Hatchery	1 (1.5%)	0
Minter Cr 15.0048		Minter Cr Hatchery	4 (6.2%)	0	
Col. Riv.	Upper Columbia R (1.5%)	Similkameen R 490325	Similkameen Hatchery	1 (1.5%)	0
<b>Total</b>				<b>65</b>	<b>29</b>

**Table 7.7** Summary of double-index tagged (DIT) Chinook salmon kept by anglers, and estimated total mortality of unmarked DIT Chinook salmon due to hook-and-release impacts resulting from the 2017 summer Chinook MSF in Marine Area 12. 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	5	20.36	5	0.5	0.201	0.45
Clear Creek Hatchery	2014	4	20.2	81.45	20.4	2	0.837	1.83
George Adams Hatchery	2014	8	40.3	162.89	40.3	4	1.631	3.61
Grovers Cr Hatchery	2012	1	5	20.36	5	0.5	0.201	0.45
Grovers Cr Hatchery	2014	12	60.5	244.34	62.2	6.2	2.585	5.57
Soos Creek Hatchery	2013	2	10.1	40.72	10.1	1	0.406	0.9
Wallace R Hatchery	2013	1	5	20.36	5.1	0.5	0.21	0.46
<b>Total</b>		<b>29</b>	<b>146.2</b>	<b>590.48</b>	<b>148.2</b>	<b>14.8</b>	<b>6.07</b>	<b>13.27</b>

## **8) Marine Area 13 Summer Mark-Selective Chinook Fishery**

The Washington Department of Fish and Wildlife (WDFW) implemented a tenth consecutive summer Chinook MSF in Marine Area 13 from May 1 through September 30, 2017. WDFW's Puget Sound Sampling Unit (PSSU) implemented a "Baseline Sampling" program (see WDFW 2012a for details) consisting of dockside angler interviews with catch sampling along with efforts to distribute and collect voluntary trip reports (VTRs) from the angling public.

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

**Table 8.1** summarizes the parameters estimated and the sampling activities associated with each parameter. Specific procedures used for collecting these data and estimating critical data parameters are presented in detail in our separate Methods Report (WDFW 2012a). In this section we present results from our monitoring activities during the Area 13 summer Chinook MSF, including relative catch and effort patterns over the course of the season based on the assumption that baseline-sampling observations of these parameters are good indicators of associated fishery-wide trends.

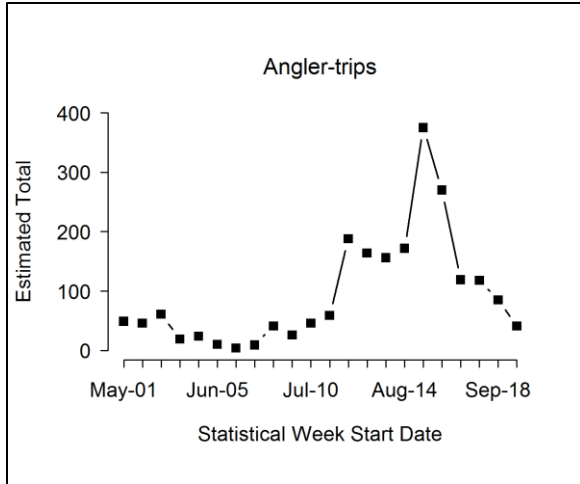
**Table 8.1** Sampling/estimation details on target parameters associated with the overall Area 13 mark-selective fishery monitoring program.

Activity	Focal Parameter(s)	Secondary Parameter(s)	Sample Unit(s)	Finest Estimation Time Step	Comments
Dockside Angler Interviews (Baseline Sampling)	Observed (in-sample) fishing effort (boat & angler trips); kept and released fish.	Catch rates (CPUE); length, age, and CWT composition of harvest <sup>1</sup> ; collection of angler fishing methods.	Angler trip; kept fish; reported fish release	Week	Observed catch per angler trip and species composition data obtained from baseline sampling will ultimately be combined with Catch Record Card (CRC) data to produce fishery-total estimates at a later time (approximately one year following the fishery).
Voluntary Trip Reports (VTRs)	Size (legal/sublegal) and mark-status composition (marked, unmarked) of encountered Chinook salmon	Encounter data for non-Chinook salmon species (e.g., Coho salmon) that the angler may record on the VTR form	Fish encounter	Season	When CRC-based retained Chinook salmon estimates become available VTR data may be used in the estimation of total Chinook salmon encounters by size/mark group (LM = 40%, LU = 7%, SM = 53%, SU = 0%; <b>Table 8.5</b> ), along with associated impacts, using the methods described in WDFW & NWIFC (2013).
Overall Fishery Impacts Estimation	Total Chinook salmon encounters and mortalities by size/mark-status group	Ratios of encounters and mortalities per kept Chinook salmon	N/A	Season	Will be estimated at a later date using the CRC-based retained Chinook salmon estimate, when it becomes available.
Coded-wire tag (CWT) Impacts Estimation	Marked/unmarked double-index tag (DIT) encounters and mortalities	N/A	N/A	Season	Will be estimated at a later date using the CRC-based retained Chinook salmon estimate, when it becomes available. The temporal resolution of DIT impacts is constrained by the total number of tags recovered.

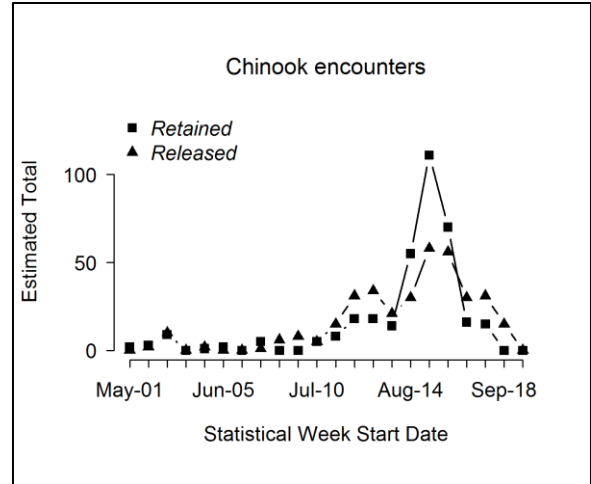
**Table 8.2** Observations of fishing effort, salmon harvest, and reported salmon releases, by week, for the 2017 summer Chinook MSF in Marine Area 13. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates. AD = marked (adipose-clipped), UM = unmarked, UK = unknown mark status.

Month	Stat Week	Effort		Retained Fish							Released Fish								
		Boats	Anglers	Chinook			Coho			Pink	Chinook			Coho			Cutthroat	Pink	Salmon UNK
				AD	UM	UNK	AD	UM	UD		AD	UM	UK	AD	UM	UK			
May	19	32	49	2	0	0	5	1	0	0	0	0	2	4	0	12	28	0	0
	20	26	46	3	0	0	0	0	0	0	1	1	1	0	1	0	22	0	0
	21	35	61	9	0	0	0	0	0	0	8	2	0	0	0	0	0	0	0
	22	8	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	23	13	24	1	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0
Jun	24	6	10	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	25	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
	26	5	9	5	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
	27	20	41	0	0	0	0	0	0	0	5	1	0	0	1	1	0	0	3
July	28	13	26	0	0	0	0	0	0	0	7	1	0	2	0	0	4	0	0
	29	23	46	5	0	0	2	0	1	0	3	2	2	0	1	0	1	0	0
	30	34	59	8	0	0	0	0	0	0	9	6	3	3	0	1	6	0	1
	31	109	188	18	0	2	3	0	2	0	27	4	12	0	0	0	5	0	0
	32	94	164	18	0	0	4	0	0	1	27	7	0	0	0	0	6	0	6
Aug	33	88	156	14	0	0	3	0	0	0	19	2	24	6	0	1	3	0	0
	34	100	172	55	0	0	0	0	0	0	26	4	4	1	0	0	0	2	1
	35	199	375	111	0	1	2	0	0	2	48	10	14	2	0	0	4	0	0
	36	143	270	70	0	0	2	0	0	1	47	9	4	1	0	0	1	0	0
Sept	37	69	119	15	1	0	1	0	0	0	28	2	18	0	1	1	1	0	0
	38	68	118	15	0	0	14	0	0	2	29	2	2	4	2	2	6	1	0
	39	44	85	0	0	0	3	0	0	0	15	0	12	6	0	5	0	0	0
	40	22	41	0	0	0	3	0	0	0	0	0	7	0	0	0	0	0	0
<b>Total Observed:</b>		<b>1153</b>	<b>2082</b>	<b>351</b>	<b>1</b>	<b>3</b>	<b>42</b>	<b>1</b>	<b>3</b>	<b>6</b>	<b>301</b>	<b>54</b>	<b>106</b>	<b>29</b>	<b>6</b>	<b>23</b>	<b>88</b>	<b>3</b>	<b>11</b>

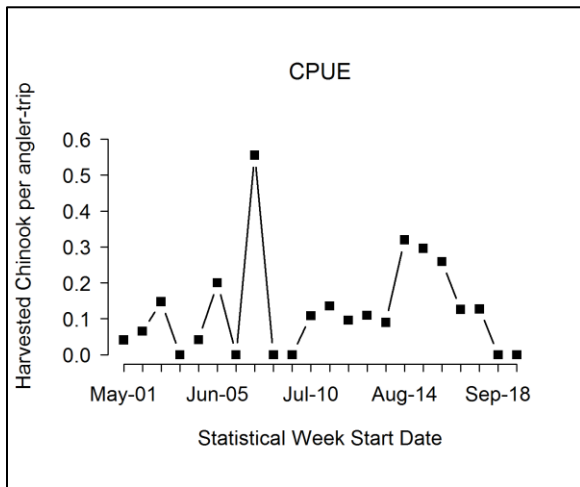




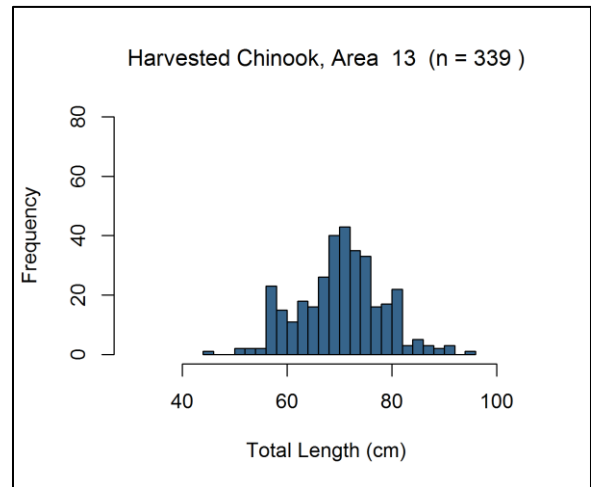
**Figure 8.1** Temporal patterns in fishing effort during the 2017 summer Chinook MSF in Marine Area 13. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates.



**Figure 8.3** Temporal patterns in Chinook salmon encounters (retained and released) during the 2017 summer Chinook MSF in Marine Area 13. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates.



**Figure 8.2** Temporal patterns in CPUE (landed Chinook salmon per angler trip) during the 2017 summer Chinook MSF in Marine Area 13. Note: displayed values are sample observations (summed across sampled sites) and not



**Figure 8.4** Length-frequency distributions of retained marked Chinook salmon sampled in dockside angler interviews during the 2017 summer Chinook MSF in Marine Area 13.

**Table 8.3** Number of total length samples collected from retained Chinook salmon collected during dockside angler interviews in the 2017 summer Chinook MSF in Marine Area 13.

Mark Type	Number Sampled		
	Legal-size	Sublegal-size	Total
Marked	332	7	339
Unmarked	1	0	1
<b>Total</b>	<b>333</b>	<b>7</b>	<b>340</b>

**Table 8.4** Summary of coded-wire tags recovered from Chinook salmon harvested during the 2017 summer Chinook MSF in Marine Area 13. The field “Number DITs” corresponds to the number of tags that belonged to double-index tag groups

Release Domain	Release Region	Release Site	Rearing Location	CWTs Recovered	No. DITs
WA	Mid Puget Sound (40%)	Icy Cr 09.0125	Icy Cr Hatchery	2 (40%)	0
	S Puget Sound (60%)	Clear Cr 11.0013C	Clear Creek Hatchery	3 (60%)	2
<b>Total</b>				<b>5</b>	<b>2</b>

**Table 8.5** Total Chinook salmon encountered (retained and released) by private-boat anglers logging their trips on voluntary trip reports (VTRs) during the 2017 summer 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	11 1-trip VTRs, 16 Angler Trips	6	1	8	0	15	0.93	0.86
Size/mark-status composition:		0.40	0.07	0.53	0.00			
Variance:		(0.0171)	(0.0044)	(0.0178)	(0.0000)			

**Table 8.6** List of sites sampled with the number of sampling events (site-days) during the 2017 summer Chinook MSF in Marine Area 13.

Location Name	Number of Site Days Sampled Per Month					Total Site-Days	% of Total
	May	June	July	August	September		
Allyn Public Ramp	0	0	0	0	1	1	0.35%
Arcadia Ramp	2	0	1	0	0	3	1.05%
Boston Harbor Ramp/Marina	1	1	9	28	20	59	20.56%
Concrete Dock	1	0	1	0	0	2	0.70%
Day Island Marina	1	0	0	0	0	1	0.35%
East Bay Marina/Ramp (Oly. Isle)	0	0	2	0	1	3	1.05%
Fox Island Public Ramp	1	0	0	0	0	1	0.35%
Gig Harbor Ramp	1	2	0	2	2	7	2.44%
Hartstene Is. Ramp	0	0	2	0	2	4	1.39%
Home Public Ramp	0	0	1	2	0	3	1.05%
Longbranch Public Ramp	0	0	1	0	0	1	0.35%
Luhr Beach Ramp	6	5	14	14	12	51	17.77%
Narrows Marina	4	2	2	1	3	12	4.18%
Narrows Park	2	1	0	2	1	6	2.09%
Point Defiance Boathouse	12	1	3	2	4	22	7.67%
Point Defiance Public Ramp	11	7	8	9	7	42	14.63%
Redondo Ramp	0	1	1	1	1	4	1.39%
Saltwater Park Ramp	0	0	0	0	1	1	0.35%
Solo Point	5	0	6	7	7	25	8.71%
Solo Point Shore	0	0	0	1	0	1	0.35%
Steamboat Island Bridge	0	0	1	0	0	1	0.35%
Steilacoom Public Ramp	1	1	0	0	0	2	0.70%
Vaughn Public Ramp	0	0	1	0	0	1	0.35%
Wauna Shore	4	0	0	0	0	4	1.39%
Zittels Marina	2	0	5	9	14	30	10.45%
<b>Grand Total</b>	<b>54</b>	<b>21</b>	<b>58</b>	<b>78</b>	<b>76</b>	<b>287</b>	<b>1</b>

## 9) Marine Area 8-2 Summer Mark-Selective Shore Coho Fishery

**Table 9.1** Observations of fishing effort, salmon harvest, and reported salmon releases, by week, for the 2017 summer shore Coho MSF in Marine Area 8-2 (Possession Point Shore Fishery). Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates. AD = marked (adipose-clipped), UM = unmarked, UK = unknown mark status

Month	Stat Week	Effort Anglers	Retained Fish								Released Fish									
			Chinook			Coho			Pink	Sockeye	Chinook			Coho			Cutthroat	Pink	Steelhead	Salmon UNK
			AD	UM	UD	AD	UM	UD			AD	UM	UK	AD	UM	UK				
Aug	32	38	0	0	0	3	1	0	0	0	0	0	2	18	1	6	1	1	0	1
	33	49	0	0	0	0	0	0	0	0	0	1	0	18	5	4	1	0	1	0
	34	40	0	0	0	3	0	0	0	0	2	0	0	12	5	21	1	3	0	7
	35	42	0	0	0	5	0	0	0	0	0	0	1	15	3	14	0	0	0	0
Sep	36	22	0	0	0	3	1	0	0	0	0	0	0	12	15	8	0	0	0	7
	37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>			<b>0</b>	<b>0</b>	<b>0</b>	<b>14</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>3</b>	<b>75</b>	<b>29</b>	<b>53</b>	<b>3</b>	<b>4</b>	<b>1</b>	<b>15</b>

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## APPENDICIES

### 1) SITE WEIGHTS

**Appendix 1.1** Size measures by sample date, for sites sampled during dockside creel surveys in the 2017 summer Chinook MSF in Marine Area 5.

Sample Date	Week	Location #1	Site Size	Location #2	Site Size
7/1/2017	27	Olson's East Docks (1159)	0.2061	Van Riper's South	0.1775
7/2/2017	27	Olson's Ramp (1159)	0.3464	Van Riper's North	0.1084
7/6/2017	28	Olson's East Docks (1159)	0.2419	Van Riper's South	0.2109
7/8/2017	28	Olson's Ramp (1159)	0.3464	Van Riper's South	0.1775
7/9/2017	28	Olson's East Docks (1159)	0.2061	Curley's Resort	0.0825
7/12/2017	29	Olson's East Docks (1159)	0.2419	Curley's Resort	0.0892
7/14/2017	29	Olson's Ramp (1159)	0.3464	Olson's West Docks (1159)	0.0792
7/16/2017	29	Van Riper's North	0.1084	Van Riper's South	0.1775
7/20/2017	30	Olson's Ramp (1159)	0.2102	Van Riper's South	0.2109
7/22/2017	30	Olson's Ramp (1159)	0.3464	Van Riper's South	0.1775
7/23/2017	30	Olson's Ramp (1159)	0.3464	Olson's East Docks (1159)	0.2061
7/25/2017	31	Olson's Ramp (1159)	0.1943	Olson's East Docks (1159)	0.2671
7/29/2017	31	Olson's West Docks (1159)	0.0792	Van Riper's South	0.1775
7/30/2017	31	Olson's Ramp (1159)	0.3464	Van Riper's North	0.1084
8/2/2017	32	Van Riper's North	0.1856	Van Riper's South	0.1205
8/4/2017	32	Olson's Ramp (1159)	0.3608	Van Riper's South	0.1977
8/6/2017	32	Olson's Ramp (1159)	0.3608	Olson's West Docks (1159)	0.1065
8/8/2017	33	Olson's Ramp (1159)	0.2417	Van Riper's North	0.1856
8/12/2017	33	Olson's East Docks (1159)	0.1202	Van Riper's South	0.1977
8/13/2017	33	Olson's Ramp (1159)	0.3608	Olson's West Docks (1159)	0.1065
8/15/2017	34	Olson's West Docks (1159)	0.2265	Van Riper's North	0.1856
8/19/2017	34	Olson's Ramp (1159)	0.3608	Curley's Resort	0.0601
8/20/2017	34	Olson's Ramp (1159)	0.3608	Van Riper's North	0.1547
8/24/2017	35	Olson's West Docks (1159)	0.2728	Van Riper's North	0.201
8/25/2017	35	Olson's Ramp (1159)	0.3608	Olson's East Docks (1159)	0.1202
8/27/2017	35	Olson's Ramp (1159)	0.3608	Van Riper's North	0.1547
8/30/2017	36	Olson's East Docks (1159)	0.0887	Van Riper's South	0.1238

**Appendix 1.2** Size measures by sample date, for sites sampled during dockside creel surveys in the 2017 summer Chinook MSF in Marine Area 9.

Sample Date	Week	Location #1	Site Size	Location #2	Site Size
7/16/2017	29	Everett Ramp	0.3843	Fort Casey Public Ramp	0.1753
7/18/2017	30	Everett Ramp	0.3909	Fort Casey Public Ramp	0.1701
7/20/2017	30	Everett Ramp	0.3909	Kingston Public Ramp	0.0889
7/21/2017	30	Everett Ramp	0.3843	Fort Casey Public Ramp	0.1753
7/22/2017	30	Everett Ramp	0.3843	Port Townsend Boat Haven Ramp	0.1717
7/23/2017	30	Everett Ramp	0.3843	Port Townsend Boat Haven Ramp	0.1717
7/25/2017	31	Everett Ramp	0.3909	Port Townsend Boat Haven Ramp	0.1983
7/26/2017	31	Everett Ramp	0.3909	Fort Casey Public Ramp	0.1701
7/28/2017	31	Everett Ramp	0.3843	Fort Casey Public Ramp	0.1753
7/29/2017	31	Everett Ramp	0.3843	Kingston Public Ramp	0.0735
7/30/2017	31	Everett Ramp	0.3843	Port Townsend Boat Haven Ramp	0.1717

**Appendix 1.3** Size measures by sample date, for sites sampled during dockside creel surveys in the 2017 summer catch and release and Chinook MSF in Marine Area 10.

Sample Date	Week	Location #1	Site Size	Location #2	Site Size
7/16/2017	29	Shilshole Public Ramp	0.4513	Kingston Public Ramp	0.1536
7/18/2017	30	Shilshole Public Ramp	0.4945	Kingston Public Ramp	0.1634
7/20/2017	30	Shilshole Public Ramp	0.4945	Kingston Public Ramp	0.1634
7/21/2017	30	Shilshole Public Ramp	0.4513	Brownsville Marina/Dock/Ramp	0.1014
7/22/2017	30	Armeni Public Ramp	0.2184	Kingston Public Ramp	0.1536
7/23/2017	30	Shilshole Public Ramp	0.4513	Kingston Public Ramp	0.1536
7/25/2017	31	Shilshole Public Ramp	0.4945	Armeni Public Ramp	0.1836
7/26/2017	31	Shilshole Public Ramp	0.4945	Kingston Public Ramp	0.1634
7/28/2017	31	Shilshole Public Ramp	0.4513	Armeni Public Ramp	0.2184
7/29/2017	31	Shilshole Public Ramp	0.4513	Kingston Public Ramp	0.1536
7/30/2017	31	Shilshole Public Ramp	0.4513	Brownsville Marina/Dock/Ramp	0.1014
8/1/2017	32	Shilshole Public Ramp	0.461	Armeni Public Ramp	0.2716
8/2/2017	32	Shilshole Public Ramp	0.461	Armeni Public Ramp	0.2716
8/4/2017	32	Shilshole Public Ramp	0.4032	Armeni Public Ramp	0.2836
8/6/2017	32	Shilshole Public Ramp	0.4032	Armeni Public Ramp	0.2836
8/5/2017	32	Shilshole Public Ramp	0.4032	Kingston Public Ramp	0.157
8/8/2017	33	Shilshole Public Ramp	0.461	Kingston Public Ramp	0.1251
8/11/2017	33	Shilshole Public Ramp	0.4032	Armeni Public Ramp	0.2836
8/13/2017	33	Shilshole Public Ramp	0.4032	Armeni Public Ramp	0.2836
8/12/2017	33	Shilshole Public Ramp	0.4032	Armeni Public Ramp	0.2836
8/15/2017	34	Shilshole Public Ramp	0.461	Kingston Public Ramp	0.1251

**Appendix 1.4** Size measures by sample date, for sites sampled during dockside creel surveys in the 2017 summer catch and release and Chinook MSF in Marine Area 11.

Sample Date	Week	Location #1	Site Size	Location #2	Site Size
6/1/2017	23	Point Defiance Public Ramp	0.4066	Point Defiance Boathouse	0.1876
6/4/2017	23	Point Defiance Public Ramp	0.45	Gig Harbor Ramp	0.1177
6/7/2017	24	Point Defiance Public Ramp	0.4066	Point Defiance Boathouse	0.1876
6/9/2017	24	Point Defiance Public Ramp	0.45	Point Defiance Boathouse	0.2128
6/10/2017	24	Point Defiance Public Ramp	0.45	Point Defiance Boathouse	0.2128
6/13/2017	25	Gig Harbor Ramp	0.2863	Point Defiance Public Ramp	0.4066
6/16/2017	25	Gig Harbor Ramp	0.1177	Point Defiance Public Ramp	0.45
6/18/2017	25	Point Defiance Boathouse	0.2128	Point Defiance Public Ramp	0.45
6/22/2017	26	Point Defiance Boathouse	0.1876	Point Defiance Public Ramp	0.4066
6/23/2017	26	Redondo Ramp	0.1502	Point Defiance Public Ramp	0.45
6/25/2017	26	Gig Harbor Ramp	0.1177	Point Defiance Public Ramp	0.45
6/3/2017	23	Point Defiance Boathouse	0.2128	Point Defiance Public Ramp	0.45
6/27/2017	27	Point Defiance Public Ramp	0.4066	Point Defiance Boathouse	0.1876
7/1/2017	27	Point Defiance Public Ramp	0.4659	Point Defiance Boathouse	0.1726
7/2/2017	27	Point Defiance Public Ramp	0.4659	Point Defiance Boathouse	0.1726
7/8/2017	28	Point Defiance Public Ramp	0.4659	Point Defiance Boathouse	0.1726
7/9/2017	28	Point Defiance Public Ramp	0.4659	Point Defiance Boathouse	0.1726
7/6/2017	28	Point Defiance Public Ramp	0.5467	Gig Harbor Ramp	0.1084
7/12/2017	29	Point Defiance Public Ramp	0.5467	Point Defiance Boathouse	0.1532
7/14/2017	29	Point Defiance Public Ramp	0.4659	Redondo Ramp	0.2252
7/16/2017	29	Point Defiance Public Ramp	0.4659	Redondo Ramp	0.2252
7/22/2017	30	Point Defiance Public Ramp	0.4659	Redondo Ramp	0.2252
7/23/2017	30	Point Defiance Public Ramp	0.4659	Point Defiance Boathouse	0.1726
7/20/2017	30	Point Defiance Public Ramp	0.5467	Gig Harbor Ramp	0.1084
7/25/2017	31	Point Defiance Public Ramp	0.5467	Gig Harbor Ramp	0.1084
7/29/2017	31	Point Defiance Public Ramp	0.4659	Point Defiance Boathouse	0.1726
7/30/2017	31	Point Defiance Public Ramp	0.4659	Point Defiance Boathouse	0.1726
8/2/2017	32	Point Defiance Public Ramp	0.4125	Redondo Ramp	0.2002
8/4/2017	32	Point Defiance Public Ramp	0.4816	Redondo Ramp	0.2567
8/6/2017	32	Point Defiance Public Ramp	0.4816	Point Defiance Boathouse	0.1089
8/8/2017	33	Point Defiance Public Ramp	0.4125	Redondo Ramp	0.2002
8/15/2017	34	Point Defiance Public Ramp	0.4125	Point Defiance Boathouse	0.1554
8/12/2017	33	Point Defiance Public Ramp	0.4816	Point Defiance Boathouse	0.1089
8/13/2017	33	Point Defiance Public Ramp	0.4816	Redondo Ramp	0.2567
8/19/2017	34	Point Defiance Public Ramp	0.4816	Redondo Ramp	0.2567
8/20/2017	34	Point Defiance Public Ramp	0.4816	Gig Harbor Ramp	0.0887
8/24/2017	35	Point Defiance Public Ramp	0.4125	Point Defiance Boathouse	0.1554
8/30/2017	36	Point Defiance Public Ramp	0.4125	Point Defiance Boathouse	0.1554
8/25/2017	35	Point Defiance Public Ramp	0.4816	Redondo Ramp	0.2567
8/27/2017	35	Point Defiance Public Ramp	0.4816	Redondo Ramp	0.2567
9/1/2017	36	Point Defiance Public Ramp	0.4551	Redondo Ramp	0.3077
9/2/2017	36	Point Defiance Public Ramp	0.4551	Point Defiance Boathouse	0.0977
9/5/2017	37	Point Defiance Public Ramp	0.3514	Point Defiance Boathouse	0.2335
9/11/2017	38	Point Defiance Public Ramp	0.3514	Point Defiance Boathouse	0.2335
9/8/2017	37	Point Defiance Public Ramp	0.4551	Gig Harbor Ramp	0.1138

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9/10/2017	37	Point Defiance Public Ramp	0.4551	Redondo Ramp	0.3077
9/15/2017	38	Point Defiance Public Ramp	0.4551	Redondo Ramp	0.3077
9/17/2017	38	Point Defiance Public Ramp	0.4551	Point Defiance Boathouse	0.0977
9/21/2017	39	Point Defiance Public Ramp	0.3514	Point Defiance Boathouse	0.2335
9/27/2017	40	Point Defiance Public Ramp	0.3514	Redondo Ramp	0.2766
9/22/2017	39	Point Defiance Public Ramp	0.4551	Redondo Ramp	0.3077
9/24/2017	39	Point Defiance Public Ramp	0.4551	Gig Harbor Ramp	0.1138
9/29/2017	40	Point Defiance Public Ramp	0.4551	Point Defiance Boathouse	0.0977

## 2) CWT RECOVERIES

Appendix 2.1 Coded-wire tag (CWT) recoveries in the 2017 summer 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	1-Jul-17	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	65	CWT00019902	AD
5	1-Jul-17	90697	2012	McKenzie R 1	McKenzie Hatchery	ODFW		78	CWT00020002	AD
5	2-Jul-17	211123	2014	Tulalip Cr 07.0001	Bernie Gobin Hatch	TULA	211122	55	CWT00019906	AD
5	2-Jul-17	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	51	CWT00019907	AD
5	2-Jul-17	183285	2014	R-Cowichan R	H-Cowichan River H	CDFO		60	CWT00019908	AD
5	2-Jul-17	211102	2013	Sol Duc R 20.0096	Lonesome Cr Hatchery	QUIL		66	CWT00019911	AD
5	2-Jul-17	636813	2014	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		53	CWT00020003	AD
5	6-Jul-17	211123	2014	Tulalip Cr 07.0001	Bernie Gobin Hatch	TULA	211122	66	CWT00019909	AD
5	8-Jul-17	211132	2014	Whitehorse Springs	Whitehorse Pond	STIL		78	CWT00011703	AD
5	8-Jul-17	636776	2014	Minter Cr 15.0048	Hupp Springs Rearing	WDFW		65	CWT00020403	AD
5	9-Jul-17	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	61	CWT00020005	AD
5	10-Jul-17	211148	2014	Kalama Cr 11.0017	Kalama Cr Hatchery	NISQ		51	CWT00012105	AD
5	10-Jul-17	636814	2014	Kendall Cr 01.0406	Kendall Cr Hatchery	WDFW		71	CWT00012106	AD
5	15-Jul-17	636822	2014	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW		60	CWT00011704	AD
5	15-Jul-17	636894	2014	East Sound Bay (San)	Glenwood Springs	COOP		57	CWT00012107	AD
5	15-Jul-17	182574	2013	R-Shuswap R Low	H-Shuswap River, Middle,	CDFO		85	CWT00012108	AD
5	15-Jul-17	182697	2014	R-Sandy Cv	H-Sandy Cove Seapen	CDFO		66	CWT00020015	AD
5	19-Jul-17	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		51	CWT00020407	AD
5	19-Jul-17	211088	2013	Co Line Pd2 03.1853B	Marblemount Hatchery	WDFW		94	CWT00020424	AD
5	19-Jul-17	636810	2014	Minter Cr 15.0048	Minter Cr Hatchery	WDFW		68	CWT00020425	AD
5	19-Jul-17	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW		53	CWT00020427	AD
5	20-Jul-17	636827	2014	Purdy Cr 16.0005	George Adams Hatchery	WDFW	636828	67	CWT00012112	AD
5	21-Jul-17	636790	2014	Cowlitz R 26.0002	Cowlitz Salmon Hatchery	WDFW		60	CWT00012113	AD
5	21-Jul-17	636827	2014	Purdy Cr 16.0005	George Adams Hatchery	WDFW	636828	69	CWT00020018	AD
5	21-Jul-17	200108	2013	Omak Pond	Chief Joseph Hatchery	CCT		77	CWT00020428	AD
5	22-Jul-17	211148	2014	Kalama Cr 11.0017	Kalama Cr Hatchery	NISQ		65	CWT00012114	AD
5	22-Jul-17	182575	2013	R-Shuswap R Low	H-Shuswap River, Middle,	CDFO		71	CWT00020019	AD
5	22-Jul-17	211148	2014	Kalama Cr 11.0017	Kalama Cr Hatchery	NISQ		65	CWT00020429	AD
5	22-Jul-17	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		51	CWT00020430	AD

5	22-Jul-17	636813	2014	Finch Cr 16.0222	Hoodspport Hatchery	WDFW		73	CWT00020431	AD
5	22-Jul-17	636827	2014	Purdy Cr 16.0005	George Adams Hatchery	WDFW	636828	56	CWT00020432	AD
5	22-Jul-17	636813	2014	Finch Cr 16.0222	Hoodspport Hatchery	WDFW		74	CWT00020433	AD
5	23-Jul-17	211177	2015	White R 10.0031	White River Hatchery	MIT		40	CWT00012116	UM
5	23-Jul-17	211134	2014	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636815	64	CWT00020020	AD
5	23-Jul-17	636810	2014	Minter Cr 15.0048	Minter Cr Hatchery	WDFW		69	CWT00020408	AD
5	24-Jul-17	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		50	CWT00020021	AD
5	24-Jul-17	636822	2014	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW		68	CWT00020022	AD
5	26-Jul-17	183270	2013	R-Chilliwack R	H-Chilliwack River H	CDFO		73	CWT00012117	AD
5	27-Jul-17	636810	2014	Minter Cr 15.0048	Minter Cr Hatchery	WDFW		67	CWT00012118	AD
5	27-Jul-17	183897	2014	R-Chilliwack R	H-Chilliwack River H	CDFO		72	CWT00012119	AD
5	27-Jul-17	636963	2015	Elwha R 18.0272	Elwha Hatchery	WDFW		54	CWT00020014	AD
5	30-Jul-17	636669	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	636670	68	CWT00020023	AD
5	30-Jul-17	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	55	CWT00020435	AD
5	3-Aug-17	182783	2013	R-Harrison R	H-Chehalis River H	CDFO		78	CWT00014001	AD
5	3-Aug-17	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		63	CWT00020007	AD
5	3-Aug-17	636822	2014	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW		74	CWT00020439	AD
5	4-Aug-17	636813	2014	Finch Cr 16.0222	Hoodspport Hatchery	WDFW		64	CWT00020028	AD
5	6-Aug-17	636822	2014	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW		59	CWT00020030	AD
5	6-Aug-17	183897	2014	R-Chilliwack R	H-Chilliwack River H	CDFO		78	CWT00020440	AD
5	6-Aug-17	211088	2013	Co Line Pd2 03.1853B	Marblemount Hatchery	WDFW		87	CWT00020441	AD
5	8-Aug-17	211092	2013	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636493	65	CWT00020033	AD
5	10-Aug-17	636827	2014	Purdy Cr 16.0005	George Adams Hatchery	WDFW	636828	65	CWT00013994	AD
5	10-Aug-17	636813	2014	Finch Cr 16.0222	Hoodspport Hatchery	WDFW		67	CWT00020409	AD
5	11-Aug-17	211088	2013	Co Line Pd2 03.1853B	Marblemount Hatchery	WDFW		73	CWT00013993	AD
5	12-Aug-17	211088	2013	Co Line Pd2 03.1853B	Marblemount Hatchery	WDFW		60	CWT00013992	AD
5	12-Aug-17	220233	2013	Magrudor Corridor	Nez Perce Tribal Hatchery	NPT		82	CWT00020034	AD
5	12-Aug-17	211131	2014	Hoko R 19.0148	Hoko Falls Hatchery	MAKAH			CWT00020445	AD
5	12-Aug-17	55730	2014	Spring Cr 29.0159	Spring Cr NFH	USFWS		53	CWT00020446	AD
5	15-Aug-17	55683	2014	Tsoo-Yess R 20.0015	Makah NFH On Tsoo-Yess R	USFWS		58	CWT00013990	AD



**Appendix 2.2** Coded-wire tag (CWT) recoveries in the 2017 summer 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-Jul-17	636827	2014	Purdy Cr 16.0005	George Adams Hatchery	WDFW	636828	71	CWT00012202	AD
6	2-Jul-17	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	58	CWT00011807	AD
6	2-Jul-17	211067	2012	Kalama Cr 11.0017	Kalama Cr Hatchery	NISQ		83	CWT00012203	AD
6	2-Jul-17	636894	2014	East Sound Bay (San)	Glenwood Springs	COOP		64	CWT00019904	AD
6	2-Jul-17	636781	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW		66	CWT00019905	AD
6	2-Jul-17	636813	2014	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		65	CWT00020202	AD
6	2-Jul-17	636667	2013	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		65	CWT00020204	AD
6	2-Jul-17	211104	2013	Kalama Cr 11.0017	Kalama Cr Hatchery	NISQ		65	CWT00020205	AD
6	2-Jul-17	636667	2013	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		68	CWT00020206	AD
6	2-Jul-17	636674	2013	Purdy Cr 16.0005	George Adams Hatchery	WDFW		58	CWT00020207	AD
6	7-Jul-17	636669	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	636670	62	CWT00011808	AD
6	7-Jul-17	211091	2013	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636499	67	CWT00012002	AD
6	8-Jul-17	55730	2014	Spring Cr 29.0159	Spring Cr Nfh	USFWS		80	CWT00012003	AD
6	8-Jul-17	636819	2014	Friday Cr 03.0017	Samish Hatchery	WDFW		59	CWT00012004	AD
6	8-Jul-17	636819	2014	Friday Cr 03.0017	Samish Hatchery	WDFW		77	CWT00012005	AD
6	9-Jul-17	636636	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW		67	CWT00011809	AD
6	9-Jul-17	636824	2014	Wallace R 07.0940	Wallace R Hatchery	WDFW	636825	63	CWT00011810	AD
6	9-Jul-17	636674	2013	Purdy Cr 16.0005	George Adams Hatchery	WDFW		60	CWT00011811	AD
6	9-Jul-17	636819	2014	Friday Cr 03.0017	Samish Hatchery	WDFW		67	CWT00012007	AD
6	9-Jul-17	636503	2012	Purdy Cr 16.0005	George Adams Hatchery	WDFW	636502	66	CWT00012008	AD
6	9-Jul-17	636822	2014	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW		56	CWT00012009	AD
6	9-Jul-17	211104	2013	Kalama Cr 11.0017	Kalama Cr Hatchery	NISQ		73	CWT00020208	AD
6	12-Jul-17	211092	2013	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636493	65	CWT00020209	AD
6	13-Jul-17	636833	2014	Elwha R 18.0272	Elwha Hatchery	WDFW		75	CWT00012010	AD
6	13-Jul-17	211096	2013	Palmer Hatchery	Keta Creek Complex	MIT		77	CWT00012011	AD
6	16-Jul-17	636819	2014	Friday Cr 03.0017	Samish Hatchery	WDFW		60	CWT00020211	AD
6	16-Jul-17	636810	2014	Minter Cr 15.0048	Minter Cr Hatchery	WDFW		65	CWT00020212	AD

6	17-Jul-17	636813	2014	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		67	CWT00012014	AD
6	19-Jul-17	636669	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	636670	80	CWT00011812	AD
6	22-Jul-17	636827	2014	Purdy Cr 16.0005	George Adams Hatchery	WDFW	636828	60	CWT00011813	AD
6	22-Jul-17	211088	2013	Co Line Pd2 03.1853B	Marblemount Hatchery	WDFW		87	CWT00020213	AD
6	23-Jul-17	90653	2013	Elk R	Elk R Hatchery	ODFW		80	CWT00020214	AD
6	28-Jul-17	636958	2015	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW			96573	AD
6	28-Jul-17	636674	2013	Purdy Cr 16.0005	George Adams Hatchery	WDFW		79	CWT00012015	AD
6	30-Jul-17	636813	2014	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		77	CWT00012016	AD
6	30-Jul-17	60657	2014	Mare Island Net Pen	Feather R Hatchery	CDFW		75	CWT00012017	AD
6	2-Aug-17	636659	2013	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW	636660	74	CWT00020215	AD
6	2-Aug-17	636827	2014	Purdy Cr 16.0005	George Adams Hatchery	WDFW	636828	78	CWT00020216	AD
6	3-Aug-17	636833	2014	Elwha R 18.0272	Elwha Hatchery	WDFW		76	CWT00012018	AD
6	4-Aug-17	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		74	CWT00012019	AD
6	8-Aug-17	636827	2014	Purdy Cr 16.0005	George Adams Hatchery	WDFW	636828	61	CWT00012021	AD

**Appendix 2.3** Coded-wire tag (CWT) recoveries in the 2017 summer 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-Jul-17	183865	2014	R-Chilliwack R	H-Chilliwack River H	CDFO		64	CWT00011406	AD
7	1-Jul-17	636822	2014	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW		53	CWT00011407	AD
7	2-Jul-17	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	72	CWT00011202	AD
7	2-Jul-17	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	68	CWT00011408	AD
7	2-Jul-17	636822	2014	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW		57	CWT00016604	AD
7	6-Jul-17	182781	2013	R-Shuswap R Low	H-Shuswap River, Middle,	CDFO		80	CWT00011203	AD
7	6-Jul-17	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		59	CWT00011409	AD
7	6-Jul-17	636827	2014	Purdy Cr 16.0005	George Adams Hatchery	WDFW	636828	59	CWT00011502	AD
7	8-Jul-17	183282	2014	R-Cowichan R	H-Cowichan River H	CDFO		63	CWT00011204	AD
7	8-Jul-17	636822	2014	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW		60	CWT00011608	AD
7	9-Jul-17	183485	2014	R-Cowichan R	H-Cowichan River H	CDFO		71	CWT00011205	AD
7	9-Jul-17	636894	2014	East Sound Bay (San)	Glenwood Springs	COOP		68	CWT00011206	AD
7	9-Jul-17	636669	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	636670	77	CWT00016605	AD
7	9-Jul-17	183485	2014	R-Cowichan R	H-Cowichan River H	CDFO		60	CWT00016802	AD
7	10-Jul-17	636810	2014	Minter Cr 15.0048	Minter Cr Hatchery	WDFW		65	CWT00016803	AD
7	10-Jul-17	636827	2014	Purdy Cr 16.0005	George Adams Hatchery	WDFW	636828	53	CWT00016804	AD
7	11-Jul-17	183865	2014	R-Chilliwack R	H-Chilliwack River H	CDFO		77	CWT00011410	AD
7	11-Jul-17	636667	2013	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		64	CWT00011411	AD
7	11-Jul-17	183279	2014	R-Shuswap R Low	H-Shuswap River, Middle,	CDFO		71	CWT00011412	AD
7	12-Jul-17	636813	2014	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		68	CWT00011606	AD
7	12-Jul-17	636819	2014	Friday Cr 03.0017	Samish Hatchery	WDFW		71	CWT00011607	AD
7	14-Jul-17	636894	2014	East Sound Bay (San)	Glenwood Springs	COOP		73	84918	AD
7	14-Jul-17	636674	2013	Purdy Cr 16.0005	George Adams Hatchery	WDFW		68	84919	AD
7	14-Jul-17	636817	2014	Cascade R 03.1411	Marblemount Hatchery	WDFW		69	84921	AD
7	14-Jul-17	637047	2015	East Sound Bay (San)	Glenwood Springs	COOP		54	CWT00011207	AD
7	14-Jul-17	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	67	CWT00011413	AD
7	15-Jul-17	180270	2014	R-Shuswap R Middle	H-Shuswap River, Middle,	CDFO		64	97951	AD

7	15-Jul-17	636819	2014	Friday Cr 03.0017	Samish Hatchery	WDFW		65	CWT00016606	AD
7	16-Jul-17	636827	2014	Purdy Cr 16.0005	George Adams Hatchery	WDFW	636828	63	62366	AD
7	16-Jul-17	636827	2014	Purdy Cr 16.0005	George Adams Hatchery	WDFW	636828	67	84936	AD
7	16-Jul-17	636580	2012	East Sound Bay (San)	Glenwood Springs	COOP		78	84937	UNK
7	16-Jul-17	636824	2014	Wallace R 07.0940	Wallace R Hatchery	WDFW	636825	61	84938	UNK
7	16-Jul-17	636819	2014	Friday Cr 03.0017	Samish Hatchery	WDFW		72	84939	AD
7	18-Jul-17	211134	2014	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636815	74	CWT00011602	AD
7	18-Jul-17	636659	2013	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW	636660	67	CWT00013302	AD
7	20-Jul-17	636827	2014	Purdy Cr 16.0005	George Adams Hatchery	WDFW	636828	64	CWT00011208	AD
7	21-Jul-17	636894	2014	East Sound Bay (San)	Glenwood Springs	COOP		56	CWT00011304	AD

**Appendix 2.4** Coded-wire tag (CWT) recoveries in the 2017 summer 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	16-Jul-17	636813	2014	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		69	CWT00012922	AD
9	16-Jul-17	636789	2014	Icy Cr 09.0125	Icy Cr Hatchery	WDFW		54	CWT00012923	AD
9	16-Jul-17	636813	2014	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		62	CWT00013060	AD
9	16-Jul-17	211134	2014	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636815	68	CWT00013061	AD
9	16-Jul-17	211187	2015	Clarks Crk Hatchery	Clarks Crk Hatchery	PUYA		53	CWT00013062	AD
9	16-Jul-17	636810	2014	Minter Cr 15.0048	Minter Cr Hatchery	WDFW		68	CWT00013063	AD
9	16-Jul-17	636789	2014	Icy Cr 09.0125	Icy Cr Hatchery	WDFW		64	CWT00013076	AD
9	16-Jul-17	211134	2014	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636815	63	CWT00013078	AD
9	16-Jul-17	211051	2012	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636286	64	CWT00013103	AD
9	16-Jul-17	636822	2014	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW		61	CWT00013105	AD
9	16-Jul-17	211134	2014	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636815	64	CWT00013304	AD
9	16-Jul-17	636827	2014	Purdy Cr 16.0005	George Adams Hatchery	WDFW	636828	63	CWT00013305	AD
9	16-Jul-17	211101	2013	Tulalip Cr 07.0001	Bernie Gobin Hatch	TULA	211099	78	CWT00013307	AD
9	16-Jul-17	636827	2014	Purdy Cr 16.0005	George Adams Hatchery	WDFW	636828	66	CWT00013309	AD
9	16-Jul-17	636789	2014	Icy Cr 09.0125	Icy Cr Hatchery	WDFW		56	CWT00013402	AD
9	16-Jul-17	636955	2015	Wallace R 07.0940	Wallace R Hatchery	WDFW			CWT00013406	NA
9	16-Jul-17	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	69	CWT00013407	AD
9	16-Jul-17	211134	2014	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636815	53	CWT00013410	AD
9	16-Jul-17	636674	2013	Purdy Cr 16.0005	George Adams Hatchery	WDFW		79	CWT00020102	AD
9	16-Jul-17	636810	2014	Minter Cr 15.0048	Minter Cr Hatchery	WDFW		73	CWT00020104	AD
9	16-Jul-17	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	71	CWT00020105	AD
9	16-Jul-17	636827	2014	Purdy Cr 16.0005	George Adams Hatchery	WDFW	636828		CWT00020106	AD
9	16-Jul-17	636813	2014	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		71	CWT00020123	AD
9	16-Jul-17	636669	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	636670	79	CWT00020124	AD
9	17-Jul-17	211134	2014	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636815	63	CWT00020125	AD
9	18-Jul-17	636813	2014	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		74	CWT00013064	AD
9	18-Jul-17	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		67	CWT00013080	AD

9	18-Jul-17	211134	2014	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636815	56	CWT00013112	AD
9	18-Jul-17	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	67	CWT00013403	AD
9	18-Jul-17	636659	2013	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW	636660	77	CWT00020107	AD
9	18-Jul-17	211187	2015	Clarks Crk Hatchery	Clarks Crk Hatchery	PUYA		56	CWT00020108	AD
9	20-Jul-17	211134	2014	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636815	58	CWT00013037	AD
9	20-Jul-17	636636	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW		65	CWT00013405	AD
9	21-Jul-17	211134	2014	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636815	64	CWT00012928	AD
9	21-Jul-17	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	67	CWT00012930	AD
9	21-Jul-17	636960	2015	Purdy Cr 16.0005	George Adams Hatchery	WDFW		54	CWT00013303	AD
9	21-Jul-17	183284	2014	R-Cowichan R	H-Cowichan River H	CDFO		67	CWT00013412	AD
9	21-Jul-17	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		71	CWT00020109	AD
9	21-Jul-17	636789	2014	Icy Cr 09.0125	Icy Cr Hatchery	WDFW		61	CWT00020127	AD
9	22-Jul-17	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		69	CWT00012915	AD
9	22-Jul-17	211134	2014	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636815	68	CWT00012929	AD
9	22-Jul-17	636813	2014	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		65	CWT00013068	AD
9	22-Jul-17	636635	2013	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		71	CWT00013069	AD
9	22-Jul-17	636827	2014	Purdy Cr 16.0005	George Adams Hatchery	WDFW	636828	56	CWT00013083	AD
9	23-Jul-17	636813	2014	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		68	CWT00012941	AD
9	23-Jul-17	636789	2014	Icy Cr 09.0125	Icy Cr Hatchery	WDFW		58	CWT00012950	AD
9	23-Jul-17	636822	2014	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW		57	CWT00013087	AD
9	23-Jul-17	636674	2013	Purdy Cr 16.0005	George Adams Hatchery	WDFW		62	CWT00020129	AD
9	25-Jul-17	636822	2014	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW		71	CWT00020111	AD
9	25-Jul-17	636827	2014	Purdy Cr 16.0005	George Adams Hatchery	WDFW	636828		CWT00020130	AD
9	25-Jul-17	636827	2014	Purdy Cr 16.0005	George Adams Hatchery	WDFW	636828	67	CWT00020132	AD
9	26-Jul-17	211134	2014	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636815	69	CWT00013070	AD
9	26-Jul-17	636827	2014	Purdy Cr 16.0005	George Adams Hatchery	WDFW	636828	62	CWT00020133	AD
9	28-Jul-17	636810	2014	Minter Cr 15.0048	Minter Cr Hatchery	WDFW		71	CWT00013071	AD
9	28-Jul-17	636822	2014	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW		65	CWT00013088	AD
9	28-Jul-17	636813	2014	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		76	CWT00020134	AD
9	28-Jul-17	636827	2014	Purdy Cr 16.0005	George Adams Hatchery	WDFW	636828	68	CWT00020136	AD

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9	29-Jul-17	211134	2014	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636815	58	CWT00012925	AD
9	29-Jul-17	211104	2013	Kalama Cr 11.0017	Kalama Cr Hatchery	NISQ		61	CWT00012932	AD
9	29-Jul-17	636659	2013	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW	636660	67	CWT00013089	AD
9	30-Jul-17	200118	2014	Similkameen R 490325	Similkameen Hatchery	WDFW			CWT00012919	AD
9	30-Jul-17	636674	2013	Purdy Cr 16.0005	George Adams Hatchery	WDFW		62	CWT00013090	AD
9	30-Jul-17	211134	2014	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636815	74	CWT00013091	AD
9	30-Jul-17	636822	2014	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW		62	CWT00013416	AD
9	30-Jul-17	636810	2014	Minter Cr 15.0048	Minter Cr Hatchery	WDFW			CWT00020140	AD

**Appendix 2.5** Coded-wire tag (CWT) recoveries in the 2017 summer 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	16-Jul-17	211170	2015	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ		39	CWT00013012	AD
10	21-Jul-17	636813	2014	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		68	CWT00013020	AD
10	22-Jul-17	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		55	CWT00017274	AD
10	28-Jul-17	636810	2014	Minter Cr 15.0048	Minter Cr Hatchery	WDFW		64	CWT00013026	AD
10	29-Jul-17	211134	2014	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636815	67	CWT00013110	AD
10	30-Jul-17	636669	2013	Wallace R 07.0940	Wallace R Hatchery	WDFW	636670	68	CWT00013048	AD
10	30-Jul-17	636789	2014	Icy Cr 09.0125	Icy Cr Hatchery	WDFW		65	CWT00013111	AD
10	30-Jul-17	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		67	CWT00013115	AD
10	2-Aug-17	211187	2015	Clarks Crk Hatchery	Clarks Crk Hatchery	PUYA		53	CWT00013032	AD
10	4-Aug-17	183898	2014	R-Chilliwack R	H-Chilliwack River H	CDFO		64	62948	UNK
10	5-Aug-17	211148	2014	Kalama Cr 11.0017	Kalama Cr Hatchery	NISQ		66	CWT00012964	AD
10	5-Aug-17	636659	2013	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW	636660	73	CWT00013035	AD
10	5-Aug-17	636810	2014	Minter Cr 15.0048	Minter Cr Hatchery	WDFW		64	CWT00013072	AD
10	5-Aug-17	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		66	CWT00013446	AD
10	6-Aug-17	636635	2013	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		80	CWT00013053	AD
10	9-Aug-17	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		66	CWT00013092	AD
10	9-Aug-17	211092	2013	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636493	82	CWT00013449	AD
10	10-Aug-17	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	58	CWT00013095	AD
10	10-Aug-17	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	64	CWT00013096	AD
10	10-Aug-17	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		67	CWT00013097	AD
10	10-Aug-17	636810	2014	Minter Cr 15.0048	Minter Cr Hatchery	WDFW		59	CWT00013130	AD
10	11-Aug-17	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		65	CWT00008910	AD
10	11-Aug-17	211134	2014	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636815	52	CWT00008912	AD
10	11-Aug-17	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	64	CWT00008925	AD
10	11-Aug-17	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		69	CWT00008926	AD
10	11-Aug-17	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	54	CWT00012965	AD
10	11-Aug-17	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	79	CWT00012966	AD



10	11-Aug-17	636810	2014	Minter Cr 15.0048	Minter Cr Hatchery	WDFW		71	CWT00013059	AD
10	11-Aug-17	636813	2014	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		70	CWT00013120	AD
10	11-Aug-17	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		55	CWT00013122	AD
10	11-Aug-17	636822	2014	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW		69	CWT00013131	AD
10	11-Aug-17	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	74	CWT00013420	AD
10	11-Aug-17	211134	2014	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636815	73	CWT00013421	AD
10	12-Aug-17	211134	2014	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636815	61	CWT00008702	AD
10	12-Aug-17	636822	2014	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW		59	CWT00008902	AD
10	12-Aug-17	636917	2015	Gorst Cr 15.0216	Gorst Cr Rearing Pnd	SUQ		40	CWT00008904	AD
10	12-Aug-17	636789	2014	Icy Cr 09.0125	Icy Cr Hatchery	WDFW		53	CWT00008905	AD
10	12-Aug-17	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		68	CWT00008914	AD
10	12-Aug-17	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		60	CWT00008916	AD
10	12-Aug-17	211148	2014	Kalama Cr 11.0017	Kalama Cr Hatchery	NISQ		57	CWT00012911	AD
10	12-Aug-17	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	72	CWT00013013	AD
10	12-Aug-17	211134	2014	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636815	68	CWT00013056	AD
10	12-Aug-17	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	66	CWT00013123	AD
10	12-Aug-17	636822	2014	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW		66	CWT00013124	AD
10	12-Aug-17	636649	2013	Palmer Hatchery	Keta Creek Complex	MIT		72	CWT00013132	UM
10	12-Aug-17	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	54	CWT00013203	AD
10	13-Aug-17	211187	2015	Clarks Crk Hatchery	Clarks Crk Hatchery	PUYA		50	CWT00012921	AD
10	13-Aug-17	636810	2014	Minter Cr 15.0048	Minter Cr Hatchery	WDFW		62	CWT00013011	AD
10	13-Aug-17	636789	2014	Icy Cr 09.0125	Icy Cr Hatchery	WDFW		68	CWT00013134	AD
10	14-Aug-17	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		71	81350	AD
10	14-Aug-17	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		71	CWT00009002	AD
10	14-Aug-17	636659	2013	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW	636660	67	CWT00009003	AD
10	14-Aug-17	211148	2014	Kalama Cr 11.0017	Kalama Cr Hatchery	NISQ		60	CWT00009004	AD
10	14-Aug-17	636827	2014	Purdy Cr 16.0005	George Adams Hatchery	WDFW	636828	57	CWT00009005	AD
10	14-Aug-17	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		78	CWT00013207	AD
10	15-Aug-17	636810	2014	Minter Cr 15.0048	Minter Cr Hatchery	WDFW		68	87618	AD
10	15-Aug-17	636813	2014	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		63	CWT00008706	AD

10	15-Aug-17	211091	2013	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636499	78	CWT00008924	AD
10	15-Aug-17	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	70	CWT00009007	AD
10	15-Aug-17	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	58	CWT00009008	AD
10	15-Aug-17	211134	2014	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636815	72	CWT00012968	AD
10	15-Aug-17	636822	2014	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW		59	CWT00012970	AD
10	15-Aug-17	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		69	CWT00013005	AD
10	15-Aug-17	636822	2014	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW		56	CWT00013208	AD

**Appendix 2.6** Coded-wire tag (CWT) recoveries in the 2017 summer 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	1-Jun-17	636498	2013	Minter Cr Tr 15.0051	Hupp Springs Rearing	WDFW		77	CWT00017277	AD
11	3-Jun-17	211177	2015	White R 10.0031	White River Hatchery	MIT		34	CWT00017251	UM
11	4-Jun-17	636789	2014	Icy Cr 09.0125	Icy Cr Hatchery	WDFW		58	CWT00017250	AD
11	4-Jun-17	636497	2013	Minter Cr Tr 15.0051	Hupp Springs Rearing	WDFW		57	CWT00017287	AD
11	5-Jun-17	636497	2013	Minter Cr Tr 15.0051	Hupp Springs Rearing	WDFW		76	CWT00017209	AD
11	9-Jun-17	211132	2014	Whitehorse Springs	Whitehorse Pond	STIL		68	CWT00017276	AD
11	11-Jun-17	636810	2014	Minter Cr 15.0048	Minter Cr Hatchery	WDFW			CWT00017210	AD
11	27-Jun-17	636822	2014	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW		55	CWT00017278	AD
11	2-Jul-17	636497	2013	Minter Cr Tr 15.0051	Hupp Springs Rearing	WDFW		75	CWT00017286	AD
11	9-Jul-17	90940	2014	McKenzie R 1	McKenzie Hatchery	ODFW		58	CWT00017212	AD
11	16-Jul-17	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		69	CWT00017279	AD
11	20-Jul-17	636810	2014	Minter Cr 15.0048	Minter Cr Hatchery	WDFW		72	CWT00017280	AD
11	23-Jul-17	636810	2014	Minter Cr 15.0048	Minter Cr Hatchery	WDFW		68	CWT00017270	AD
11	23-Jul-17	211148	2014	Kalama Cr 11.0017	Kalama Cr Hatchery	NISQ		72	CWT00017271	AD
11	23-Jul-17	636789	2014	Icy Cr 09.0125	Icy Cr Hatchery	WDFW		73	CWT00017281	AD
11	23-Jul-17	211162	2015	Whitehorse Springs	Whitehorse Pond	STIL		54	CWT00017288	AD
11	28-Jul-17	183966	2015	R-Harrison R	H-Chehalis River H	CDFO		56	CWT00013109	AD
11	29-Jul-17	636789	2014	Icy Cr 09.0125	Icy Cr Hatchery	WDFW		54	CWT00017214	AD
11	30-Jul-17	183391	2014	R-Harrison R	H-Chehalis River H	CDFO		79	CWT00017248	AD
11	2-Aug-17	211170	2015	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ		54	CWT00017247	AD
11	4-Aug-17	211148	2014	Kalama Cr 11.0017	Kalama Cr Hatchery	NISQ		73	62942	AD
11	4-Aug-17	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		64	CWT00017103	AD
11	4-Aug-17	183965	2015	R-Harrison R	H-Chehalis River H	CDFO		60	CWT00017254	AD
11	4-Aug-17	636958	2015	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW		46	CWT00017273	AD
11	5-Aug-17	636794	2014	Wallace R 07.0940	Wallace R Hatchery	WDFW		62	87583	AD
11	7-Aug-17	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		60	CWT00017269	AD
11	7-Aug-17	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		78	CWT00017284	AD

11	9-Aug-17	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	71	CWT00014702	AD
11	10-Aug-17	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		62	CWT00014703	AD
11	11-Aug-17	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		69	CWT00014704	AD
11	12-Aug-17	183898	2014	R-Chilliwack R	H-Chilliwack River H	CDFO		78	70902	AD
11	12-Aug-17	211148	2014	Kalama Cr 11.0017	Kalama Cr Hatchery	NISQ		76	70903	AD
11	12-Aug-17	211134	2014	Grovers Cr 15.0299	Grovers Cr Hatchery	SUQ	636815	60	CWT00014715	AD
11	12-Aug-17	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	57	CWT00017218	AD
11	13-Aug-17	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	76	CWT00013721	AD
11	13-Aug-17	636950	2015	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		36	CWT00017216	AD
11	13-Aug-17	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		67	CWT00017289	AD
11	14-Aug-17	211187	2015	Clarks Crk Hatchery	Clarks Crk Hatchery	PUYA		46	CWT00014707	AD
11	15-Aug-17	636810	2014	Minter Cr 15.0048	Minter Cr Hatchery	WDFW		70	CWT00014716	AD
11	19-Aug-17	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		58	CWT00013136	AD
11	19-Aug-17	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	56	CWT00017242	NA
11	20-Aug-17	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		63	CWT00013210	AD
11	20-Aug-17	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		74	CWT00013745	AD
11	20-Aug-17	636813	2014	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		56	CWT00014705	AD
11	20-Aug-17	636927						38	CWT00014708	UM
11	20-Aug-17	636674	2013	Purdy Cr 16.0005	George Adams Hatchery	WDFW		80	CWT00017233	AD
11	20-Aug-17	636944	2015	Cascade R 03.1411	Marblemount Hatchery	WDFW		43	CWT00017262	UM
11	23-Aug-17	211162	2015	Whitehorse Springs	Whitehorse Pond	STIL		54	CWT00014725	AD
11	24-Aug-17	211148	2014	Kalama Cr 11.0017	Kalama Cr Hatchery	NISQ		66	CWT00013137	AD
11	25-Aug-17	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816		CWT00013138	AD
11	25-Aug-17	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		67	CWT00013730	AD
11	25-Aug-17	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		64	CWT00014726	AD
11	26-Aug-17	636810	2014	Minter Cr 15.0048	Minter Cr Hatchery	WDFW		72	CWT00017231	AD
11	27-Aug-17	636822	2014	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW		65	CWT00013726	AD
11	27-Aug-17	636925	2015	Icy Cr 09.0125	Icy Cr Hatchery	WDFW		39	CWT00013727	AD
11	27-Aug-17	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	73	CWT00014727	AD
11	27-Aug-17	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	70	CWT00017230	AD

11	28-Aug-17	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	57	CWT00013213	AD
11	1-Sep-17	636811	2014	Voight Cr 10.0414	Voights Cr Hatchery	WDFW		76	CWT00013144	AD
11	1-Sep-17	636958	2015	Big Soos Cr 09.0072	Soos Creek Hatchery	WDFW		46	CWT00014729	AD
11	1-Sep-17	211170	2015	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ		52	CWT00014730	AD

**Appendix 2.7** Coded-wire tag (CWT) recoveries in the 2017 summer 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	2-Jul-17	636960	2015	Purdy Cr 16.0005	George Adams Hatchery	WDFW		49	CWT00017219	AD
12	23-Jul-17	636674	2013	Purdy Cr 16.0005	George Adams Hatchery	WDFW		63	CWT00017220	AD
12	5-Aug-17	636674	2013	Purdy Cr 16.0005	George Adams Hatchery	WDFW		72	CWT00017223	AD
12	9-Aug-17	636635	2013	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		87	CWT00017221	AD
12	10-Aug-17	636667	2013	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		80	CWT00017222	AD
12	12-Aug-17	636674	2013	Purdy Cr 16.0005	George Adams Hatchery	WDFW		76	CWT00014803	AD
12	13-Aug-17	636827	2014	Purdy Cr 16.0005	George Adams Hatchery	WDFW	636828	70	CWT00014804	AD
12	24-Aug-17	636813	2014	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		65	CWT00017300	AD
12	9-Sep-17	636813	2014	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		74	CWT00014808	AD
12	10-Sep-17	636813	2014	Finch Cr 16.0222	Hoodsport Hatchery	WDFW		68	CWT00014822	AD

**Appendix 2.8** Coded-wire tag (CWT) recoveries in the 2017 summer 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	20-May-17	211137	2014	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636816	65	CWT00017253	AD
13	10-Jun-17	636789	2014	Icy Cr 09.0125	Icy Cr Hatchery	WDFW		66	CWT00017235	AD
13	12-Aug-17	636789	2014	Icy Cr 09.0125	Icy Cr Hatchery	WDFW		55	62946	AD
13	25-Aug-17	211091	2013	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ	636499	66	CWT00017264	AD
13	16-Sep-17	211170	2015	Clear Cr 11.0013C	Clear Creek Hatchery	NISQ		43	CWT00017292	AD