

**2014 Summer Mark-Selective Recreational Chinook Fisheries  
In Marine Areas 5, 6, 9, 10, 11, 12 and 13**

**Post-season Report**

**REVISED DRAFT**

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## TABLE OF CONTENTS

TABLE OF CONTENTS.....	i
LIST OF TABLES.....	ii
LIST OF FIGURES.....	ix
LIST OF APPENDICES.....	xii
INTRODUCTION.....	1
RESULTS.....	3
1) Marine Area 5 Summer Mark-Selective Chinook Fishery.....	3
2) Marine Area 6 Summer Mark-Selective Chinook Fishery.....	14
3) Marine Area 9 Summer Mark-Selective Chinook Fishery.....	20
4) Marine Area 10 Summer Mark-Selective Chinook Fishery.....	32
5) Marine Area 11 Summer Mark-Selective Chinook Fishery.....	44
6) Marine Area 12 Summer Mark-Selective Chinook Fishery.....	55
7) Marine Area 13 Summer Mark-Selective Chinook Fishery.....	61
ACKNOWLEDGEMENTS.....	67
REFERENCES.....	68
APPENDICES.....	72

## LIST OF TABLES

<b>Table 1.1</b> Sampling/estimation details on target parameters associated with the overall Area 5 summer mark-selective fishery monitoring program.....	4
<b>Table 1.2</b> Estimates of total fishing effort and total salmon catch (harvest and releases) during the 2014 summer Chinook MSF in Marine Area 5. Values may not add exactly due to rounding error. AD = marked (adipose-clipped), UM = unmarked.....	5
<b>Table 1.3</b> Summary of total length samples from retained Chinook salmon collected during dockside angler interviews in the 2014 summer Chinook MSF in Marine Area 5.....	6
<b>Table 1.4</b> Summary of coded-wire tags recovered from Chinook salmon harvested during the 2014 summer Chinook MSF in Marine Area 5. The field “Number DITs” corresponds to the number of tags that belonged to double-index tag groups.....	7
<b>Table 1.5</b> Total Chinook encountered (retained and released) by private-boat anglers logging their trips on voluntary trip reports (VTRs) during the 2014 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.....	8
<b>Table 1.6</b> Summary of season-wide fishery impact estimates for the 2014 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.....	9
<b>Table 1.7</b> Comparison of modeled (FRAM model run 2814) and estimated total Chinook encounters for the 2014 summer Chinook MSF in Marine Area 5. Values may not add up perfectly due to rounding error. AD = marked (adipose-clipped), UM = unmarked. ....	9
<b>Table 1.8</b> Comparison of modeled (FRAM model run 2814) and estimated total Chinook mortalities for the 2014 summer Chinook MSF in Marine Area 5. Values may not add up perfectly due to rounding error. AD = marked (adipose-clipped), UM = unmarked. ....	9
<b>Table 1.9</b> Summary of double-index tagged (DIT) Chinook kept by anglers, and estimated total mortality of unmarked DIT Chinook due to hook-and-release impacts resulting from the 2014 summer Chinook MSF in Marine Area 5. AD = marked (adipose-clipped), UM = unmarked. ....	11
<b>Table 1.10</b> Monthly sample rates (Total retained Chinook sampled <sup>1</sup> / Estimated retained Chinook) for the 2014 summer Chinook MSF in Marine Area 5. AD = marked (adipose-clipped), UM = unmarked.....	11

**Table 1.11** Fishery-total estimates of retained and released salmon (*other than Chinook*) for the 2014 summer Chinook MSF in Marine Area 5. Values may not add exactly due to rounding error. AD = marked (adipose-clipped), UM = unmarked..... 12

**Table 1.12** Summary of the total number of anglers intercepted during on-the-water surveys conducted for the 2014 summer Chinook MSF in Marine Area 5. Sites in bold represent those included in the dockside sample frame. .... 13

**Table 1.13** Season-total estimates of Chinook encounters by size/mark-status and total estimates of angler effort, summarized for all seasons to date of the Area 5 summer Chinook MSF. Values may not add exactly due to rounding error. .... 13

**Table 2.1** Sampling/estimation details on target parameters associated with the overall Area 6 summer mark-selective fishery monitoring program..... 15

**Table 2.2** Observations of fishing effort, salmon harvest, and reported salmon releases, by week, for the 2014 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. .... 16

**Table 2.3** Summary of total length samples from retained Chinook salmon collected during dockside angler interviews in the 2014 summer Chinook MSF in Marine Area 6..... 18

**Table 2.4** Summary of coded-wire tags recovered from Chinook salmon harvested during the 2014 summer Chinook MSF in Marine Area 6. The field “Number DITs” corresponds to the number of tags that belonged to double-index tag groups..... 18

**Table 2.5** Total Chinook encountered (retained and released) by private-boat anglers logging their trips on voluntary trip reports (VTRs) during the 2014 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..... 18

**Table 2.6** List of sites sampled with the number of sampling events (site-days) during the 2014 summer Chinook MSF in Marine Area 6. .... 19

**Table 3.1** Sampling/estimation details on target parameters associated with the overall Area 9 summer mark-selective fishery monitoring program..... 21

**Table 3.2** Estimates of total fishing effort and total salmon catch (harvest and releases) during the 2014 summer Chinook MSF in Marine Area 9. Values may not add exactly due to rounding error. AD = marked (adipose-clipped), UM = unmarked..... 22

**Table 3.3** Summary of total length samples from retained Chinook salmon collected during dockside angler interviews in the 2014 summer Chinook MSF in Marine Area 9..... 23

**Table 3.4** Summary of coded-wire tags recovered from Chinook salmon harvested during the 2014 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... 24

**Table 3.5** Composition of test fishery Chinook encounters and associated mark-rate and size/mark-status proportion estimates for the 2014 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..... 24

**Table 3.6** Total Chinook 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 2014 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..... 25

**Table 3.7** Summary of season-wide fishery impact estimates for the 2014 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..... 26

**Table 3.8** Comparison of modeled (FRAM model run 2814) and estimated total Chinook encounters for the 2014 summer Chinook MSF in Marine Area 9. Values may not add up perfectly due to rounding error. AD = marked (adipose-clipped) and UM = unmarked..... 26

**Table 3.9** Comparison of modeled (FRAM model run 2814) and estimated total Chinook mortalities for the 2014 summer Chinook MSF in Marine Area 9. Values may not add up perfectly due to rounding error. AD = marked (adipose-clipped) and UM = unmarked..... 26

**Table 3.10** Summary of double-index tagged (DIT) Chinook kept by anglers, and estimated total mortality of unmarked DIT Chinook due to hook-and-release impacts resulting from the 2014 summer Chinook MSF in Marine Area 9. AD = marked (adipose-clipped), UM = unmarked. .... 28

**Table 3.11** Monthly sample rates (Total retained Chinook sampled<sup>1</sup> / Estimated retained Chinook) in the 2014 summer Chinook MSF in Marine Area 9. .... 28

**Table 3.12** Fishery-total estimates of retained and released salmon (*other than Chinook*) in the 2014 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. .... 29

**Table 3.13** Summary of the total number of anglers intercepted during on-the-water surveys conducted for the 2014 summer Chinook MSF in Marine Area 9. Sites in bold represent those included in the dockside sample frame. .... 30

**Table 3.14** Season-total estimates of Chinook encounters by size/mark-status and total estimates of angler effort, summarized for all seasons to date of the Area 9 summer Chinook MSF. Values may not add exactly due to rounding error. .... 31

**Table 4.1** Sampling/estimation details on target parameters associated with the overall Area 10 summer mark-selective fishery monitoring program..... 33

**Table 4.2** Estimates of total fishing effort and total salmon catch (harvest and releases) during the 2014 summer Chinook MSF in Marine Area 10. Values may not add exactly due to rounding error. AD = marked (adipose-clipped), UM = unmarked..... 34

**Table 4.3** Summary of total length samples from retained Chinook salmon collected during dockside angler interviews in the 2014 summer Chinook MSF in Marine Area 10..... 35

**Table 4.4** Summary of coded-wire tags recovered from Chinook salmon harvested during the 2014 summer Chinook MSF in Marine Area 10. The field “Number DITs” corresponds to the number of recovered CWTs that belonged to double-index tag..... 36

**Table 4.5** Composition of test fishery Chinook encounters and associated mark-rate and size/mark-status proportion estimates for the 2014 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..... 36

**Table 4.6** Total Chinook 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 2014 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..... 37

**Table 4.7** Summary of season-wide fishery impact estimates for the 2014 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..... 38

**Table 4.8** Comparison of modeled (FRAM model run 2814) and estimated total Chinook encounters for the 2014 summer Chinook MSF in Marine Area 10. Values may not add up perfectly due to rounding error. AD = marked (adipose-clipped) and UM = unmarked..... 38

**Table 4.9** Comparison of modeled (FRAM model run 2814) and estimated total Chinook mortalities for the 2014 summer Chinook MSF in Marine Area 10. Values may not add up perfectly due to rounding error. AD = marked (adipose-clipped) and UM = unmarked..... 38

**Table 4.10** Summary of double-index tagged (DIT) Chinook kept by anglers, and estimated total mortality of unmarked DIT Chinook due to hook-and-release impacts resulting from the 2014 summer Chinook MSF in Marine Area 10. AD = marked (adipose-clipped), UM = unmarked..... 40

**Table 4.11** Monthly sample rates (Total retained Chinook sampled<sup>1</sup> / Estimated retained Chinook) in the 2014 summer Chinook MSF in Marine Area 10. .... 40

**Table 4.12** Fishery-total estimates of retained and released salmon (*other than Chinook*) in the 2014 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. .... 41

**Table 4.13** Summary of the total number of anglers intercepted during on-the-water surveys conducted for the 2014 summer Chinook MSF in Marine Area 10. Sites in bold represent those included in the dockside sample frame..... 42

**Table 4.14** Season-total estimates of Chinook encounters by size/mark-status and total estimates of angler effort, summarized for all seasons to date of the Area 10 summer Chinook MSF. Values may not add exactly due to rounding error. .... 43

**Table 5.1** Sampling/estimation details on target parameters associated with the overall Area 11 winter mark-selective fishery monitoring program. .... 45

**Table 5.2** Estimates of total fishing effort and total salmon catch (harvest and releases) during the 2014 summer Chinook MSF in Marine Area 11. Values may not add exactly due to rounding error. AD = marked (adipose-clipped), UM = unmarked..... 46

**Table 5.3** Summary of total length samples from retained Chinook salmon collected during dockside angler interviews in the 2014 summer Chinook MSF in Marine Area 11..... 48

**Table 5.4** Summary of coded-wire tags recovered from Chinook salmon harvested during the 2014 summer Chinook MSF in Marine Area 11. The field “Number DITs” corresponds to the number of tags that belonged to double-index tag groups..... 48

**Table 5.5** Total Chinook encountered (retained and released) by private-boat anglers logging their trips on voluntary trip reports (VTRs) during the 2014 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..... 48

**Table 5.6** Summary of season-wide fishery impact estimates for the 2014 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..... 49

**Table 5.7** Comparison of modeled (FRAM model run 2814) and estimated total Chinook encounters for the 2014 summer Chinook MSF in Marine Area 11. Values may not add up perfectly due to rounding error. AD = marked (adipose-clipped), UM = unmarked. .... 49

**Table 5.8** Comparison of modeled (FRAM model run 2814) and estimated total Chinook mortalities for the 2014 summer Chinook MSF in Marine Area 11. Values may not add up perfectly due to rounding error. AD = marked (adipose-clipped), UM = unmarked. .... 49

**Table 5.9** Summary of double-index tagged (DIT) Chinook kept by anglers, and estimated total mortality of unmarked DIT Chinook due to hook-and-release impacts resulting from the 2014 summer Chinook MSF in Marine Area 11. AD = marked (adipose-clipped), UM = unmarked..... 51

**Table 5.10** Monthly sample rates (Total retained Chinook sampled<sup>1</sup> / Estimated retained Chinook) in the 2014 summer Chinook MSF in Marine Area 11. AD = marked (adipose-clipped), UM = unmarked..... 51

**Table 5.11** Fishery-total estimates of retained and released salmon (other than Chinook) for the 2014 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. .... 52

**Table 5.12** Summary of the total number of anglers intercepted during on-the-water surveys conducted for the 2014 summer Chinook MSF in Marine Area 11. Sites in bold represent those included in the dockside sample frame..... 53

**Table 5.13** Season-total estimates of Chinook encounters by size/mark-status and total estimates of angler effort, summarized for all seasons to date of the Area 11 summer Chinook MSF. Values may not add exactly due to rounding error. .... 54

**Table 6.1** Sampling/estimation details on target parameters associated with the overall Area 12 mark-selective fishery monitoring program..... 56

**Table 6.2** Observations of fishing effort, salmon harvest, and reported salmon releases, by week, for the 2014 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. .... 57

**Table 6.3** Summary of total length samples from retained Chinook salmon collected during dockside angler interviews in the 2014 summer Chinook MSF in Marine Area 12..... 59

**Table 6.4** Summary of coded-wire tags recovered from Chinook salmon harvested during the 2014 summer Chinook MSF in Marine Area 12. The field “Number DITs” corresponds to the number of tags that belonged to double-index tag groups..... 59

**Table 6.5** Total Chinook encountered (retained and released) by private-boat anglers logging their trips on voluntary trip reports (VTRs) during the 2014 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..... 59

**Table 6.6** List of sites sampled with the number of sampling events (site-days) during the 2014 summer Chinook MSF in Marine Area 12. .... 60

**Table 7.1** Sampling/estimation details on target parameters associated with the overall Area 13 mark-selective fishery monitoring program..... 62

**Table 7.2** Observations of fishing effort, salmon harvest, and reported salmon releases, by week, for the 2014 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. .... 63

**Table 7.3** Summary of total length samples from retained Chinook salmon collected during dockside angler interviews in the 2014 summer Chinook MSF in Marine Area 13..... 65

**Table 7.4** Summary of coded-wire tags recovered from Chinook salmon harvested during the 2014 summer Chinook MSF in Marine Area 13. The field “Number DITs” corresponds to the number of tags that belonged to double-index tag groups..... 65

**Table 7.5** Total Chinook encountered (retained and released) by private-boat anglers logging their trips on voluntary trip reports (VTRs) during the 2014 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..... 65

**Table 7.6** List of sites sampled with the number of sampling events (site-days) during the 2014 summer Chinook MSF in Marine Area 13. .... 66

## LIST OF FIGURES

<b>Figure 1.1</b> Temporal patterns in fishing effort during the 2014 summer Chinook MSF in Marine Area 5. ....	6
<b>Figure 1.2</b> Temporal patterns in CPUE (landed Chinook per angler trip) during the 2014 summer Chinook MSF in Marine Area 5. ....	6
<b>Figure 1.3</b> Temporal patterns in Chinook encounters (retained and released) during the 2014 summer Chinook MSF in Marine Area 5. ....	6
<b>Figure 1.4</b> Length-frequency distribution of retained marked Chinook sampled in dockside angler interviews during the 2014 summer Chinook MSF in Marine Area 5. ....	6
<b>Figure 1.5</b> Comparison of modeled (using FRAM, model run 2814) and estimated total Chinook encounters and mortalities for the 2014 summer Chinook MSF in Marine Area 5. Error bars represent approximate 95% confidence intervals for field estimates. ....	10
<b>Figure 2.1</b> Temporal patterns in fishing effort during the 2014 summer Chinook MSF in Marine Area 6. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates. ....	17
<b>Figure 2.2</b> Temporal patterns in CPUE (landed Chinook per angler trip) during the 2014 summer Chinook MSF in Marine Area 6. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates. ....	17
<b>Figure 2.3</b> Temporal patterns in Chinook encounters (retained and released) during the 2014 summer Chinook MSF in Marine Area 6. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates. ....	17
<b>Figure 2.4</b> Length-frequency distributions of retained marked Chinook sampled in dockside angler interviews during the 2014 summer Chinook MSF in Marine Area 6. ....	17
<b>Figure 3.1</b> Temporal patterns in fishing effort during the 2014 summer Chinook MSF in Marine Area 9. ....	22
<b>Figure 3.2</b> Temporal patterns in CPUE (landed Chinook per angler trip) during the 2014 summer Chinook MSF in Marine Area 9. ....	22
<b>Figure 3.3</b> Temporal patterns in Chinook encounters (retained and released) during the 2014 summer Chinook MSF in Marine Area 9. ....	23
<b>Figure 3.4</b> Length-frequency distribution of retained marked Chinook sampled in dockside angler interviews during the 2014 summer Chinook MSF in Marine Area 9. ....	23
<b>Figure 3.5</b> Length-frequency distributions of marked (left panel) and unmarked (right panel) Chinook encountered by test fishers during the 2014 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). ....	25

**Figure 3.6** Comparison of modeled (using FRAM, model run 2814) and estimated total Chinook encounters and mortalities for the 2014 summer Chinook MSF in Marine Area 9. Error bars represent approximate 95% confidence intervals for field estimates. .... 27

**Figure 4.1** Temporal patterns in fishing effort during the 2014 summer Chinook MSF in Marine Area 10. .... 34

**Figure 4.2** Temporal patterns in CPUE (landed Chinook per angler trip) during the 2014 summer Chinook MSF in Marine Area 10. .... 34

**Figure 4.3** Temporal patterns in Chinook encounters (retained and released) during the 2014 summer Chinook MSF in Marine Area 10. .... 35

**Figure 4.4** Length-frequency distribution of retained marked Chinook sampled in dockside angler interviews during the 2014 summer Chinook MSF in Marine Area 10. .... 35

**Figure 4.5** Length-frequency distributions of marked (left panel) and unmarked (right panel) Chinook encountered by test fishers during the 2014 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). .... 37

**Figure 4.6** Comparison of modeled (using FRAM model run 2814) and estimated total Chinook encounters and mortalities for the 2014 summer Chinook MSF in Marine Area 10. Error bars represent approximate 95% confidence intervals for field estimates. .... 39

**Figure 5.1** Temporal patterns in fishing effort during the 2014 summer Chinook MSF in Marine Area 11. .... 47

**Figure 5.2** Temporal patterns in CPUE (landed Chinook per angler trip) during the 2014 summer Chinook MSF in Marine Area 11. .... 47

**Figure 5.3** Temporal patterns in Chinook encounters (retained and released) during the 2014 summer Chinook MSF in Marine Area 11. .... 47

**Figure 5.4** Length-frequency distributions of retained marked Chinook sampled in dockside angler interviews during the 2014 summer Chinook MSF in Marine Area 11. .... 47

**Figure 5.5** Comparison of modeled (FRAM model run 2814) and estimated total Chinook encounters and mortalities for the 2014 summer Chinook MSF in Marine Area 11. Error bars represent approximate 95% confidence intervals for field estimates. .... 50

**Figure 6.1** Temporal patterns in fishing effort during the 2014 summer Chinook MSF in Marine Area 12. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates. .... 58

**Figure 6.2** Temporal patterns in CPUE (landed Chinook per angler trip) during the 2014 summer Chinook MSF in Marine Area 12. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates. .... 58

**Figure 6.3** Temporal patterns in Chinook encounters (retained and released) during the 2014 summer Chinook MSF in Marine Area 12. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates. .... 58

**Figure 6.4** Length-frequency distributions of retained marked Chinook sampled in dockside angler interviews during the 2014 summer Chinook MSF in Marine Area 12. .... 58

**Figure 7.1** Temporal patterns in fishing effort during the 2014 summer Chinook MSF in Marine Area 13. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates. .... 64

**Figure 7.2** Temporal patterns in CPUE (landed Chinook per angler trip) during the 2014 summer Chinook MSF in Marine Area 13. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates. .... 64

**Figure 7.3** Temporal patterns in Chinook encounters (retained and released) during the 2014 summer Chinook MSF in Marine Area 13. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates. .... 64

**Figure 7.4** Length-frequency distributions of retained marked Chinook sampled in dockside angler interviews during the 2014 summer Chinook MSF in Marine Area 13. .... 64

## LIST OF APPENDICES

<b>Appendix A.1</b> Size measures by sample date, for sites sampled during dockside creel surveys in the 2014 summer Chinook MSF in Marine Area 5. ....	72
<b>Appendix A.2</b> Size measures by sample date, for sites sampled during dockside creel surveys in the 2014 summer Chinook MSF in Marine Area 9. ....	73
<b>Appendix A.3</b> Size measures by sample date, for sites sampled during dockside creel surveys in the 2014 summer Chinook MSF in Marine Area 10. ....	74
<b>Appendix A.4</b> Size measures by sample date, for sites sampled during dockside creel surveys in the 2014 summer Chinook MSF in Marine Area 11. ....	75
<b>Appendix B.1</b> Coded-wire tag (CWT) recoveries in the 2014 summer Chinook MSF in Marine Area 5. ....	77
<b>Appendix B.2</b> Coded-wire tag (CWT) recoveries in the 2014 summer Chinook MSF in Marine Area 6. ....	81
<b>Appendix B.3</b> Coded-wire tag (CWT) recoveries in the 2014 summer Chinook MSF in Marine Area 9. ....	82
<b>Appendix B.4</b> Coded-wire tag (CWT) recoveries in the 2014 summer Chinook MSF in Marine Area 10. ....	84
<b>Appendix B.5</b> Coded-wire tag (CWT) recoveries in the 2014 summer Chinook MSF in Marine Area 11. ....	85
<b>Appendix B.6</b> Coded-wire tag (CWT) recoveries in the 2014 summer Chinook MSF in Marine Area 12. ....	86
<b>Appendix B.7</b> Coded-wire tag (CWT) recoveries in the 2014 summer Chinook MSF in Marine Area 13. ....	86

## 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 wild Chinook salmon. Providing recreational anglers with opportunities to harvest abundant hatchery stocks while simultaneously protecting weaker, wild stocks has proven to be a significant conservation and management challenge. The combination of large-scale hatchery marking (i.e., fin clipping) programs and mark-selective harvest regulations makes it possible for anglers to pursue and harvest hatchery Chinook salmon while minimally impacting wild salmon populations. In such “mark-selective fisheries” (MSFs), anglers are generally allowed to retain adipose-fin clipped (“marked”) hatchery fish and are required to release unharmed any unclipped (“unmarked”, predominantly wild) salmon encountered<sup>1</sup>.

Since the Washington Department of Fish and Wildlife (WDFW) implemented the first marine mark-selective Chinook fishery in Marine Catch Areas 5 and 6 (Strait of Juan de Fuca) in 2003 based on state-tribal agreements (Thiesfeld and Hagen-Breaux 2005a, WDFW 2008a), mark-selective Chinook salmon fishing regulations have been implemented on a basis in multiple Puget Sound Marine Catch Areas during both the summer and winter seasons. As of the close of the summer 2014 fishing season, *summer* Chinook MSFs have occurred in Areas 5 and 6 for twelve consecutive seasons, in Areas 9, 10, 11, and 13 for eight consecutive seasons and in Area 12 for three consecutive seasons. Additionally, *winter* Chinook MSFs have occurred in Areas 8-1 and 8-2 for nine consecutive seasons, in Areas 7, 9 and 10 for seven consecutive seasons, in Areas 11 and 12 for five consecutive seasons and in Area 6 for two seasons<sup>2</sup>.

During the 2014 summer season (May through September), WDFW implemented seven mark-selective Chinook fisheries in Areas 5, 6, 9, 10, 11, 12 and 13. The Chinook MSF seasons in each area were scheduled as follows:

- Areas 5 and 6 from July 1 through August 15, 2014;
- Areas 9 and 10 from July 16 through August 15, 2014;
- Area 11 from June 1 through September 30, 2014;
- Area 12 from July 1 through September 30, 2014; and
- Area 13 from May 1 through September 30, 2014.

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

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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. 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>.

### Comprehensive Sampling and Monitoring Program

WDFW's Puget Sound Sampling Unit (PSSU) was tasked with implementing a comprehensive sampling and monitoring program in Areas 5, 6, 9, 10, 11, 12 and 13 to collect the data needed to evaluate each Chinook MSF and its impact on unmarked salmon. Through state-tribal agreement (WDFW and NWIFC 2014), we developed area-specific sampling plans consisting of several comprehensive and complementary sampling components, including dockside creel sampling, test fishing, on-water or aerial effort surveys, and angler-completed voluntary trip reports (VTRs). We tailored area-specific sampling plans so that we could reliably estimate the following critical parameters needed for evaluating MSFs:

- i) the mark rate of the targeted Chinook population
- ii) the total number of Chinook salmon harvested (by size [legal or sublegal] and mark-status [marked or unmarked] group)
- iii) the total number of Chinook salmon released (by size and mark-status group)
- iv) the coded-wire tag- (CWT) and/or DNA-based stock composition of marked and unmarked Chinook mortalities<sup>3</sup>
- v) the total mortality of marked and unmarked double index tag (DIT) CWT stocks

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

### Reporting Efficiencies

In the following pages, we report the summarized data and estimates generated from our monitoring activities during the summer 2014 Chinook MSFs. We report results following the reporting format agreed-to between state and tribal technical representatives<sup>4</sup>, in which we focus on presenting data tables and figures rather than interpretive text (unless needed to specify noteworthy in-season adjustments or other circumstances unique to the particular season). We present summer 2014 Chinook MSF results in separate chapters (1 through 7) by area, and within each chapter the data are presented in a series of tables and figures generally according to the following sequence: *i*) estimates of fishery characteristics obtained from the dockside creel survey data, including catch and effort total estimates, Chinook length-frequency data, and CWT recovery results; *ii*) results from our recreational test fishery (where applicable); *iii*) results from our VTR collection efforts; *iv*) total fishery Chinook encounters and impacts—estimated based on creel survey and test fishery or VTR data—which we compare with pre-season expectations (based on Fishery Regulation Assessment Model [FRAM] predictions); *v*) sample rate information based on dockside sampling of harvested Chinook; *vi*) total mortality estimates of marked and unmarked DIT CWT stocks by hatchery and brood year; and *vii*) historical Chinook encounters estimates for each area's summer mark-selective Chinook fishery.

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

<sup>4</sup> Details available in a WDFW memo dated August 16, 2010 summarizing a July 2010 meeting to discuss reporting efficiencies.

## RESULTS

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

The Washington Department of Fish and Wildlife (WDFW) implemented a twelfth consecutive summer Chinook MSF in Marine Area 5 from July 1 through August 15, 2014. WDFW's Puget Sound Sampling Unit (PSSU) implemented an intensive monitoring program in Area 5 throughout the season in order to collect the data needed to estimate key parameters characterizing the fishery and its impacts on unmarked salmon. Sampling activities included dockside creel sampling and intensive efforts to distribute and collect voluntary trip reports (VTRs) from the angling public. During the summer 2014 mark-selective Chinook fishery in Area 5 we maintained our enhanced VTR program in an effort to improve the return rate of voluntary trip reports, which provide estimates of Chinook encounter rates by size class (legal or sublegal) and mark status (ad-marked or unmarked). An additional WDFW technician was hired to work exclusively on distributing and collecting VTRs from the angling public in Area 5. This technician, along with the dockside samplers, also educated anglers about the VTR program and salmon species identification in a focused effort to increase the sample size of VTR-based encounter data. **Table 1.1** summarizes the parameters estimated and the sampling activities associated with each parameter. Specific procedures used for collecting these data and estimating critical data parameters are presented in detail in our separate Methods Report (WDFW 2012a). In this section we present results from our monitoring activities during the Area 5 summer Chinook MSF.

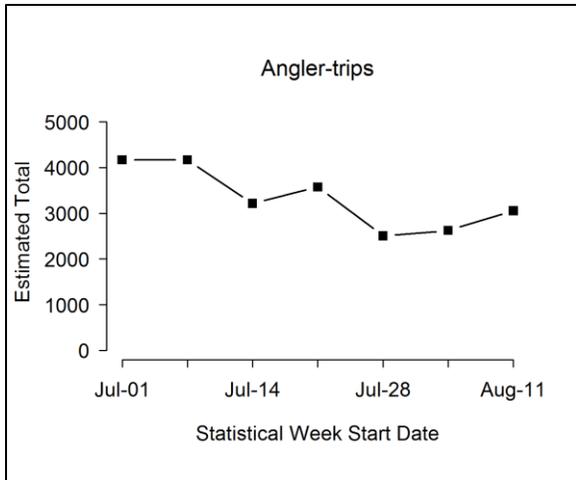
**Table 1.1** Sampling/estimation details on target parameters associated with the overall Area 5 summer mark-selective fishery monitoring program.

Activity	Focal Parameter(s)	Secondary Parameter(s)	Sample Unit(s)	Finest Estimation Time Step	Comments
Dockside Creel Sampling	Fishing effort (boat & angler trips); kept and released fish <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 were conducted during the 2014 Area 5 summer Chinook MSF. As in-season observations suggested that sites and effort patterns did not change substantially in 2014 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	Encounter data for non-Chinook species (e.g., coho) that the angler may record on the VTR form	Fish encounter	Season	We used VTR data to estimate the size/mark-status proportions (LM = 27%, LU = 15%, SM = 21%, SU = 37%; <b>Table 1.5</b> ) needed to produce encounter and mortality estimates.
Overall Fishery Impacts Estimation	Total Chinook encounters and mortalities, by size/mark-status group	Ratios of encounters and mortalities per kept Chinook	N/A	Season	Estimated on a monthly time step but considered at the season-total level.
Coded-wire tag (CWT) Impacts Estimation	Marked/unmarked double-index tag (DIT) encounters and mortalities	N/A	N/A	Season	The temporal resolution of DIT impacts is constrained by the total number of tags recovered.

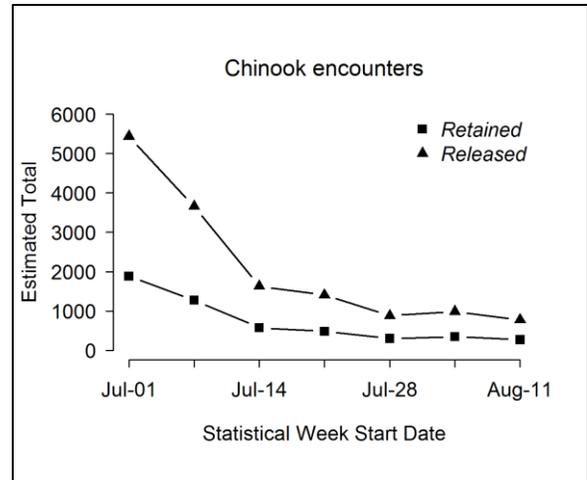
<sup>1</sup>The length and CWT composition of landed catch was assessed on a season-wide basis for impact estimation.

**Table 1.2** Estimates of total fishing effort and total salmon catch (harvest and releases) during the 2014 summer Chinook MSF in Marine Area 5. Values may not add exactly due to rounding error. AD = marked (adipose-clipped), UM = unmarked.

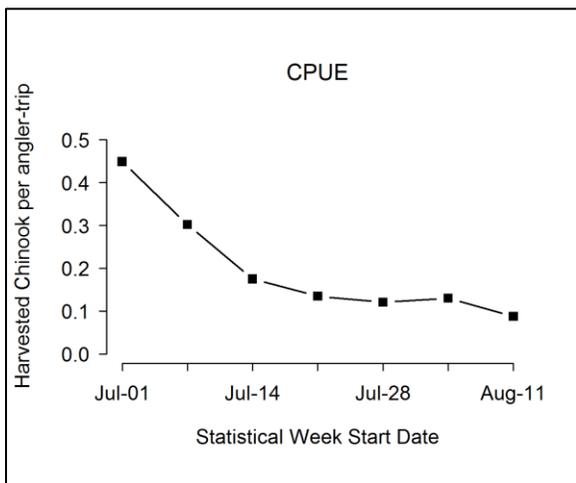
Month	Stat Week	Start Date	End Date	Est. Effort		Est. Retained Chinook		Est. Released Chinook		Total Est. Chinook Encounters
				Boats	Anglers	AD	UM	AD	UM	
July	27	1-Jul	6-Jul	1,625	4,167	1,871	14	1,621	3,816	7,322
	28	7-Jul	13-Jul	1,692	4,169	1,259	13	1,091	2,566	4,930
	29	14-Jul	20-Jul	1,321	3,216	563	11	488	1,141	2,202
	30	21-Jul	27-Jul	1,495	3,575	482	0	418	987	1,886
	31	28-Jul	3-Aug	1,079	2,505	302	0	262	618	1,182
August	32	4-Aug	10-Aug	1,184	2,624	341	8	296	691	1,336
	33	11-Aug	15-Aug	1,292	3,054	267	3	231	544	1,046
<b>Season Total:</b>				<b>9,689</b>	<b>23,310</b>	<b>5,085</b>	<b>49</b>	<b>4,407</b>	<b>10,363</b>	<b>19,905</b>
<b>Variance:</b>				164,075	927,050	474,643	619	2,191,717	2,282,220	11,115,047
<b>SE:</b>				405	963	689	25	1,480	1,511	3,334
<b>CV (%):</b>				4	4	14	50	34	15	17
<b>95% CI:</b>				8,895 - 10,483	21,423 - 25,197	3,735 - 6,435	1 - 98	1,505 - 7,309	7,403 - 13,324	13,370 - 26,439



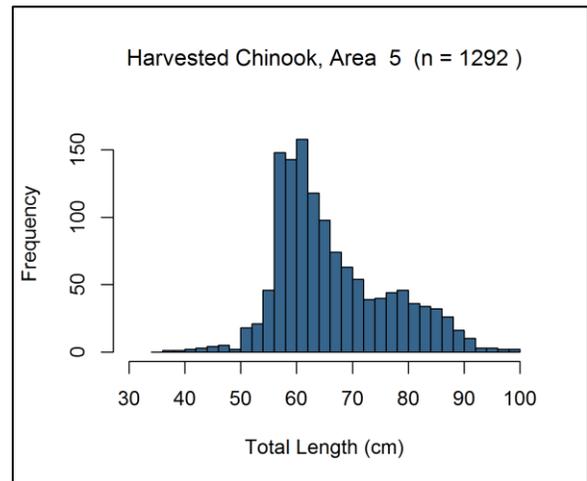
**Figure 1.1** Temporal patterns in fishing effort during the 2014 summer Chinook MSF in Marine Area 5.



**Figure 1.3** Temporal patterns in Chinook encounters (retained and released) during the 2014 summer Chinook MSF in Marine Area 5.



**Figure 1.2** Temporal patterns in CPUE (landed Chinook per angler trip) during the 2014 summer Chinook MSF in Marine Area 5.



**Figure 1.4** Length-frequency distribution of retained marked Chinook sampled in dockside angler interviews during the 2014 summer Chinook MSF in Marine Area 5.

**Table 1.3** Summary of total length samples from retained Chinook salmon collected during dockside angler interviews in the 2014 summer Chinook MSF in Marine Area 5.

Mark Type	Number Sampled		
	Legal-size	Sublegal-size	Total
Marked	1,190	102	1,292
Unmarked	5	1	6
<b>Total</b>	<b>1,195</b>	<b>103</b>	<b>1,298</b>

**Table 1.4** Summary of coded-wire tags recovered from Chinook salmon harvested during the 2014 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	Number DITs
British Columbia (22.3%)	Fraser River – Thompson River (19.5%)	R-Harrison R	H-Chehalis River H	8 (4.6%)	0
		R-Chilliwack R	H-Chilliwack River H	20 (11.5%)	20
		R-Shuswap R Low	H-Shuswap River, Middle,	6 (3.4%)	0
	Western Vancouver Island (1.1%)	R-Bedwell R	H-Tofino H	1 (0.6%)	0
		R-Robertson Cr	H-Robertson Creek H	1 (0.6%)	0
Georgia Strait (1.7%)	R-Cowichan R	H-Cowichan River H	3 (1.7%)	0	
Washington (53.9%)	Northern Washington (8.6%)	Friday Cr 03.0017	Samish Hatchery	13 (7.5%)	13
		Boyd Cr 01.0490	Kendall Cr Hatchery	2 (1.1%)	0
	Strait of JDF (2.9%)	Hoko R 19.0148	Hoko Falls Hatchery	5 (2.9%)	0
	Hood Canal (8%)	Purdy Cr 16.0005	George Adams Hatchery	4 (2.3%)	4
		Finch Cr 16.0222	Hoodsport Hatchery	10 (5.7%)	0
	Northern Puget Sound (6.3%)	May Cr 07.0943	Wallace R Hatchery	1 (0.6%)	1
		Whitehorse Springs	Stillaguamish Hatch	6 (3.4%)	0
		Wallace R 07.0940	Wallace R Hatchery	2 (1.1%)	0
		Tulalip Cr 07.0001	Bernie Gobin Hatch	2 (1.1%)	0
	Skagit River (1.1%)	Cascade R 03.1411	Marblemount Hatchery	1 (0.6%)	1
		Co line pd2 03.1853b	Marblemount Hatchery	1 (0.6%)	0
	Mid Puget Sound (15.5%)	Grovers Cr hatchery	Grovers Cr Hatchery	13 (7.5%)	2
		Icy Cr 09.0125	Icy Cr Hatchery	3 (1.7%)	0
		Big soos Cr 09.0072	Soos Creek Hatchery	1 (0.6%)	1
		Gorst Cr 15.0216	Gorst Cr Rearing Pnd	5 (2.9%)	0
		Palmer Hatchery	Keta Creek Complex	1 (0.6%)	0
		Voight Cr 10.0414	Voights Cr Hatchery	4 (2.3%)	0
	Southern Puget Sound (11.5%)	Minter Cr 15.0048	Minter Cr Hatchery	7 (4%)	0
		Clear Cr 11.0013c	Clear Creek Hatchery	9 (5.2%)	2
		Kalama Cr 11.0017	Kalama Cr Hatchery	4 (2.3%)	0
Columbia River (22.4%)	Upper Columbia R (above McNary Dam; excludes Snake River) (2.3%)	Similkameen R 490325	Similkameen Hatchery	1 (0.6%)	0
		Columbia Near Wells	Wells Hatchery	1 (0.6%)	0
		Chelan R 47.0052	Chelan Falls Hatchery	1 (0.6%)	0
		Wenatchee R 45.0030	Dryden Pond	1 (0.6%)	0
	Central Columbia River (Bonneville Dam to McNary Dam) (2.9%)	Ltl White Salmon@NFH	Ltl White Salmon NFH	1 (0.6%)	0
		Spring Cr 29.0159	Spring Cr NFH	3 (1.7%)	3
		Umatilla R	Umatilla Hatchery	1 (0.6%)	0
	Lower Columbia River (mouth to Bonneville Dam) (10.9%)	Kalama R 27.0002	Kalama Falls Hatchery	1 (0.6%)	0
		Tanner Cr (Bnville)	Bonneville Hatchery	4 (2.3%)	0
		Washougal R 28.0159	Washougal Hatchery	1 (0.6%)	0
		Big Cr (Lwr Col R)	Big Cr Hatchery	7 (4%)	7
		Cowlitz R 26.0002	Cowlitz Salmon Hatch	6 (3.4%)	0
	Snake River (6.3%)	Snake R-L (Hells Can	Irrigon Hatchery	3 (1.7%)	0
		Captain Johns Pd	Lyons Ferry Hatchery	2 (1.1%)	0
		Lyons Ferry Rel.Site	Lyons Ferry Hatchery	3 (1.7%)	0
		Snake@ Hills Cnyon Dm	Oxbow Hatchery	2 (1.1%)	0
NPT Hatchery		NPT Hatchery	1 (0.6%)	0	

**Table 1.4** (continued)

Release Domain	Release Region	Release Site	Rearing Location	CWTs Recovered	Number DITs
OR 0.6%)	S. Oregon Coast (0.6%)	Elk R	Elk R Hatchery	1 (0.6%)	0
CA (0.6%)	Sacramento River (0.6%)	Coleman NFH	Coleman NFH	1 (0.6%)	0
<b>Total</b>				<b>174</b>	<b>54</b>

**Table 1.5** Total Chinook encountered (retained and released) by private-boat anglers logging their trips on voluntary trip reports (VTRs) during the 2014 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
<b>Private VTR</b>	<b>90 1-trip VTRs, 201 Angler Trips</b>	<b>76</b>	<b>43</b>	<b>58</b>	<b>104</b>	<b>281</b>	<b>0.48</b>	<b>0.64</b>
Test fishery size/mark-status composition:		<b>0.27</b>	<b>0.15</b>	<b>0.21</b>	<b>0.37</b>			
Variance:		<b>(0.0007)</b>	<b>(0.0005)</b>	<b>(0.0006)</b>	<b>(0.0008)</b>			

As no test fishery was conducted in the Area 5 summer mark-selective fishery, we focused our efforts on increasing the return rate of VTRs and thus, the sample size of fish encountered by recreational fishers. This year we received 90 VTRs, accounting for 201 angler trips during the 1.5 month fishery. We used these data to estimate the size/mark-status proportions needed to produce Chinook encounter and mortality estimates for the Area 5 summer Chinook MSF.

**Table 1.6** Summary of season-wide fishery impact estimates for the 2014 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.

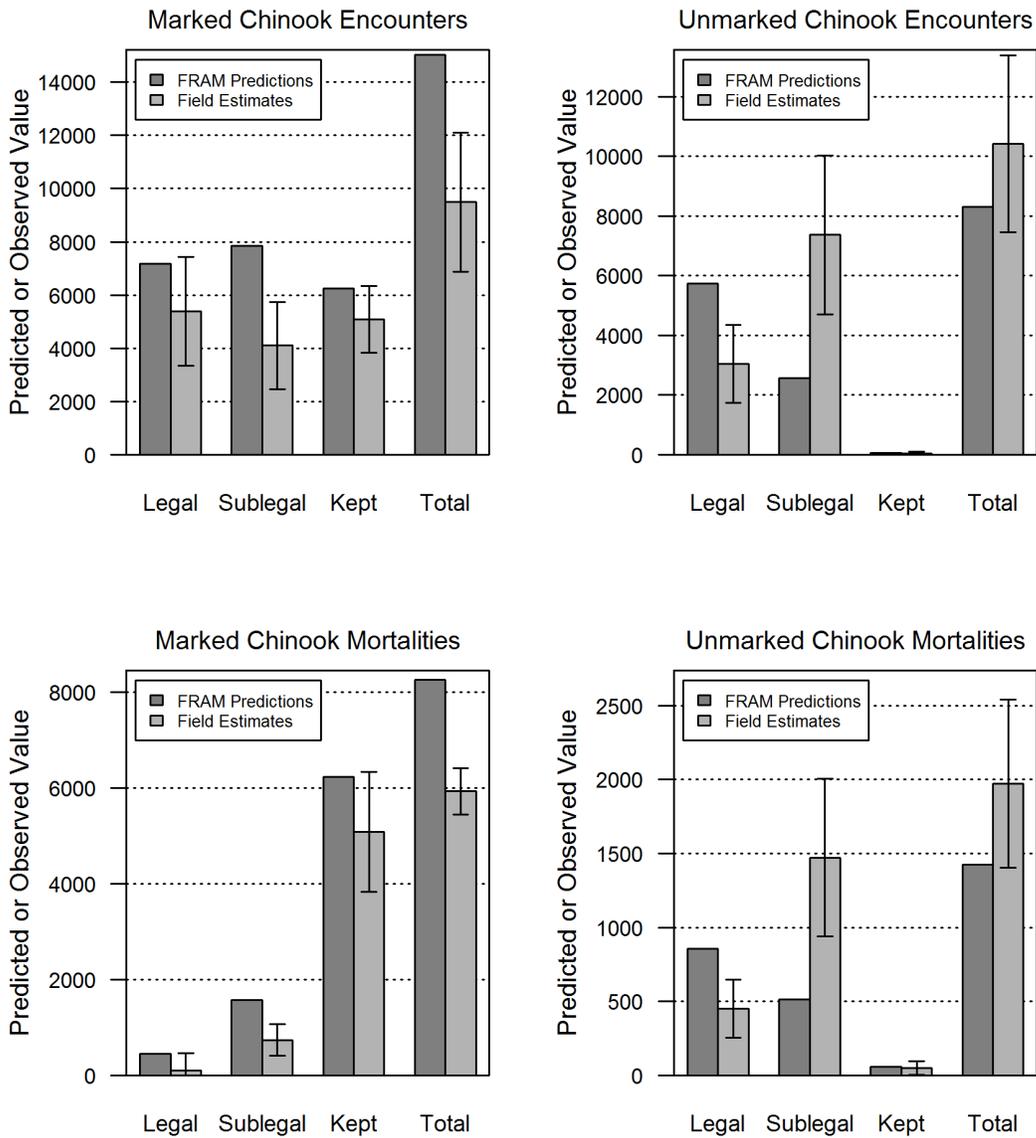
Size/mark group	Encounters	Retained	Released	Release Mortality	Total Mortality	Var	SE	95% CI	CV (%)
Legal AD	5,383	4,684	700	105	4,789	437,579	661	3,492 - 6,085	14
Legal UM	3,046	41	3,005	451	492	10,358	102	292 - 691	21
Sublegal AD	4,108	401	3,707	741	1,143	32,516	180	789 - 1,496	16
Sublegal UM	7,367	8	7,359	1,472	1,480	73,796	272	948 - 2,012	18
<b>Total</b>	<b>19,905</b>	<b>5,134</b>	<b>14,770</b>	<b>2,769</b>	<b>7,903</b>	<b>554,249</b>	<b>744</b>	<b>6,444 - 9,362</b>	<b>9</b>

**Table 1.7** Comparison of modeled (FRAM model run 2814) and estimated total Chinook encounters for the 2014 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	8,300	5,742	2,558	57
	AD	15,020	7,171	7,849	6,239
	Total	23,320	12,913	10,407	6,296
	% Marked	64	56	75	99
Estimated (Creel) Encounters	UM	10,413	3,046	7,367	49
	AD	9,492	5,383	4,108	5,085
	Total	19,905	8,429	11,475	5,134
	% Marked	48	64	36	99

**Table 1.8** Comparison of modeled (FRAM model run 2814) and estimated total Chinook mortalities for the 2014 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)	1,425	8,260	9,685	1,972	5,931	7,903
Released Legal	856	451	1,307	451	105	556
Released Sublegal	512	1,570	2,082	1,472	741	2,213
Landed Only	57	6,239	6,296	49	5,085	5,134



**Figure 1.5** Comparison of modeled (using FRAM, model run 2814) and estimated total Chinook encounters and mortalities for the 2014 summer Chinook MSF in Marine Area 5. Error bars represent approximate 95% confidence intervals for field estimates.

**Table 1.9** Summary of double-index tagged (DIT) Chinook kept by anglers, and estimated total mortality of unmarked DIT Chinook due to hook-and-release impacts resulting from the 2014 summer Chinook MSF in Marine Area 5. AD = marked (adipose-clipped), UM = unmarked.

Hatchery	Brood Year	DITs Obs'd	AD DIT Harvest		UM DIT Enc.	UM DIT Mortality		
			Est.	var(Est.)		Est.	var(Est.)	SE(Est.)
Big Cr Hatchery	2011	7	27.7	81.84	9.3	0.9	0.093	0.81
Clear Creek Hatchery	2010	2	7.9	23.38	8.1	0.8	0.247	0.70
George Adams Hatchery	2009	1	4.0	11.69	4.0	0.4	0.117	0.34
George Adams Hatchery	2010	3	11.9	35.07	12.1	1.2	0.364	1.04
Grovers Cr Hatchery	2010	2	7.9	23.38	7.9	0.8	0.233	0.68
H-Chilliwack River H	2010	5	19.8	58.46	9.7	1.0	0.140	0.84
H-Chilliwack River H	2011	15	59.3	175.37	29.9	3.0	0.447	2.59
Marblemount Hatchery	2011	1	4.0	11.69	4.0	0.4	0.117	0.34
Samish Hatchery	2010	1	4.0	11.69	4.1	0.4	0.126	0.35
Samish Hatchery	2011	12	47.5	140.29	47.1	4.7	1.380	4.07
Soos Creek Hatchery	2010	1	4.0	11.69	4.1	0.4	0.123	0.35
Spring Cr NFH	2011	3	11.9	35.07	11.6	1.2	0.336	1.00
Wallace R Hatchery	2011	1	4.0	11.69	3.9	0.4	0.115	0.34
<b>Total</b>		<b>54</b>	<b>213.6</b>	<b>631.32</b>	<b>155.8</b>	<b>15.6</b>	<b>3.837</b>	<b>13.46</b>

**Table 1.10** Monthly sample rates (Total retained Chinook sampled<sup>1</sup> / Estimated retained Chinook) for the 2014 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	1 Jul - 3 Aug	4,477	38	4,515	1,123	6	1,129	25.0%
August	32 - 33	4 Aug - 15 Aug	609	11	620	169	0	169	27.3%
<b>Season Total</b>			<b>5,085</b>	<b>49</b>	<b>5,134</b>	<b>1,292</b>	<b>6</b>	<b>1,298</b>	<b>25.3%</b>

<sup>1/</sup> Number of retained Chinook sampled includes all retained Chinook inspected for CWT's, from all sites sampled during the 2014 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*) for the 2014 summer Chinook MSF 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	Coho UM	Pink	Sockeye	Coho AD	Coho UM	Coho UK	Sockeye	Unk Salmon
27	1-Jul	6-Jul	301	0	0	10	0	231	19	0	265
28	7-Jul	13-Jul	956	0	0	4	52	842	13	0	516
29	14-Jul	20-Jul	585	0	0	0	52	307	74	0	569
30	21-Jul	27-Jul	1169	12	0	0	145	960	9	0	491
31	28-Jul	3-Aug	1362	30	12	4	121	2133	160	2	134
32	4-Aug	10-Aug	1754	65	0	0	93	2359	68	0	259
33	11-Aug	15-Aug	2119	12	0	0	49	2187	77	0	536
<b>Season Total:</b>			<b>8,246</b>	<b>119</b>	<b>12</b>	<b>19</b>	<b>512</b>	<b>9,019</b>	<b>420</b>	<b>2</b>	<b>2,770</b>
<b>Variance:</b>			911,769	4,148	22	77	15,999	1,251,225	10,875	3	238,116
<b>Standard Error:</b>			955	64	5	9	126	1,119	104	2	488
<b>CV (%):</b>			12	54	38	47	25	12	25	73	18
<b>95% CI:</b>			6,375 - 10,118	0 - 246	3 - 21	1 - 36	264 - 760	6,826 - 11,211	216 - 625	0 - 6	1,813 - 3,726

**Table 1.12** Summary of the total number of anglers intercepted during on-the-water surveys conducted for the 2014 summer Chinook MSF in Marine Area 5. Sites in bold represent those included in the dockside sample frame.

Site Name	Weekend Anglers	Season Total (unadjusted) Size Measure
Coho Resort	18	0.048
<b>Curley's/Straightside</b>	<b>25</b>	<b>0.066</b>
Neah Bay	4	0.011
<b>Olson's East</b>	<b>39</b>	<b>0.103</b>
<b>Olson's Ramp &amp; Docks</b>	<b>147</b>	<b>0.390</b>
<b>Olson's West</b>	<b>8</b>	<b>0.021</b>
Private	3	0.008
Silver King	11	0.029
<b>Van Riper's North</b>	<b>51</b>	<b>0.135</b>
<b>Van Riper's South</b>	<b>71</b>	<b>0.188</b>
<b>Total Anglers</b>	<b>377</b>	<b>1</b>

Two weekend boat surveys were conducted during the 2014 Area 5 summer mark-selective Chinook fishery. Results from these surveys indicated that sites and effort patterns did not change substantially in 2014 compared to past years. Data from these surveys were included with the average of the previous years' site weights to determine site selections and to compute catch and effort estimates. Sites in the summer 2014 sample frame remained the same and included: Olson's East Docks, Olson's West Docks, Olson's Ramp & Docks, Van Riper's North, Van Riper's South and Curley's Resort.

**Table 1.13** Season-total estimates of Chinook encounters by size/mark-status and total estimates of angler effort, summarized for all seasons to date of the Area 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

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

The Washington Department of Fish and Wildlife (WDFW) implemented a twelfth consecutive summer Chinook MSF in Marine Area 6 from July 1 through August 15, 2014. 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 in an effort to improve the return rate of voluntary trip reports, which provide estimates of Chinook encounter rates by size class (legal or sublegal) and mark status (ad-marked or unmarked). An additional WDFW technician was hired to work exclusively on distributing and collecting VTRs from the angling public in Area 6. This technician, along with the dockside samplers, also educated anglers about the VTR program and salmon species identification in a focused effort to increase the sample size of VTR-based encounter data.

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

**Table 2.1** summarizes the parameters estimated and the sampling activities associated with each parameter. Specific procedures used for collecting these data and estimating critical data parameters are presented in detail in our separate Methods Report (WDFW 2012a). In this section we present results from our monitoring activities during the Area 6 summer Chinook MSF, 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.

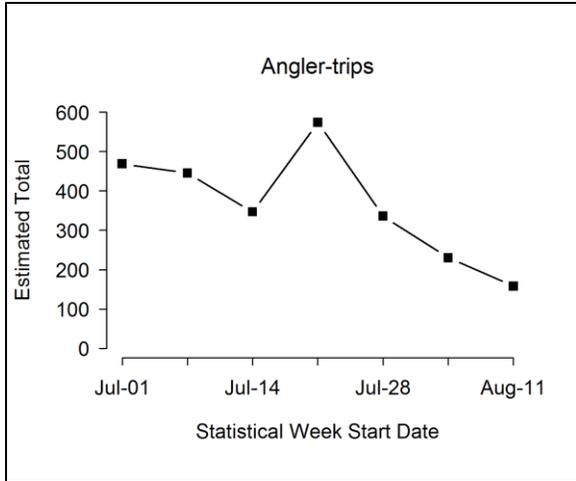
**Table 2.1** Sampling/estimation details on target parameters associated with the overall Area 6 summer mark-selective fishery monitoring program.

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	Encounter data for non-Chinook species (e.g., coho) that the angler may record on the VTR form	Fish encounter	Season	When CRC-based retained Chinook estimates become available VTR data will be used in the estimation of total Chinook encounters by size/mark group (LM = 62%, LU = 23%, SM = 12%, 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 encounters and mortalities, by size/mark-status group	Ratios of encounters and mortalities per kept Chinook	N/A	Season	Will be estimated at a later date using the CRC-based retained Chinook estimate, when it becomes available.
Coded-wire tag (CWT) Impacts Estimation	Marked/unmarked double-index tag (DIT) encounters and mortalities	N/A	N/A	Season	Will be estimated at a later date using the CRC-based retained Chinook estimate, when it becomes available. The temporal resolution of DIT impacts is constrained by the total number of tags recovered.

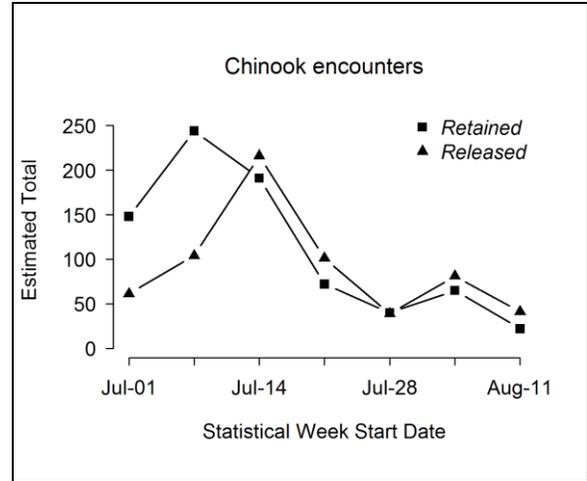
<sup>1</sup> The length and CWT composition of landed catch was assessed on a season-wide basis for impact estimation.

**Table 2.2** Observations of fishing effort, salmon harvest, and reported salmon releases, by week, for the 2014 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.

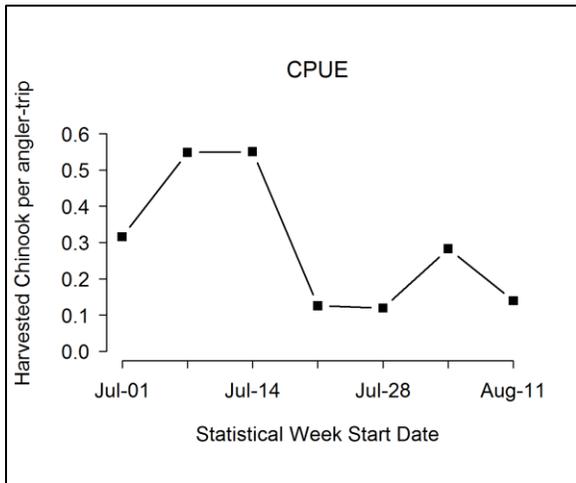
Month	Stat Week	Effort		Retained Fish				Released Fish							
		Boats	Anglers	Chinook		Coho		Chinook			Coho			Pink	Unknown Salmon
				AD	UM	AD	UM	AD	UM	UK	AD	UM	UK		
July	27	222	469	148	0	0	0	6	53	2	0	0	0	0	1
	28	219	445	244	0	2	0	12	89	3	0	5	0	1	6
	29	184	347	191	0	18	0	72	92	52	3	17	11	0	64
	30	286	574	72	0	68	2	17	76	8	21	99	9	0	3
	31	168	336	40	0	3	0	11	22	6	1	3	1	0	7
August	32	121	230	65	0	14	0	15	52	14	0	6	2	0	53
	33	94	158	22	0	2	1	14	15	12	1	4	0	0	33
<b>Season Total:</b>		<b>1,294</b>	<b>2,559</b>	<b>782</b>	<b>0</b>	<b>107</b>	<b>3</b>	<b>147</b>	<b>399</b>	<b>97</b>	<b>26</b>	<b>134</b>	<b>23</b>	<b>1</b>	<b>167</b>



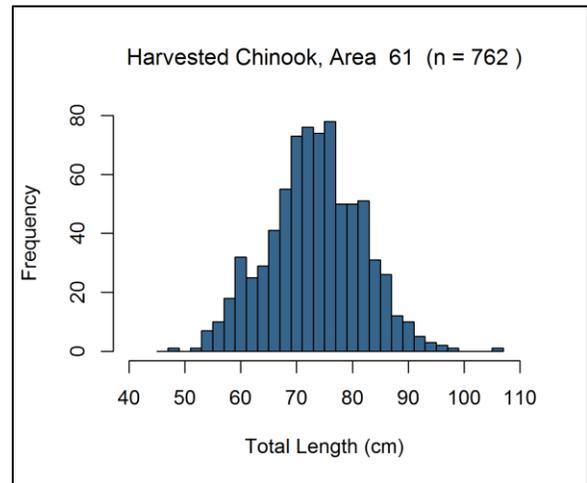
**Figure 2.1** Temporal patterns in fishing effort during the 2014 summer Chinook MSF in Marine Area 6. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates.



**Figure 2.3** Temporal patterns in Chinook encounters (retained and released) during the 2014 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 per angler trip) during the 2014 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 sampled in dockside angler interviews during the 2014 summer Chinook MSF in Marine Area 6.

**Table 2.3** Summary of total length samples from retained Chinook salmon collected during dockside angler interviews in the 2014 summer Chinook MSF in Marine Area 6.

Mark Type	Number Sampled		
	Legal-size	Sublegal-size	Total
Marked	750	12	762
Unmarked	0	0	0
<b>Total</b>	<b>750</b>	<b>12</b>	<b>762</b>

**Table 2.4** Summary of coded-wire tags recovered from Chinook salmon harvested during the 2014 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	Number DITs
B.C. (14%)	Fraser-Thompson R (4.7%)	R-Chilliwack R	H-Chilliwack River H	2 (4.7%)	2
	W. Vancouver Isl (2.3%)	R-Robertson Cr	H-Robertson Creek H	1 (2.3%)	0
	Georgia Strait (7%)	R-Cowichan R	H-Cowichan River H	3 (7%)	0
Washington (76.9%)	N. Washington (4.7%)	Friday Cr 03.0017	Samish Hatchery	1 (2.3%)	1
		East Sound Bay (san)	Glenwood Springs	1 (2.3%)	0
	Hood Canal (27.9%)	Finch Cr 16.0222	Hoodsport Hatchery	8 (18.6%)	0
		Purdy Cr 16.0005	George Adams Hatchry	4 (9.3%)	4
	N. Puget Sound (4.7%)	May Cr 07.0943	Wallace R Hatchery	1 (2.3%)	1
		Wallace R 07.0940	Wallace R Hatchery	1 (2.3%)	0
	Mid Puget Sound (23.3%)	Gorst Cr 15.0216	Gorst Cr Rearing Pnd	2 (4.7%)	0
		Grovers Cr Hatchery	Grovers Cr Hatchery	6 (14%)	1
		Icy Cr 09.0125	Icy Cr Hatchery	2 (4.7%)	0
	S. Puget Sound (16.3%)	Clear Cr 11.0013c	Clear Creek Hatchery	6 (14%)	3
Minter Cr 15.0048		Minter Cr Hatchery	1 (2.3%)	0	
Columbia River (9.2%)	Central Col R (Bnville to McNary) (4.7%)	Spring Cr 29.0159	Spring Cr NFH	1 (2.3%)	1
		Ltl White Salmon@NFH	Ltl White Salmon NFH	1 (2.3%)	0
	Lower Col R (mouth to Bonneville Dam) (4.7%)	Big Cr (Lwr Col R)	Big Cr Hatchery	1 (2.3%)	1
		Tanner Cr (Bnville)	Bonneville Hatchery	1 (2.3%)	0
<b>Total</b>				<b>43</b>	<b>14</b>

**Table 2.5** Total Chinook encountered (retained and released) by private-boat anglers logging their trips on voluntary trip reports (VTRs) during the 2014 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
<b>Private VTR</b>	93 1-trip VTRs, 174 Angler Trips	149	54	28	8	239	0.74	0.73
Combined size/mark-status composition:		0.62	0.23	0.12	0.03			
Variance:		(0.0010)	(0.0007)	(0.0004)	(0.0001)			

**Table 2.6** List of sites sampled with the number of sampling events (site-days) during the 2014 summer Chinook MSF in Marine Area 6.

Location	Site-Days Sampled per Month		Total Site-Days	% of Total
	July (1-31)	August (1-15)		
Freshwater Bay Ramp	6	2	8	13.6%
Ediz Hook Port Angeles Public Ramp	25	13	38	64.4%
Port Angeles West Ramp	8	5	13	22.0%
<b>Grand Total</b>	<b>39</b>	<b>20</b>	<b>59</b>	<b>100%</b>

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

The Washington Department of Fish and Wildlife (WDFW) implemented an eighth consecutive summer Chinook MSF in Marine Area 9 from July 16 through August 15, 2014. WDFW's Puget Sound Sampling Unit (PSSU) implemented an intensive monitoring program in Area 9 throughout the season in order to collect the data needed to estimate key parameters characterizing the fishery and its impacts on unmarked salmon. Sampling activities included intensive dockside creel sampling, on-the-water effort surveys, test fishing and collection of voluntary trip reports (VTRs) from the angling public. **Table 3.1** summarizes the parameters estimated and the sampling activities associated with each parameter. Specific procedures used for collecting these data and estimating critical data parameters are presented in detail in our separate Methods Report (WDFW 2012a). In this section we present results from our monitoring activities during the Area 9 summer Chinook MSF.

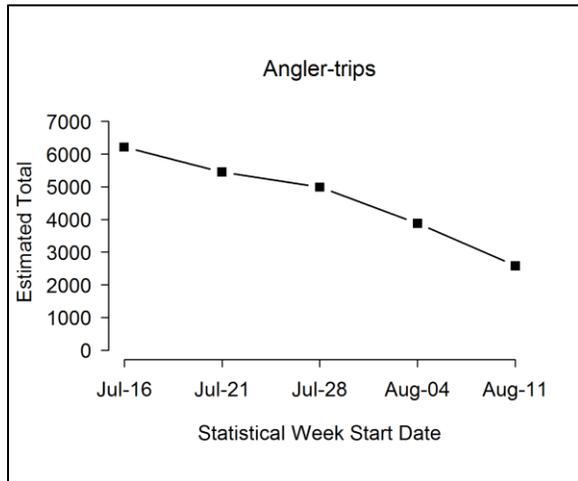
**Table 3.1** Sampling/estimation details on target parameters associated with the overall Area 9 summer mark-selective fishery monitoring program.

Activity	Focal Parameter(s)	Secondary Parameter(s)	Sample Unit(s)	Finest Estimation Time Step	Comments
Dockside Creel Sampling	Fishing effort (boat & angler trips); kept and released fish	Catch rates (CPUE); length, age, and CWT composition of harvest <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 1 month fishery.
Test Fishing	Size (legal/sublegal) and mark-status (marked/unmarked) composition of encountered Chinook	Chinook length, age, and DNA-based <sup>2</sup> stock composition; species composition of non-Chinook encounters	Fish encounter	Season	Given sufficient sample size ( $n=67$ ) of fish caught in the test fishery, we used the test fishery data only to estimate the size/mark-status proportions (LM = 66%, LU = 13%, SM = 15%, SU = 6%; <b>Table 3.5</b> ) needed to produce encounter and mortality estimates.
Voluntary Trip Reports (VTRs)	Size (legal/sublegal) and mark-status (marked/unmarked) composition of encountered Chinook	Encounter data for non-Chinook species (e.g., coho) that the angler may record on the VTR form	Fish encounter	Season	The size/mark-status proportions of VTR data (LM = 41%, LU = 25%, SM = 22%, SU = 13%; <b>Table 3.6</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 encounters and mortalities, by size/mark-status group	Ratios of encounters and mortalities per kept Chinook	N/A	Season	Estimated on a monthly time step but considered at the season-total level.
Coded-wire tag (CWT) Impacts Estimation	Marked/unmarked double-index tag (DIT) encounters and mortalities	N/A	N/A	Season	The temporal resolution of DIT impacts is constrained by the total number of tags recovered.

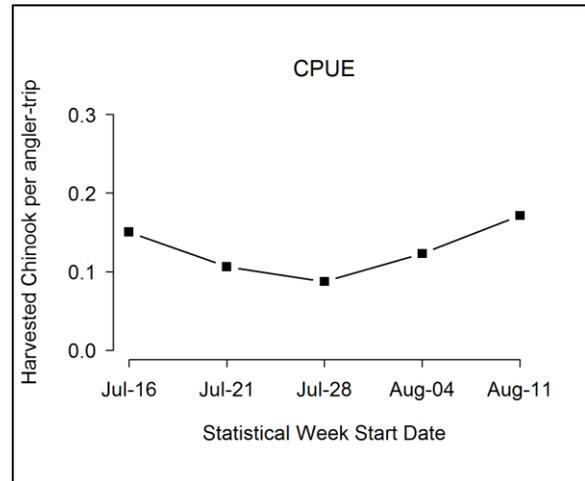
<sup>1</sup> The length and CWT composition of landed catch was assessed on a season-wide basis for impact estimation.<sup>2</sup> Though samples were collected, DNA-based estimates of stock composition are not yet available for this fishery.

**Table 3.2** Estimates of total fishing effort and total salmon catch (harvest and releases) during the 2014 summer Chinook MSF in Marine Area 9. Values may not add exactly due to rounding error. AD = marked (adipose-clipped), UM = unmarked.

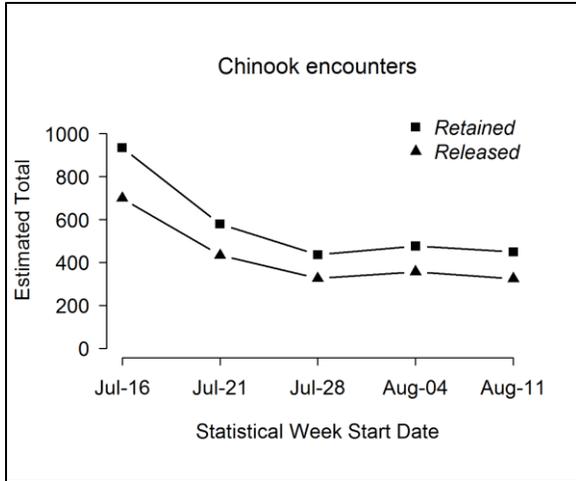
Month	Stat Week	Start Date	End Date	Estimated Effort		Est. Retained Chinook		Est. Released Chinook		Total Est. Chinook Encounters
				Boats	Anglers	AD	UM	AD	UM	
Jul	29	16-Jul	20-Jul	2,879	6,213	935	0	382	317	1,634
	30	21-Jul	27-Jul	2,607	5,450	579	0	237	196	1,012
	31	28-Jul	3-Aug	2,446	4,989	436	0	178	148	762
Aug	32	4-Aug	10-Aug	1,930	3,879	477	0	195	162	833
	33	11-Aug	15-Aug	1,345	2,582	442	6	181	144	773
<b>Season Total:</b>				<b>11,208</b>	<b>23,113</b>	<b>2,869</b>	<b>6</b>	<b>1,173</b>	<b>967</b>	<b>5,015</b>
<b>Variance:</b>				180,964	1,027,169	24,247	25	280,988	70,914	273,297
<b>Standard Error:</b>				425	1,013	156	5	530	266	523
<b>CV (%):</b>				4	4	5	82	45	28	10
<b>95% CI:</b>				10,374 - 12,042	21,126 - 25,099	2,564 - 3,174	0 - 16	134 - 2,212	445 - 1,489	3,990 - 6,039



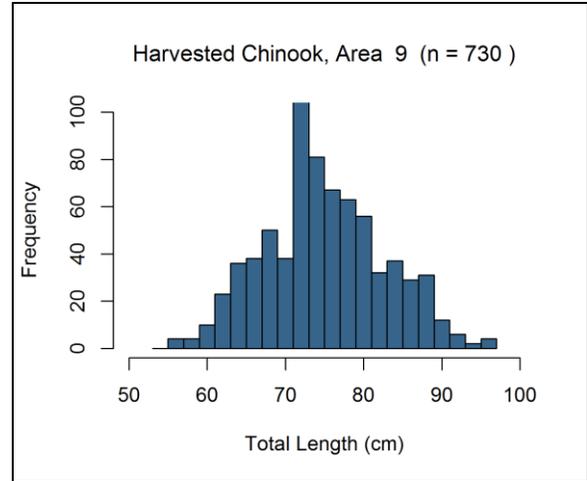
**Figure 3.1** Temporal patterns in fishing effort during the 2014 summer Chinook MSF in Marine Area 9.



**Figure 3.2** Temporal patterns in CPUE (landed Chinook per angler trip) during the 2014 summer Chinook MSF in Marine Area 9.



**Figure 3.3** Temporal patterns in Chinook encounters (retained and released) during the 2014 summer Chinook MSF in Marine Area 9.



**Figure 3.4** Length-frequency distribution of retained marked Chinook sampled in dockside angler interviews during the 2014 summer Chinook MSF in Marine Area 9.

**Table 3.3** Summary of total length samples from retained Chinook salmon collected during dockside angler interviews in the 2014 summer Chinook MSF in Marine Area 9.

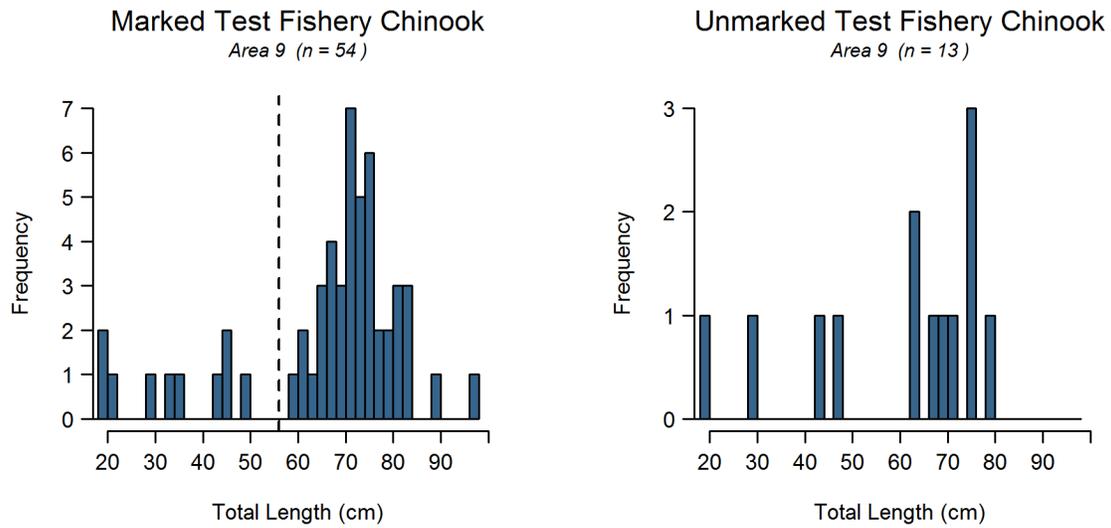
Mark Type	Number Sampled		
	Legal-size	Sublegal-size	Total
Marked	729	1	730
Unmarked	1	0	1
<b>Total</b>	<b>730</b>	<b>1</b>	<b>731</b>

**Table 3.4** Summary of coded-wire tags recovered from Chinook salmon harvested during the 2014 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	Number DITs
B.C. (5.3%)	Fraser–Thompson R (5.3%)	R-Chilliwack R	H-Chilliwack River H	3 (5.3%)	3
Washington (94.8%)	Northern Washington (14%)	Friday Cr 03.0017	Samish Hatchery	6 (10.5%)	6
		East Sound Bay (san)	Glenwood Springs	1 (1.8%)	0
		Boyd Cr 01.0490	Kendall Cr Hatchery	1 (1.8%)	0
	Hood Canal (22.8%)	Purdy Cr 16.0005	George Adams Hatchery	5 (8.8%)	5
		Finch Cr 16.0222	Hoodsport Hatchery	8 (14%)	0
	Northern Puget Sound (12.3%)	May Cr 07.0943	Wallace R Hatchery	1 (1.8%)	1
		Tulalip Cr 07.0001	Bernie Gobin Hatch	1 (1.8%)	0
		Wallace R 07.0940	Wallace R Hatchery	3 (5.3%)	0
		Whitehorse Springs	Stillaguamish Hatch	2 (3.5%)	0
	Skagit River (1.8%)	Co Line Pd2 03.1853b	Marblemount Hatchery	1 (1.8%)	0
	Mid Puget Sound (35.1%)	Gorst Cr 15.0216	Gorst Cr Rearing Pnd	3 (5.3%)	0
		Voight Cr 10.0414	Voights Cr Hatchery	1 (1.8%)	0
		Grovers Cr Hatchery	Grovers Cr Hatchery	12 (21.1%)	4
		Icy Cr 09.0125	Icy Cr Hatchery	4 (7%)	0
	Southern Puget Sound (8.8%)	Clear Cr 11.0013c	Clear Creek Hatchery	3 (5.3%)	0
Minter Cr 15.0048		Minter Cr Hatchery	2 (3.5%)	0	
<b>Total</b>				<b>57</b>	<b>19</b>

**Table 3.5** Composition of test fishery Chinook encounters and associated mark-rate and size/mark-status proportion estimates for the 2014 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	Hours Fished	AD	UM	AD	UM	
29	2	16.4	5	1	0	0	6
30	5	32.0	10	1	2	0	13
31	4	13.5	8	2	2	1	13
32	5	33.3	10	1	1	1	13
33	5	52.3	11	4	5	2	22
<b>Total</b>	<b>21</b>	<b>147.4</b>	<b>44</b>	<b>9</b>	<b>10</b>	<b>4</b>	<b>67</b>
<b>Size/mark-status composition:</b>			0.66 (0.0034)	0.13 (0.0018)	0.15 (0.0019)	0.06 (0.0009)	
<b>Legal size mark rate:</b>			0.83 (0.0027)				
<b>Overall mark rate:</b>			0.81 (0.0024)				



**Figure 3.5** Length-frequency distributions of marked (left panel) and unmarked (right panel) Chinook encountered by test fishers during the 2014 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 3.6** Total Chinook 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 2014 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 Boat VTR	20 1-trip VTRs, 41 Angler Trips	13	8	7	4	32	0.63	0.62
Size/mark-status composition:		0.41	0.25	0.22	0.13			
Variance:		(0.0078)	(0.0060)	(0.0055)	(0.0035)			

Size and mark-status proportions were not significantly different between private boat VTR and test fishery data ( $\chi^2=5.80$ ,  $df=3$ ,  $p\text{-value}=0.122$ ). However, based on sufficient sample size and assumed higher data quality, we used only test fishery data to estimate the size/mark-status proportions needed to produce Chinook encounter and mortality estimates for the Area 9 summer Chinook MSF.

**Table 3.7** Summary of season-wide fishery impact estimates for the 2014 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.

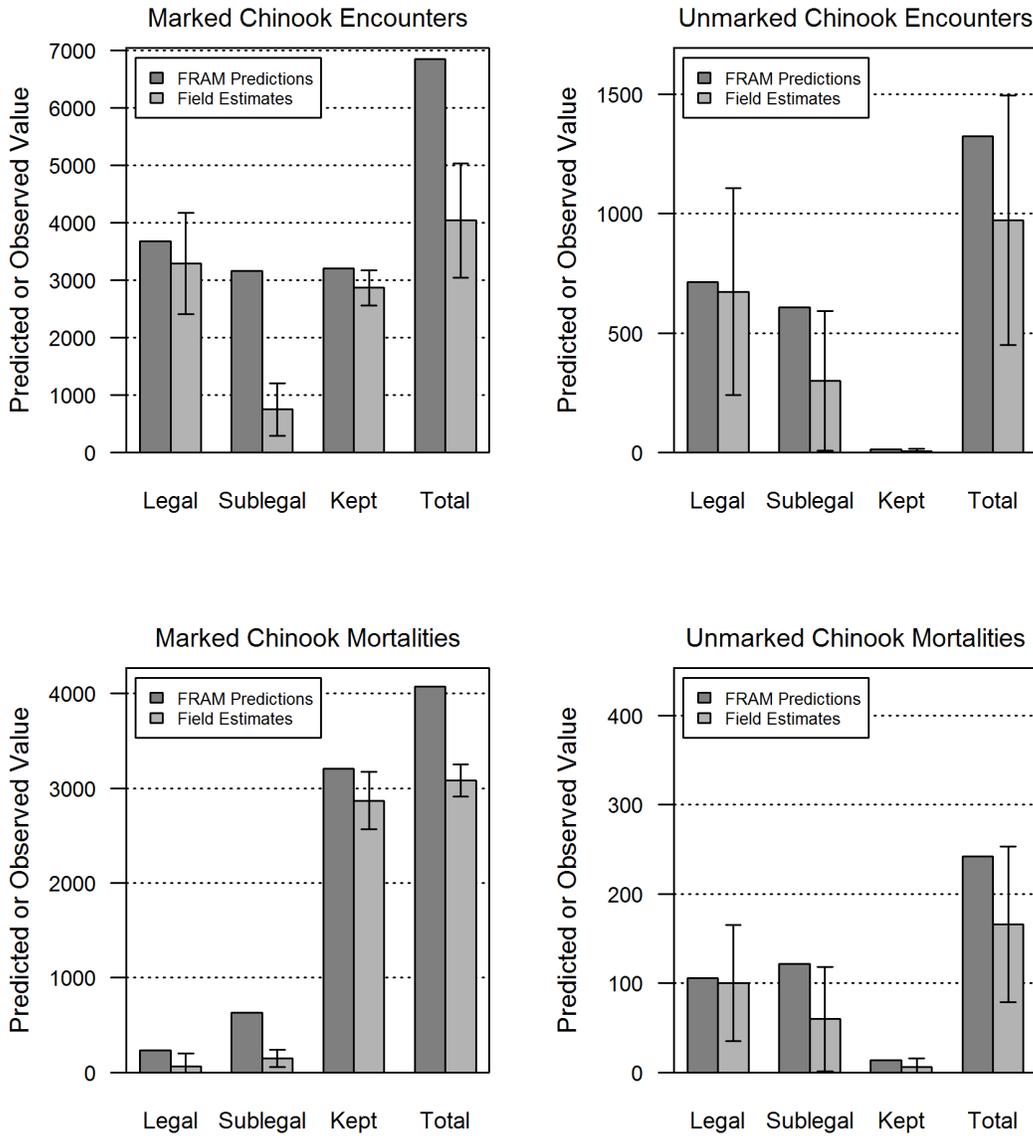
Size/mark group	Encounters	Retained	Released	Release Mortality	Total Mortality	Var	SE	95% CI	CV (%)
Legal AD	3,293	2,865	428	64	2,929	29,305	171	2,594 - 3,265	6
Legal UM	674	6	668	100	106	1,123	34	41 - 172	32
Sublegal AD	748	4	745	149	153	2,174	47	61 - 244	31
Sublegal UM	299	0	299	60	60	885	30	2 - 118	50
<b>Total</b>	<b>5,015</b>	<b>2,875</b>	<b>2,140</b>	<b>373</b>	<b>3,248</b>	<b>33,486</b>	<b>183</b>	<b>2,890 - 3,607</b>	<b>6</b>

**Table 3.8** Comparison of modeled (FRAM model run 2814) and estimated total Chinook encounters for the 2014 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	1,324	715	609	14
	AD	6,850	3,682	3,168	3,204
	Total	8,174	4,397	3,777	3,218
	% Marked	84	84	84	100
Estimated (Creel) Encounters	UM	973	674	299	6
	AD	4,042	3,293	748	2,869
	Total	5,015	3,967	1,048	2,875
	% Marked	81	83	71	100

**Table 3.9** Comparison of modeled (FRAM model run 2814) and estimated total Chinook mortalities for the 2014 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)	242	4,070	4,312	166	3,082	3,248
Released Legal	106	232	338	100	64	164
Released Sublegal	122	634	756	60	149	209
Landed Only	14	3,204	3,218	6	2,869	2,875



**Figure 3.6** Comparison of modeled (using FRAM, model run 2814) and estimated total Chinook encounters and mortalities for the 2014 summer Chinook MSF in Marine Area 9. Error bars represent approximate 95% confidence intervals for field estimates.

**Table 3.10** Summary of double-index tagged (DIT) Chinook kept by anglers, and estimated total mortality of unmarked DIT Chinook due to hook-and-release impacts resulting from the 2014 summer Chinook MSF in Marine Area 9. AD = marked (adipose-clipped), UM = unmarked.

Hatchery	Brood Year	DITs Obs'd	AD DIT Harvest		UM DIT Enc.	UM DIT Mortality		
			Est.	var(Est.)		Est.	var(Est.)	SE(Est.)
George Adams Hatchery	2010	2	7.9	23.07	8.0	0.8	0.239	0.69
George Adams Hatchery	2011	3	11.8	34.61	11.9	1.2	0.351	1.03
Grovers Cr Hatchery	2009	1	3.9	11.54	3.8	0.4	0.107	0.33
Grovers Cr Hatchery	2010	3	7.9	23.07	11.8	4.7	11.767	4.07
H-Chilliwack River H	2010	1	3.9	11.54	1.9	0.2	0.028	0.17
H-Chilliwack River H	2011	2	7.9	23.07	4.0	0.4	0.059	0.34
Samish Hatchery	2010	2	7.9	23.07	8.2	0.8	0.248	0.70
Samish Hatchery	2011	4	15.7	46.15	15.6	1.6	0.454	1.35
Wallace R Hatchery	2011	1	3.9	11.54	3.9	0.4	0.114	0.34
<b>Total</b>		<b>19</b>	<b>70.8</b>	<b>207.67</b>	<b>69.0</b>	<b>10.4</b>	<b>13.367</b>	<b>9.02</b>

**Table 3.11** Monthly sample rates (Total retained Chinook sampled<sup>1</sup> / Estimated retained Chinook) in the 2014 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 - 3 Aug	1,950	0	1,950	487	0	487	25.0%
August	32 - 33	4 Aug - 15 Aug	919	6	925	243	1	244	26.4%
<b>Season Total</b>			<b>2,869</b>	<b>6</b>	<b>2,875</b>	<b>730</b>	<b>1</b>	<b>731</b>	<b>25.4%</b>

<sup>1/</sup> Number of retained Chinook sampled includes all retained Chinook inspected for CWT's, from all sites sampled during the summer 2014 Area 9 Chinook MSF (creel estimates and the fish sampled as part of baseline sampling).

**Table 3.12** Fishery-total estimates of retained and released salmon (*other than Chinook*) in the 2014 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	Cutthroat Trout	Coho AD	Coho UM	Coho UK	Sockeye	Cutthroat Trout	Unk Salmon
29	16-Jul	20-Jul	32	19	0	0	11	23	0	0	53
30	21-Jul	27-Jul	30	19	4	44	19	81	0	0	132
31	28-Jul	3-Aug	84	39	0	3	34	172	0	0	754
32	4-Aug	10-Aug	34	31	0	55	9	141	0	0	409
33	11-Aug	15-Aug	26	28	0	18	16	55	9	32	491
<b>Season Total:</b>			<b>205</b>	<b>136</b>	<b>4</b>	<b>121</b>	<b>89</b>	<b>472</b>	<b>9</b>	<b>32</b>	<b>1,839</b>
<b>Variance:</b>			1,603	952	6	532	358	5,349	64	825	118,284
<b>Standard Error:</b>			40	31	3	23	19	73	8	29	344
<b>CV (%):</b>			19	23	67	19	21	16	87	90	19
<b>95% CI:</b>			127 - 284	76 - 197	0 - 9	76 - 166	52 - 126	328 - 615	0 - 25	0 - 88	1,165 - 2,513

**Table 3.13** Summary of the total number of anglers intercepted during on-the-water surveys conducted for the 2014 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	3	0.002
Bayside Marina/Drystack	3	0.006	17	0.012
Bush Point Ramp	0	0.000	7	0.005
Camano Island State Park Ramp	0	0.000	4	0.003
Cavalero County Park	0	0.000	2	0.001
Coupeville Public Ramp	8	0.015	11	0.008
Dagmar's Landing, Forklift Launch	1	0.002	20	0.014
Driftwood Key Marina	14	0.026	25	0.018
Eagle Harbor Waterfront Park	3	0.006	0	0.000
Edmonds Boat Basin (Public Sling)	10	0.018	71	0.051
<b>Edmonds Dry Storage</b>	<b>15</b>	<b>0.028</b>	<b>17</b>	<b>0.012</b>
Edmonds Marina	71	0.131	63	0.045
Eglon Public Ramp	13	0.024	21	0.015
Elliott Bay Marine	4	0.007	9	0.006
Everett Marina	37	0.068	102	0.073
<b>Everett Ramp</b>	<b>67</b>	<b>0.124</b>	<b>240</b>	<b>0.171</b>
<b>Fort Casey Public Ramp (Keystone)</b>	<b>40</b>	<b>0.074</b>	<b>104</b>	<b>0.074</b>
Fort Flagler Ramps-Marrowstone Is	3	0.006	5	0.004
Fort Worden Ramp	22	0.041	37	0.026
Hadlock Public Ramp	10	0.018	20	0.014
John Wayne Marina	0	0.000	1	0.001
Kingston Marina	4	0.007	10	0.007
<b>Kingston Public Ramp</b>	<b>24</b>	<b>0.044</b>	<b>53</b>	<b>0.038</b>
Lagoon Point Ramp	4	0.007	24	0.017
Langley Marina/Ramp	0	0.000	2	0.001
Marysville Public Ramp	0	0.000	2	0.001
<b>Mukilteo State Park Public Ramp</b>	<b>22</b>	<b>0.041</b>	<b>150</b>	<b>0.107</b>
Mutiny Bay Public Ramp	7	0.013	13	0.009
Mystery Bay Dock/Moorage	0	0.000	21	0.015
Oak Bay Beach Ramp	2	0.004	0	0.000
Point Hudson Marina	6	0.011	16	0.011
Point No Point Beach	3	0.006	3	0.002
Port Hadlock Marina	0	0.000	5	0.004
Port Ludlow Marina/Beach Launch	7	0.013	10	0.007
Port Townsend Boat Haven (Docks)	0	0.000	1	0.001
<b>Port Townsend Boat Haven Ramp</b>	<b>51</b>	<b>0.094</b>	<b>88</b>	<b>0.063</b>
Possession Waterfront Beach Park	5	0.009	20	0.014
Poulsbo Yacht Club	0	0.000	5	0.004
Private	29	0.054	47	0.033
Salmon Club Ramp	3	0.006	3	0.002
Salsbury County Park Ramp	14	0.026	73	0.052
Shilshole Marina	25	0.046	29	0.021
Shilshole Public Ramp	13	0.024	50	0.036
Useless Bay	1	0.002	0	0.000
<b>Total Anglers</b>	<b>541</b>	<b>1.000</b>	<b>1,404</b>	<b>1.000</b>

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

Season Dates	Effort (Angler-trips)	Retained Chinook				Released Chinook				Total Encounters
		LM	LU	SM	SU	LM	LU	SM	SU	
Jul 16 - Jul 31, 2007	18,160	5,094	13	146	20	711	1,111	1,286	317	8,697
Jul 16 - Aug 15, 2008	20,399	4,035	3	10	0	597	1,608	3,212	3,826	13,290
Jul 16 - Aug 31, 2009	42,219	3,090	20	139	0	462	1,272	8,256	2,905	16,143
Jul 16 - Aug 31, 2010	31,200	5,282	33	10	6	740	2,125	750	249	9,194
Jul 16 - Aug 31, 2011	37,862	2,285	19	78	6	339	1,142	2,150	1,070	7,090
Jul 16 - Aug 19, 2012	24,886	6,972	12	101	2	1,039	2,351	5,168	4,721	20,366
Jul 16 - Aug 4, 2013	20,501	4,667	18	39	0	697	1,174	1,750	397	8,742
Jul 16 - Aug 15, 2014	23,113	2,865	6	4	0	428	668	745	299	5,015

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

The Washington Department of Fish and Wildlife (WDFW) implemented an eighth consecutive summer Chinook MSF in Marine Area 10 from July 16 through August 7, 2014. Originally scheduled to close on August 15, 2014, the fishery was closed early, as in-season estimates indicated that the fishery was approaching its preseason modeled expected catch of 1,112 Chinook. WDFW's Puget Sound Sampling Unit (PSSU) implemented an intensive monitoring program in Area 10 throughout the season in order to collect the data needed to estimate key parameters characterizing the fishery and its impacts on unmarked salmon. Sampling activities included intensive dockside creel sampling, on-the-water effort surveys, test fishing and collection of voluntary trip reports (VTRs) from the angling public. **Table 4.1** summarizes the parameters estimated and the sampling activities associated with each parameter. Specific procedures used for collecting these data and estimating critical data parameters are presented in detail in our separate Methods Report (WDFW 2012a). In this section we present results from our monitoring activities during the Area 10 summer Chinook MSF.

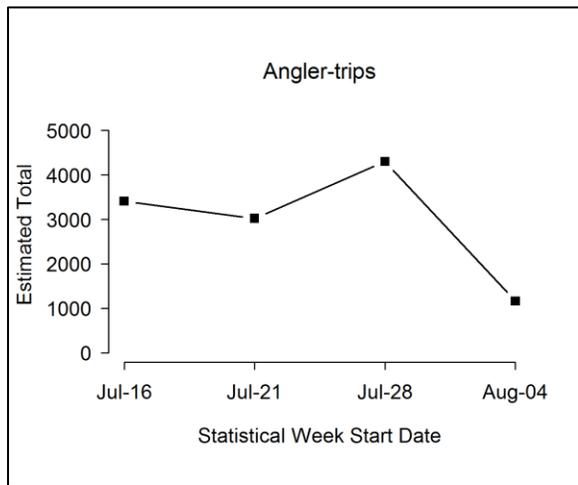
**Table 4.1** Sampling/estimation details on target parameters associated with the overall Area 10 summer mark-selective fishery monitoring program.

Activity	Focal Parameter(s)	Secondary Parameter(s)	Sample Unit(s)	Finest Estimation Time Step	Comments
Dockside Creel Sampling	Fishing effort (boat & angler trips); kept and released fish	Catch rates (CPUE); length, age, and CWT composition of harvest <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 (4 weekday and 3 weekend) were conducted during the 3 week fishery.
Test Fishing	Size (legal/sublegal) and mark-status composition (marked, unmarked) of encountered Chinook	Chinook length, age, and DNA-based <sup>2</sup> stock composition; species composition of non-Chinook encounters	Fish encounter	Season	Due to low sample size of fish caught in the test fishery ( $n=29$ ; LM=11, LU=3, SM=12, SU=3; <b>Table 4.5</b> ), we combined these data with the private VTR dataset to estimate the size/mark-status proportions (LM = 35%, LU = 9%, SM = 47%, SU = 9%) needed to produce encounter and mortality estimates.
Voluntary Trip Reports (VTRs)	Size (legal/sublegal) and mark-status composition (marked, unmarked) of encountered Chinook	Encounter data for non-Chinook species (e.g., coho) that the angler may record on the VTR form	Fish encounter	Season	The size/mark-status proportions of VTR data (LM = 29%, LU = 7%, SM = 57%, SU = 7%; <b>Table 3.6</b> ) were similar to those of the test fishery data and were combined with the test fishing data to estimate the size/mark-status proportions needed to produce encounter and mortality estimates.
Overall Fishery Impacts Estimation	Total Chinook encounters and mortalities, by size/mark-status group	Ratios of encounters and mortalities per kept Chinook	N/A	Season	Estimated on a monthly time step but considered at the season-total level.
Coded-wire tag (CWT) Impacts Estimation	Marked/unmarked double-index tag (DIT) encounters and mortalities	N/A	N/A	Season	The temporal resolution of DIT impacts is constrained by the total number of tags recovered.

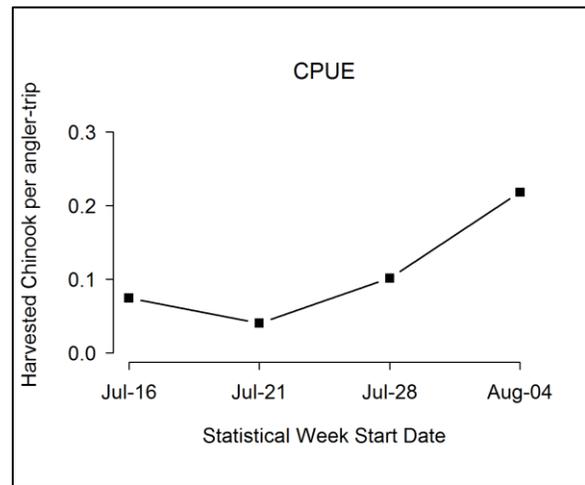
<sup>1</sup>The length and CWT composition of landed catch was assessed on a season-wide basis for impact estimation.<sup>2</sup>Though samples were collected, DNA-based estimates of stock composition are not yet available for this fishery.

**Table 4.2** Estimates of total fishing effort and total salmon catch (harvest and releases) during the 2014 summer Chinook MSF in Marine Area 10. Values may not add exactly due to rounding error. AD = marked (adipose-clipped), UM = unmarked.

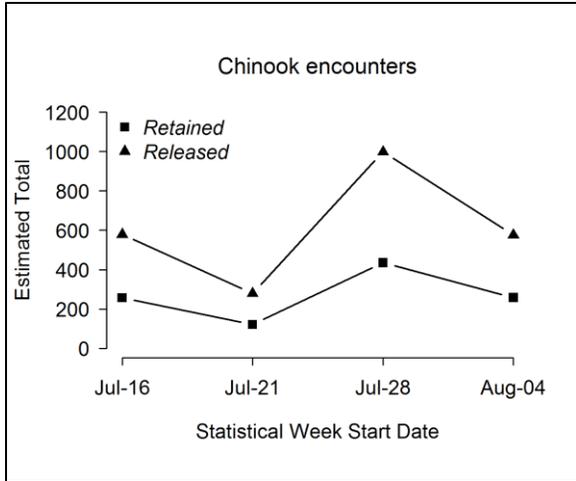
Month	Stat Week	Start Date	End Date	Estimated Effort		Est. Retained Chinook		Est. Released Chinook		Total Est. Chinook Encounters
				Boats	Anglers	AD	UM	AD	UM	
Jul - Aug	29	16-Jul	20-Jul	1,607	3,408	253	3	426	152	835
	30	21-Jul	27-Jul	1,597	3,022	122	0	204	75	400
	31	28-Jul	3-Aug	2,215	4,301	435	0	732	267	1,434
	32	4-Aug	7-Aug	692	1,161	253	5	426	150	834
<b>Season Total:</b>				<b>6,111</b>	<b>11,892</b>	<b>1,063</b>	<b>8</b>	<b>1,788</b>	<b>644</b>	<b>3,503</b>
<b>Variance:</b>				98,534	393,263	7,339	18	350,621	57,645	625,110
<b>Standard Error:</b>				314	627	86	4	592	240	791
<b>CV (%):</b>				5	5	8	53	33	37	23
<b>95% CI:</b>				5,496 - 6,726	10,663 - 13,122	895 - 1,231	0 - 16	628 - 2,949	173 - 1,114	1,954 - 5,053



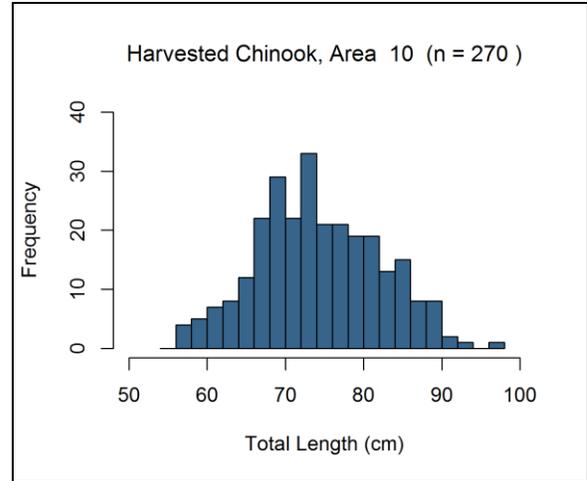
**Figure 4.1** Temporal patterns in fishing effort during the 2014 summer Chinook MSF in Marine Area 10.



**Figure 4.2** Temporal patterns in CPUE (landed Chinook per angler trip) during the 2014 summer Chinook MSF in Marine Area 10.



**Figure 4.3** Temporal patterns in Chinook encounters (retained and released) during the 2014 summer Chinook MSF in Marine Area 10.



**Figure 4.4** Length-frequency distribution of retained marked Chinook sampled in dockside angler interviews during the 2014 summer Chinook MSF in Marine Area 10.

**Table 4.3** Summary of total length samples from retained Chinook salmon collected during dockside angler interviews in the 2014 summer Chinook MSF in Marine Area 10.

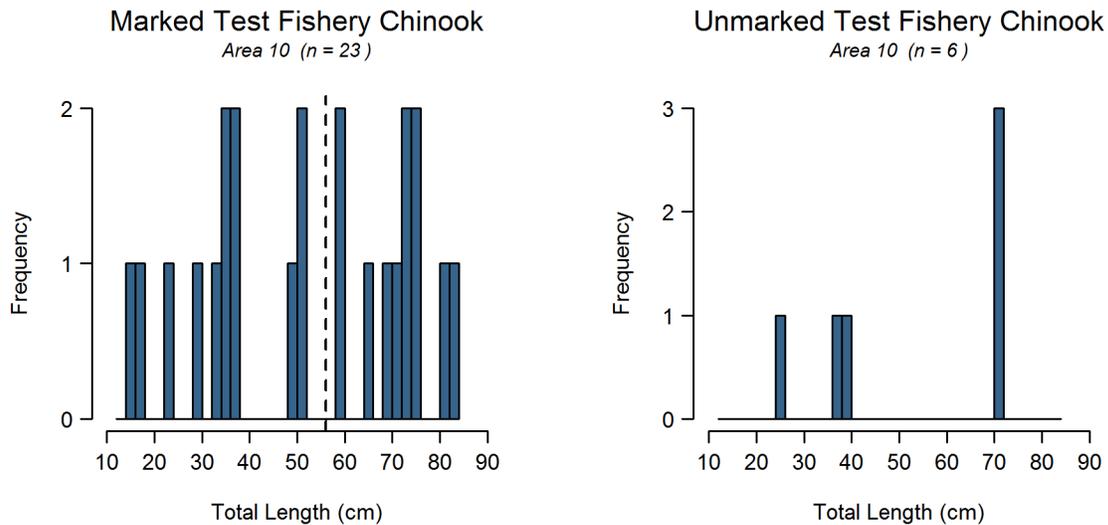
Mark Type	Number Sampled		
	Legal-size	Sublegal-size	Total
Marked	270	0	270
Unmarked	1	1	2
<b>Total</b>	<b>271</b>	<b>1</b>	<b>272</b>

**Table 4.4** Summary of coded-wire tags recovered from Chinook salmon harvested during the 2014 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	Number DITs	
B.C. (12.5%)	Fraser–Thompson R (12.5%)	R-Chilliwack R	H-Chilliwack River H	3 (12.5%)	3	
Washington (42.6%)	Northern Washington (4.2%)	Friday Cr 03.0017	Samish Hatchery	1 (4.2%)	1	
		Purdy Cr 16.0005	George Adams Hatchery	3 (12.5%)	3	
	Hood Canal (29.2%)	Finch Cr 16.0222	Hoodsport Hatchery	4 (16.7%)	0	
		Mid Puget Sound (50%)	Gorst Cr 15.0216	Gorst Cr Rearing Pnd	2 (8.3%)	0
			Big Soos Cr 09.0072	Soos Creek Hatchery	2 (8.3%)	1
			Palmer Hatchery	Keta Creek Complex	1 (4.2%)	0
			Grovers Cr Hatchery	Grovers Cr Hatchery	6 (25%)	2
		Icy Cr 09.0125	Icy Cr Hatchery	1 (4.2%)	0	
S. Puget Sound (4.2%)	Minter Cr 15.0048	Minter Cr Hatchery	1 (4.2%)	0		
<b>Total</b>				<b>24</b>	<b>10</b>	

**Table 4.5** Composition of test fishery Chinook encounters and associated mark-rate and size/mark-status proportion estimates for the 2014 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	Hours Fished	AD	UM	AD	UM	
29	2	8.3	2	0	2	1	5
30	4	25.6	1	0	5	0	6
31	4	24.9	5	3	3	1	12
32	3	17.6	3	0	2	1	6
<b>Total</b>	<b>13</b>	<b>76.4</b>	<b>11</b>	<b>3</b>	<b>12</b>	<b>3</b>	<b>29</b>
<b>Size/mark-status composition:</b>			0.38 (0.0084)	0.10 (0.0033)	0.41 (0.0087)	0.10 (0.0033)	
<b>Legal size mark rate:</b>			0.79 (0.0130)				
<b>Overall mark rate:</b>			0.79 (0.0059)				



**Figure 4.5** Length-frequency distributions of marked (left panel) and unmarked (right panel) Chinook encountered by test fishers during the 2014 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 4.6** Total Chinook 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 2014 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	12 1-trip VTRs, 21 Angler Trips	4	1	8	1	14	0.86	0.80
Size/mark-status composition:		0.29	0.07	0.57	0.07			
Variance:		(0.0157)	(0.0051)	(0.0188)	(0.0051)			

The Fisher's Exact Test revealed that size and mark-status proportions were similar between test fishery and private VTR data ( $p = 0.842$ ). Since the sample size of test fishery data was somewhat small, and given the similarity between the two datasets, we elected to combine the test fishery and private VTR datasets to estimate the size/mark-status proportions (LM = 35%, LU = 9%, SM = 47%, SU = 9%) needed to produce Chinook encounter and mortality estimates for the Area 10 summer Chinook MSF.

**Table 4.7** Summary of season-wide fishery impact estimates for the 2014 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.

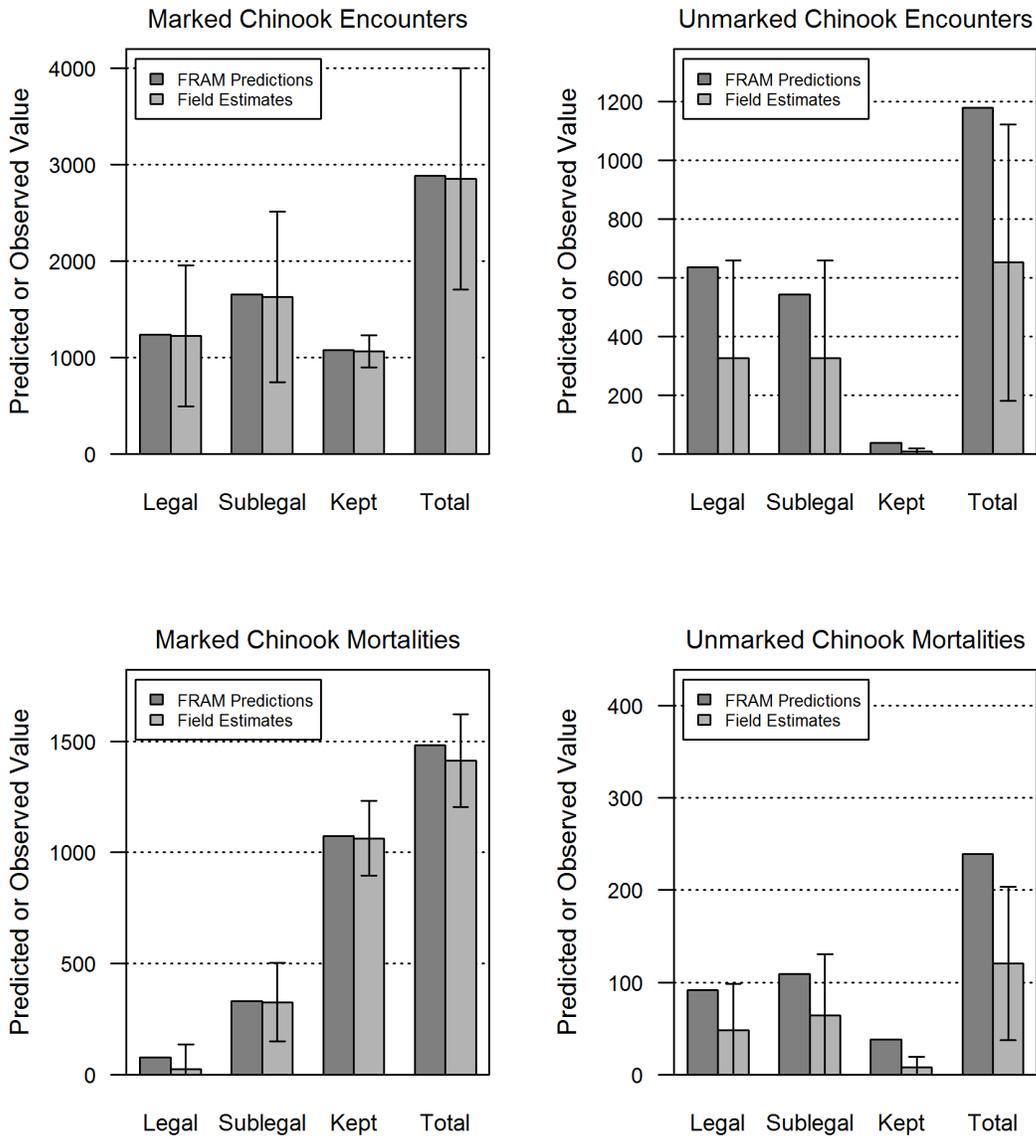
Size/mark group	Encounters	Retained	Released	Release Mortality	Total Mortality	Var	SE	95% CI	CV (%)
Legal AD	1,222	1,063	159	24	1,087	10,633	103	885 - 1,289	9
Legal UM	326	4	322	48	52	665	26	2 - 103	49
Sublegal AD	1,629	0	1,629	326	326	8,169	90	149 - 503	28
Sublegal UM	326	4	322	64	68	1,169	34	1 - 135	50
<b>Total</b>	<b>3,503</b>	<b>1,071</b>	<b>2,432</b>	<b>462</b>	<b>1,534</b>	<b>20,635</b>	<b>144</b>	<b>1,252 - 1,815</b>	<b>9</b>

**Table 4.8** Comparison of modeled (FRAM model run 2814) and estimated total Chinook encounters for the 2014 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	1,179	636	543	38
	AD	2,887	1,234	1,653	1,074
	Total	4,066	1,870	2,196	1,112
	% Marked	71	66	75	97
Estimated (Creel) Encounters	UM	652	326	326	8
	AD	2,851	1,222	1,629	1,063
	Total	3,503	1,548	1,955	1,071
	% Marked	81	79	83	99

**Table 4.9** Comparison of modeled (FRAM model run 2814) and estimated total Chinook mortalities for the 2014 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)	239	1,483	1,722	121	1,413	1,534
Released Legal	92	78	170	48	24	72
Released Sublegal	109	331	440	64	326	390
Landed Only	38	1,074	1,112	8	1,063	1,071



**Figure 4.6** Comparison of modeled (using FRAM model run 2814) and estimated total Chinook encounters and mortalities for the 2014 summer Chinook MSF in Marine Area 10. Error bars represent approximate 95% confidence intervals for field estimates.

**Table 4.10** Summary of double-index tagged (DIT) Chinook kept by anglers, and estimated total mortality of unmarked DIT Chinook due to hook-and-release impacts resulting from the 2014 summer Chinook MSF in Marine Area 10. AD = marked (adipose-clipped), UM = unmarked.

Hatchery	Brood Year	DITs Obs'd	AD DIT Harvest		UM DIT Enc.	UM DIT Mortality		
			Est.	var(Est.)		Est.	var(Est.)	SE(Est.)
George Adams Hatchery	2010	1	3.9	11.57	4.0	0.4	0.120	0.35
George Adams Hatchery	2011	2	7.9	23.14	7.9	0.8	0.235	0.69
Grovers Cr Hatchery	2009	1	3.9	11.57	3.8	0.4	0.108	0.33
Grovers Cr Hatchery	2010	1	3.9	11.57	3.9	0.4	0.115	0.34
H-Chilliwack River H	2011	3	11.8	34.72	6.0	0.6	0.088	0.51
Samish Hatchery	2011	1	3.9	11.57	3.9	0.4	0.114	0.34
Soos Creek Hatchery	2010	1	3.9	11.57	4.0	0.4	0.122	0.35
<b>Total</b>		<b>10</b>	<b>39.4</b>	<b>115.72</b>	<b>33.6</b>	<b>3.4</b>	<b>0.902</b>	<b>2.90</b>

**Table 4.11** Monthly sample rates (Total retained Chinook sampled<sup>1</sup> / Estimated retained Chinook) in the 2014 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 - 3 Aug	810	3	813	209	1	210	25.8%
August	32 - 32	4 Aug - 7 Aug	253	5	258	61	1	62	24.0%
<b>Season Total</b>			<b>1,063</b>	<b>8</b>	<b>1,071</b>	<b>270</b>	<b>2</b>	<b>272</b>	<b>25.4%</b>

<sup>1/</sup> Number of retained Chinook sampled includes all retained Chinook inspected for CWT's, from all sites sampled during the summer 2014 Area 10 Chinook MSF (creel estimates and the fish sampled as part of baseline sampling).

**Table 4.12** Fishery-total estimates of retained and released salmon (*other than Chinook*) in the 2014 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.

Stat Week	Start Date	End Date	Retained Salmon				Released Salmon			
			Coho AD	Coho UM	Pink	Sockeye	Coho AD	Coho UM	Coho UK	Unk Salmon
29	16-Jul	20-Jul	64	95	0	0	42	22	73	404
30	21-Jul	27-Jul	96	52	0	0	51	11	96	316
31	28-Jul	3-Aug	89	72	5	3	60	111	149	503
32	4-Aug	7-Aug	29	25	0	0	15	56	146	210
<b>Season Total:</b>			<b>279</b>	<b>244</b>	<b>5</b>	<b>3</b>	<b>167</b>	<b>201</b>	<b>465</b>	<b>1,434</b>
<b>Variance:</b>			1,470	713	16	4	1,718	1,738	4,735	18,311
<b>Standard Error:</b>			38	27	4	2	41	42	69	135
<b>CV (%):</b>			14	11	76	58	25	21	15	9
<b>95% CI:</b>			204 - 354	191 - 296	0 - 13	0 - 7	85 - 248	119 - 282	330 - 600	1,168 - 1,699

**Table 4.13** Summary of the total number of anglers intercepted during on-the-water surveys conducted for the 2014 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>41</b>	<b>0.067</b>	<b>59</b>	<b>0.077</b>
Bayside Marina/Drystack	4	0.007	3	0.004
Bremerton Pier	12	0.020	15	0.020
Bremerton Yacht Club	0	0.000	7	0.009
<b>Brownsville Marina/Dock/Ramp</b>	<b>26</b>	<b>0.043</b>	<b>64</b>	<b>0.084</b>
Coulon Park	2	0.003	0	0.000
Des Moines Marina (Moorage)	6	0.010	7	0.009
Eagle Harbor Waterfront Park	1	0.002	18	0.023
Edmonds Boat Basin (Public Sling)	32	0.053	50	0.065
Edmonds Dry Storage	46	0.076	41	0.054
Edmonds Marina	46	0.076	64	0.084
Elliott Bay Marine	7	0.012	23	0.030
Everett Marina	11	0.018	2	0.003
Everett Ramp	2	0.003	5	0.007
Evergreen Park Ramp	0	0.000	2	0.003
Harbor Marina	4	0.007	0	0.000
Kingston Marina	8	0.013	18	0.023
<b>Kingston Public Ramp</b>	<b>39</b>	<b>0.064</b>	<b>59</b>	<b>0.077</b>
<b>Manchester Public Ramp</b>	<b>19</b>	<b>0.031</b>	<b>28</b>	<b>0.037</b>
Mukilteo State Park Public Ramp	0	0.000	5	0.007
Point Defiance Boathouse	0	0.000	1	0.001
Point Defiance Public Ramp	0	0.000	5	0.007
Port Madison Marina	2	0.003	0	0.000
Port Orchard Marina	0	0.000	7	0.009
Port Orchard Public Ramp	6	0.010	13	0.017
Poulsbo Ramp/Marina	3	0.005	4	0.005
Poulsbo Yacht Club	2	0.003	2	0.003
Private	26	0.043	34	0.044
Redondo Ramp	2	0.003	4	0.005
Shilshole Marina	105	0.173	65	0.085
<b>Shilshole Public Ramp</b>	<b>144</b>	<b>0.237</b>	<b>140</b>	<b>0.183</b>
Silverdale Waterfront Ramp	0	0.000	2	0.003
South Park - Duwamish	0	0.000	4	0.005
Unknown	0	0.000	2	0.003
Winslow City Ramp	7	0.012	9	0.012
Winslow Marina	5	0.008	4	0.005
<b>Total Anglers</b>	<b>608</b>	<b>1.000</b>	<b>766</b>	<b>1.000</b>

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

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

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

The Washington Department of Fish and Wildlife (WDFW) implemented an eighth consecutive summer Chinook MSF in Marine Area 11 from June 1 through September 30, 2014. WDFW's Puget Sound Sampling Unit (PSSU) implemented an intensive monitoring program in Area 11 throughout the season in order to collect the data needed to estimate key parameters characterizing the fishery and its impacts on unmarked salmon. Sampling activities included dockside creel sampling and collection of voluntary trip reports (VTRs) from the angling public. **Table 5.1** summarizes the parameters estimated and the sampling activities associated with each parameter. Specific procedures used for collecting these data and estimating critical data parameters are presented in detail in our separate Methods Report (WDFW 2012a). In this section we present results from our monitoring activities during the Area 11 summer Chinook MSF.

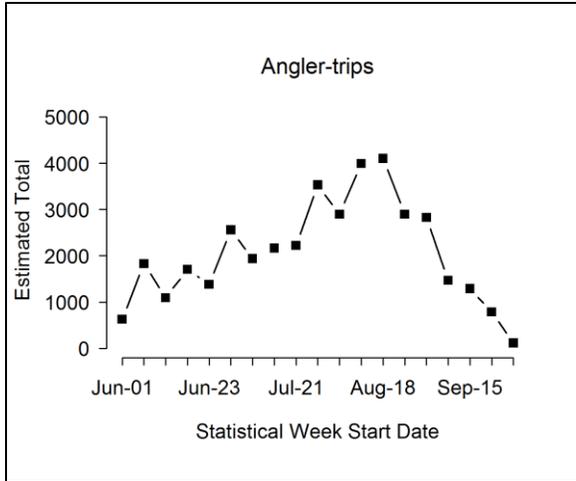
**Table 5.1** Sampling/estimation details on target parameters associated with the overall Area 11 summer mark-selective fishery monitoring program.

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	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 6 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	Encounter data for non-Chinook species (e.g., coho) that the angler may record on the VTR form	Fish encounter	Season	We used VTR data to estimate the size/mark-status proportions (LM = 42%, LU = 20%, SM = 27%, SU = 11%; <b>Table 5.5</b> ) needed to produce encounter and mortality estimates.
Overall Fishery Impacts Estimation	Total Chinook encounters and mortalities, by size/mark-status group	Ratios of encounters and mortalities per kept Chinook	N/A	Season	Estimated on a monthly time step but considered at the season-total level.
Coded-wire tag (CWT) Impacts Estimation	Marked/unmarked double-index tag (DIT) encounters and mortalities	N/A	N/A	Season	The temporal resolution of DIT impacts is constrained by the total number of tags recovered.

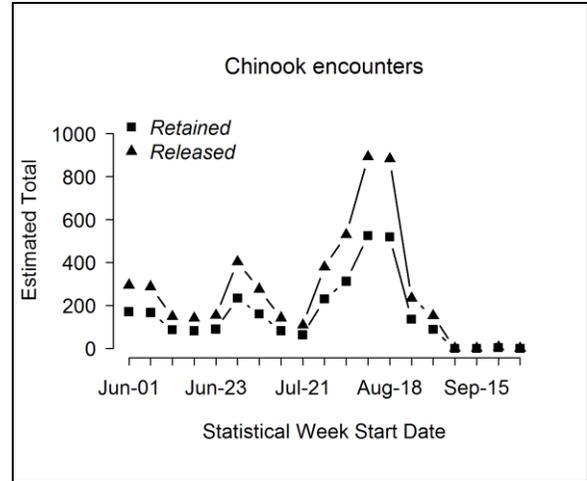
<sup>1</sup> The length and CWT composition of landed catch was assessed on a season-wide basis for impact estimation.

**Table 5.2** Estimates of total fishing effort and total salmon catch (harvest and releases) during the 2014 summer Chinook MSF in Marine Area 11. Values may not add exactly due to rounding error. AD = marked (adipose-clipped), UM = unmarked.

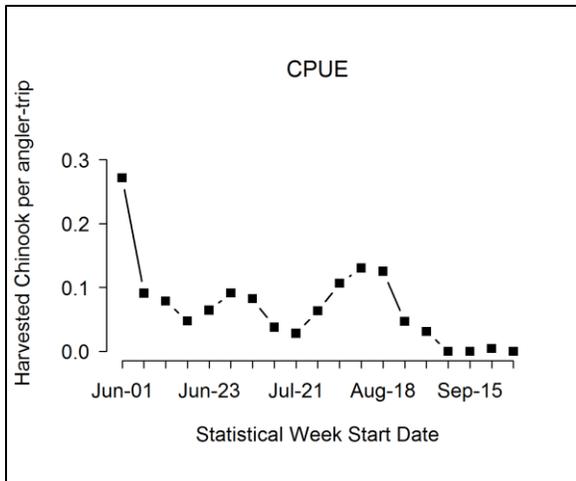
Month	Stat Week	Start Date	End Date	Est. Effort		Est. Retained Chinook		Est. Released Chinook		Est. Total Chinook Encounters
				Boats	Anglers	AD	UM	AD	UM	
<b>Jun</b>	22	1-Jun	1-Jun	361	628	171	0	150	144	465
	23	2-Jun	8-Jun	1,134	1,827	166	0	147	140	453
	24	9-Jun	15-Jun	664	1,094	86	0	76	73	234
	25	16-Jun	22-Jun	908	1,707	81	0	72	69	221
	26	23-Jun	29-Jun	780	1,381	89	0	78	75	242
<b>Jul</b>	27	30-Jun	6-Jul	1,405	2,558	234	0	206	197	636
	28	7-Jul	13-Jul	1,102	1,936	160	0	141	135	435
	29	14-Jul	20-Jul	1,125	2,167	82	0	72	69	223
	30	21-Jul	27-Jul	1,175	2,221	63	0	55	53	171
	31	28-Jul	3-Aug	1,557	3,531	223	7	197	182	609
<b>Aug</b>	32	4-Aug	10-Aug	1,617	2,897	309	4	272	257	841
	33	11-Aug	17-Aug	2,204	3,990	520	5	458	433	1,416
	34	18-Aug	24-Aug	2,242	4,102	514	5	453	429	1,401
	35	25-Aug	31-Aug	1,760	2,898	135	0	119	114	369
<b>Sept</b>	36	1-Sep	7-Sep	1,703	2,828	88	0	78	74	240
	37	8-Sep	14-Sep	771	1,469	0	0	0	0	0
	38	15-Sep	21-Sep	702	1,290	0	0	0	0	0
	39	22-Sep	28-Sep	411	787	3	0	3	3	9
	40	29-Sep	30-Sep	72	116	0	0	0	0	0
<b>Season Total:</b>				<b>21,694</b>	<b>39,426</b>	<b>2,923</b>	<b>20</b>	<b>2,577</b>	<b>2,446</b>	<b>7,966</b>
<b>Variance:</b>				1,147,946	5,046,621	92,790	108	385,964	87,070	905,102
<b>SE:</b>				1,071	2,246	305	10	621	295	951
<b>CV (%):</b>				5	6	10	52	24	12	12
<b>95% CI:</b>				19,594 - 23,794	35,022 - 43,829	2,326 - 3,520	0 - 40	1,359 - 3,794	1,868 - 3,024	6,102 - 9,831



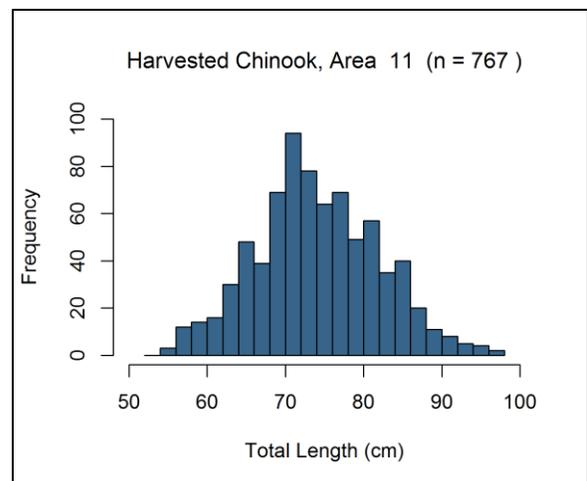
**Figure 5.1** Temporal patterns in fishing effort during the 2014 summer Chinook MSF in Marine Area 11.



**Figure 5.3** Temporal patterns in Chinook encounters (retained and released) during the 2014 summer Chinook MSF in Marine Area 11.



**Figure 5.2** Temporal patterns in CPUE (landed Chinook per angler trip) during the 2014 summer Chinook MSF in Marine Area 11.



**Figure 5.4** Length-frequency distributions of retained marked Chinook sampled in dockside angler interviews during the 2014 summer Chinook MSF in Marine Area 11.

**Table 5.3** Summary of total length samples from retained Chinook salmon collected during dockside angler interviews in the 2014 summer Chinook MSF in Marine Area 11.

Mark Type	Number Sampled		
	Legal-size	Sublegal-size	Total
Marked	764	3	767
Unmarked	3	0	3
<b>Total</b>	<b>767</b>	<b>3</b>	<b>770</b>

**Table 5.4** Summary of coded-wire tags recovered from Chinook salmon harvested during the 2014 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	Number DITs	
B.C. (2.3%)	Fraser–Thompson R (2.3%)	R-Chilliwack R	H-Chilliwack River H	1 (2.3%)	0	
Washington (95.3%)	N. Washington (2.3%)	Friday Cr 03.0017	Samish Hatchery	1 (2.3%)	1	
		Finch Cr 16.0222	Hoodspport Hatchery	1 (2.3%)	0	
	Hood Canal (7%)	Purdy Cr 16.0005	George Adams Hatchry	2 (4.7%)	2	
		Whitehorse Springs	Stillaguamish Hatch	1 (2.3%)	0	
	N. Puget Sound (2.3%)	Skagit River (2.3%)	Cascade R 03.1411	Marblemount Hatchery	1 (2.3%)	1
	Mid Puget Sound (30.2%)	Southern Puget Sound (51.2%)	Big Soos Cr 09.0072	Soos Creek Hatchery	1 (2.3%)	1
			Gorst Cr 15.0216	Gorst Cr Rearing pnd	4 (9.3%)	0
			Grovers Cr Hatchery	Grovers Cr Hatchery	2 (4.7%)	0
			Icy Cr 09.0125	Icy Cr Hatchery	4 (9.3%)	0
			Voight Cr 10.0414	Voights Cr Hatchery	2 (4.7%)	0
Minter Cr 15.0048	Clear Cr 11.0013c	Minter Cr Hatchery	15 (34.9%)	0		
		Clear Creek Hatchery	7 (16.3%)	4		
Col R (2.3%)	U Col R (2.3%)	Columbia Near Wells	Wells Hatchery	1 (2.3%)	0	
<b>Total</b>				<b>43</b>	<b>9</b>	

**Table 5.5** Total Chinook encountered (retained and released) by private-boat anglers logging their trips on voluntary trip reports (VTRs) during the 2014 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	321 1-trip VTRs, 595 Angler Trips	171	82	110	44	407	0.69	0.68
Size/mark-status composition:		0.42	0.20	0.27	0.11			
Variance:		(0.00060)	(0.00040)	(0.00049)	(0.00024)			

**Table 5.6** Summary of season-wide fishery impact estimates for the 2014 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.

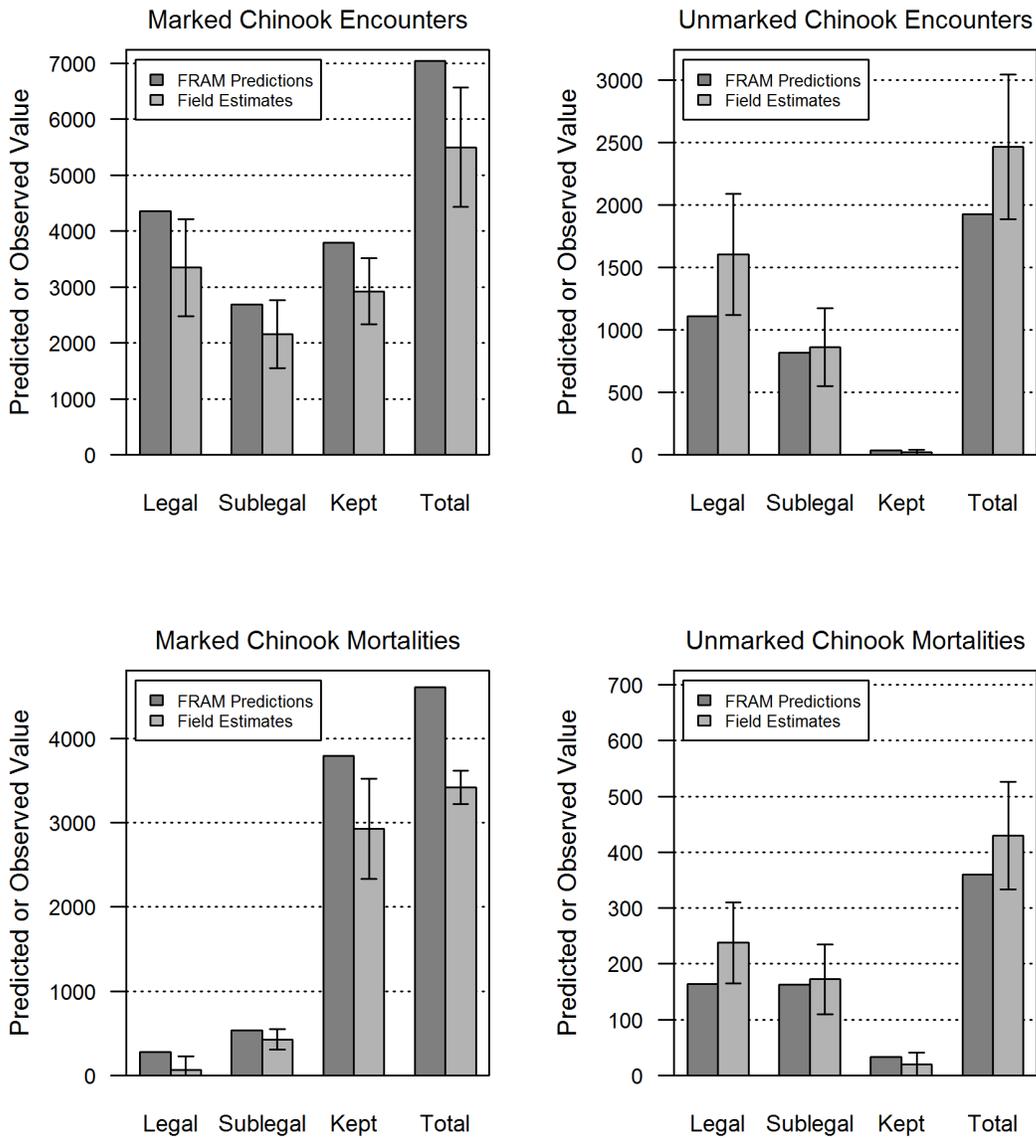
Size/mark group	Encounters	Retained	Released	Release Mortality	Total Mortality	Var	SE	95% CI	CV (%)
Legal AD	3,347	2,912	435	65	2,977	98,621	314	2,362 - 3,593	11
Legal UM	1,605	20	1,585	238	258	1,495	39	182 - 334	15
Sublegal AD	2,153	11	2,142	428	440	3,906	63	317 - 562	14
Sublegal UM	861	0	861	172	172	1,017	32	110 - 235	19
<b>Total</b>	<b>7,966</b>	<b>2,943</b>	<b>5,023</b>	<b>904</b>	<b>3,847</b>	<b>105,039</b>	<b>324</b>	<b>3,212 - 4,482</b>	<b>8</b>

**Table 5.7** Comparison of modeled (FRAM model run 2814) and estimated total Chinook encounters for the 2014 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	1,928	1,111	817	33
	AD	7,046	4,361	2,685	3,794
	Total	8,974	5,472	3,502	3,827
	% Marked	79	80	77	99
Estimated (Creel) Encounters	UM	2,466	1,605	861	20
	AD	5,500	3,347	2,153	2,923
	Total	7,966	4,952	3,014	2,943
	% Marked	69	68	71	99

**Table 5.8** Comparison of modeled (FRAM model run 2814) and estimated total Chinook mortalities for the 2014 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)	360	4,606	4,966	430	3,417	3,847
Released Legal	164	275	439	238	65	303
Released Sublegal	163	537	700	172	428	601
Landed Only	33	3,794	3,827	20	2,923	2,943



**Figure 5.5** Comparison of modeled (FRAM model run 2814) and estimated total Chinook encounters and mortalities for the 2014 summer Chinook MSF in Marine Area 11. Error bars represent approximate 95% confidence intervals for field estimates.

**Table 5.9** Summary of double-index tagged (DIT) Chinook kept by anglers, and estimated total mortality of unmarked DIT Chinook due to hook-and-release impacts resulting from the 2014 summer Chinook MSF in Marine Area 11. AD = marked (adipose-clipped), UM = unmarked.

Hatchery	Brood Year	DITs Obs'd	AD DIT Harvest		UM DIT Enc.	UM DIT Mortality		
			Est.	var(Est.)		Est.	var(Est.)	SE(Est.)
Clear Creek Hatchery	2009	1	3.8	10.79	3.8	0.4	0.109	0.33
Clear Creek Hatchery	2010	3	7.6	21.58	11.7	4.6	11.017	3.96
George Adams Hatchery	2010	2	7.6	21.58	7.8	0.8	0.224	0.67
Marblemount Hatchery	2010	1	3.8	10.79	4.1	0.4	0.126	0.35
Samish Hatchery	2011	1	3.8	10.79	3.8	0.4	0.106	0.33
Soos Creek Hatchery	2010	1	3.8	10.79	3.9	0.4	0.114	0.34
<b>Total</b>		<b>9</b>	<b>30.6</b>	<b>86.32</b>	<b>35.1</b>	<b>7.0</b>	<b>11.696</b>	<b>5.98</b>

**Table 5.10** Monthly sample rates (Total retained Chinook sampled<sup>1</sup> / Estimated retained Chinook) in the 2014 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	22 - 26	1 Jun - 29 Jun	593	0	593	190	0	190	32.0%
July	27 - 31	30 Jun - 3 Aug	761	7	768	179	2	181	23.6%
August	32 - 35	4 Aug - 31 Aug	1,478	13	1,491	384	1	385	25.8%
September	36 - 40	1 Sep - 30 Sep	91	0	91	14	0	14	15.3%
<b>Season Total</b>			<b>2,923</b>	<b>20</b>	<b>2,943</b>	<b>767</b>	<b>3</b>	<b>770</b>	<b>26.2%</b>

<sup>1/</sup> Number of retained Chinook sampled includes all retained Chinook inspected for CWT's, from all sites sampled during the summer 2014 Area 11 Chinook MSF (creel estimates and the fish sampled as part of baseline sampling).

**Table 5.11** Fishery-total estimates of retained and released salmon (other than Chinook) for the 2014 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	Chum	Coho AD	Coho UM	Coho UK	Cutthroat Trout	Unknown Salmon
22	1-Jun	1-Jun	0	0	0	0	0	0	0	2
23	2-Jun	8-Jun	0	0	0	0	0	0	0	0
24	9-Jun	15-Jun	0	0	0	0	0	0	0	0
25	16-Jun	22-Jun	0	0	0	0	0	0	0	0
26	23-Jun	29-Jun	0	0	0	0	0	0	0	0
27	30-Jun	6-Jul	0	0	0	0	0	0	0	0
28	7-Jul	13-Jul	4	0	0	0	0	0	0	3
29	14-Jul	20-Jul	3	0	0	0	0	0	0	15
30	21-Jul	27-Jul	3	0	0	16	16	16	3	47
31	28-Jul	3-Aug	0	0	0	42	8	72	0	74
32	4-Aug	10-Aug	0	0	0	29	9	42	0	101
33	11-Aug	17-Aug	35	8	0	34	5	58	0	255
34	18-Aug	24-Aug	53	15	0	46	26	134	0	201
35	25-Aug	31-Aug	163	89	0	19	31	134	0	103
36	1-Sep	7-Sep	211	162	4	55	16	161	4	131
37	8-Sep	14-Sep	109	64	0	116	3	124	0	16
38	15-Sep	21-Sep	83	20	0	92	4	43	0	31
39	22-Sep	28-Sep	65	44	0	8	4	10	0	25
40	29-Sep	30-Sep	9	0	0	0	0	3	0	7
<b>Season Total:</b>			<b>737</b>	<b>400</b>	<b>4</b>	<b>458</b>	<b>122</b>	<b>796</b>	<b>7</b>	<b>1,011</b>
<b>Variance:</b>			10,485	21,116	8	29,227	1,006	52,469	13	84,691
<b>Standard Error:</b>			102	145	3	171	32	229	4	291
<b>CV (%):</b>			14	36	73	37	26	29	51	29
<b>95% CI:</b>			536 - 938	116 - 685	0 - 9	123 - 793	60 - 184	347 - 1,245	0 - 14	441 - 1,582

**Table 5.12** Summary of the total number of anglers intercepted during on-the-water surveys conducted for the 2014 summer Chinook MSF in Marine Area 11. Sites in bold represent those included in the dockside sample frame.

Site Name	Weekend Anglers	Season Total (unadjusted) Size Measure
<b>Armeni Public Ramp</b>	<b>61</b>	<b>0.053</b>
Breakwater Marina (Warters)	14	0.012
Browns Point Ramp	7	0.006
Brownsville Marina/Dock/Ramp	5	0.004
Burton Ramp	2	0.002
Chambers Bay Beach	1	0.001
Commencement Bay Marina	33	0.029
Dash Point Shore	5	0.004
Day Island Marina	4	0.003
Des Moines Marina (Moorage)	91	0.079
Dockton Ramp, Vashon Is	11	0.010
Eagle Harbor Waterfront Park	13	0.011
Elliott Bay Marine	2	0.002
Fox Island Public Ramp	2	0.002
Gig Harbor Marina	10	0.009
<b>Gig Harbor Ramp</b>	<b>89</b>	<b>0.077</b>
Harbor Isl Marina	4	0.003
Harper Ramp (Yukon Harbor)	3	0.003
Home Public Ramp	3	0.003
Horsehead Bay Ramp	2	0.002
Joemma Beach Ramp	3	0.003
Manchester Public Ramp	27	0.023
Narrows Marina (Private)	18	0.016
<b>Narrows Ramp</b>	<b>33</b>	<b>0.029</b>
Olalla Public Ramp	9	0.008
Point Defiance Boathouse Dock	2	0.002
<b>Point Defiance Boathouse</b>	<b>145</b>	<b>0.126</b>
<b>Point Defiance Public Ramp</b>	<b>262</b>	<b>0.227</b>
Port Madison Marina	3	0.003
Port Orchard Marina	6	0.005
Port Orchard Public Ramp	9	0.008
Private	41	0.036
Quartermaster Marina (Vashon Is)	2	0.002
<b>Redondo Ramp</b>	<b>146</b>	<b>0.127</b>
Shilshole Marina	21	0.018
Shilshole Public Ramp	4	0.003
Solo Point (Tatsolo Pt-Ft Lewis) Rm	1	0.001
Steilacoom Public Ramp	2	0.002
Tacoma Outboard Association	21	0.018
Tacoma Yacht Club	1	0.001
Tyee Marina/Ramp	29	0.025
Unknown	1	0.001
Wollochet Bay Public Ramp	5	0.004
<b>Total Anglers</b>	<b>1153</b>	<b>1.000</b>

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

Season Dates	Effort (Angler-trips)	Retained Chinook				Released Chinook				Total Encounters
		LM	LU	SM	SU	LM	LU	SM	SU	
Jun 1 - Sept 30, 2007	78,958	10,192	74	354	21	1,511	3,015	8,033	2,357	25,558
Jun 1 - Sept 30, 2008	65,728	7,277	18	100	5	1,087	1,999	1,969	248	12,703
Jun 1 - Sept 30, 2009	80,157	3,149	20	117	17	470	1,269	3,820	3,302	12,164
Jun 1 - Sept 30, 2010	54,594	3,883	64	27	0	580	1,105	900	405	6,965
Jun 1 - Sept 30, 2011	69,919	2,559	9	77	12	382	2,120	1,932	1,579	8,670
Jun 1 - Sept 30, 2012	56,065	4,894	57	72	14	731	2,665	2,649	1,157	12,240
Jun 1 - Sept 30, 2013	64,509	3,056	35	55	0	457	1,289	1,214	669	6,774
Jun 1 - Sept 30, 2014	39,426	2,912	20	11	0	435	1,585	2,142	861	7,966

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

The Washington Department of Fish and Wildlife (WDFW) implemented a third consecutive summer Chinook MSF in Marine Area 12 from July 1 through September 30, 2014. WDFW's Puget Sound Sampling Unit (PSSU) implemented a "Baseline Sampling" program (see WDFW 2012a for details) consisting of dockside angler interviews with catch sampling along with efforts to distribute and collect voluntary trip reports (VTRs) from the angling public.

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

**Table 6.1** summarizes the parameters estimated and the sampling activities associated with each parameter. Specific procedures used for collecting these data and estimating critical data parameters are presented in detail in our separate Methods Report (WDFW 2012a). In this section we present results from our monitoring activities during the Area 12 summer Chinook MSF, 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.

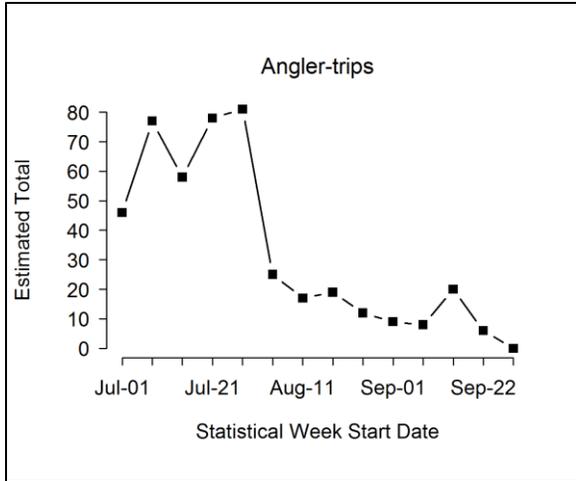
**Table 6.1** Sampling/estimation details on target parameters associated with the overall Area 12 mark-selective fishery monitoring program.

Activity	Focal Parameter(s)	Secondary Parameter(s)	Sample Unit(s)	Finest Estimation Time Step	Comments
Dockside Angler Interviews (Baseline Sampling)	Observed (in-sample) fishing effort (boat & angler trips); kept and released fish.	Catch rates (CPUE); length, age, and CWT composition of harvest <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	Encounter data for non-Chinook species (e.g., coho) that the angler may record on the VTR form	Fish encounter	Season	Limited VTRs were returned for the Area 12 summer Chinook MSF. When CRC-based retained Chinook estimates become available, estimates of total Chinook encounters by size/mark group, along with associated impacts, will likely be estimated using the M1 approach, as outlined in WDFW & NWIFC (2013).
Overall Fishery Impacts Estimation	Total Chinook encounters and mortalities, by size/mark-status group	Ratios of encounters and mortalities per kept Chinook	N/A	Season	Will be estimated at a later date using the CRC-based retained Chinook estimate, when it becomes available.
Coded-wire tag (CWT) Impacts Estimation	Marked/unmarked double-index tag (DIT) encounters and mortalities	N/A	N/A	Season	Will be estimated at a later date using the CRC-based retained Chinook estimate, when it becomes available. The temporal resolution of DIT impacts is constrained by the total number of tags recovered.

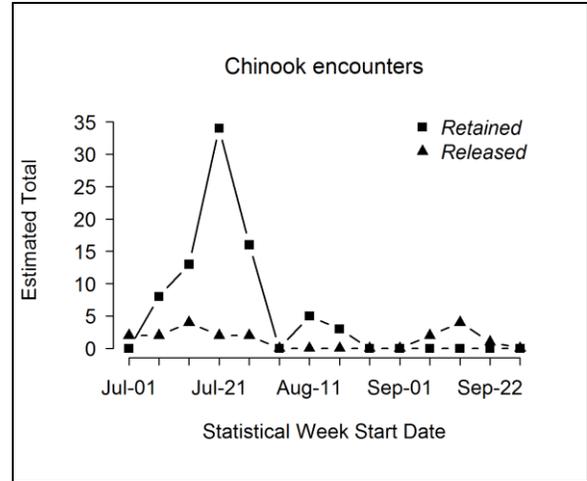
<sup>1</sup> The length and CWT composition of landed catch was assessed on a season-wide basis for impact estimation.

**Table 6.2** Observations of fishing effort, salmon harvest, and reported salmon releases, by week, for the 2014 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.

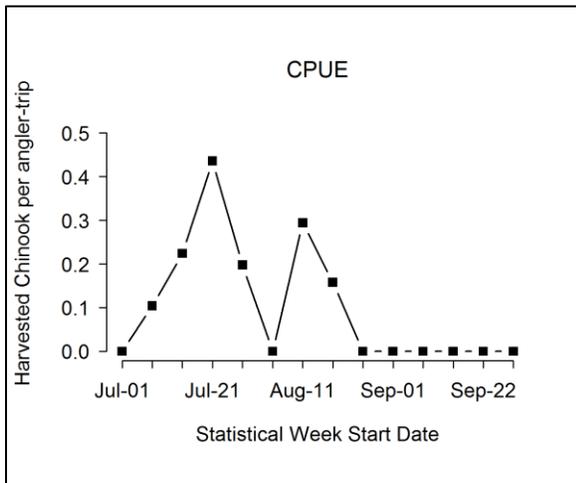
Month	Stat Week	Effort		Retained Fish				Released Fish			
		Boats	Anglers	Chinook		Coho		Chinook			Cutthroat Trout
				AD	UM	AD	UM	AD	UM	UK	
Jul	27	43	46	0	0	0	0	1	1	0	0
	28	75	77	8	0	0	0	0	2	0	0
	29	52	58	13	0	0	0	0	4	0	0
	30	78	78	34	0	0	0	2	0	0	0
	31	81	81	16	0	0	0	0	2	0	0
Aug	32	10	25	0	0	0	0	0	0	0	0
	33	7	17	5	0	0	0	0	0	0	0
	34	8	19	3	0	0	0	0	0	0	0
	35	6	12	0	0	0	0	0	0	0	0
Sept	36	5	9	0	0	0	0	0	0	0	5
	37	5	8	0	0	0	0	2	0	0	5
	38	10	20	0	0	3	0	0	0	4	0
	39	3	6	0	0	0	0	1	0	0	2
	40	0	0	0	0	0	0	0	0	0	0
<b>Total Observed:</b>		<b>383</b>	<b>456</b>	<b>79</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>6</b>	<b>9</b>	<b>4</b>	<b>12</b>



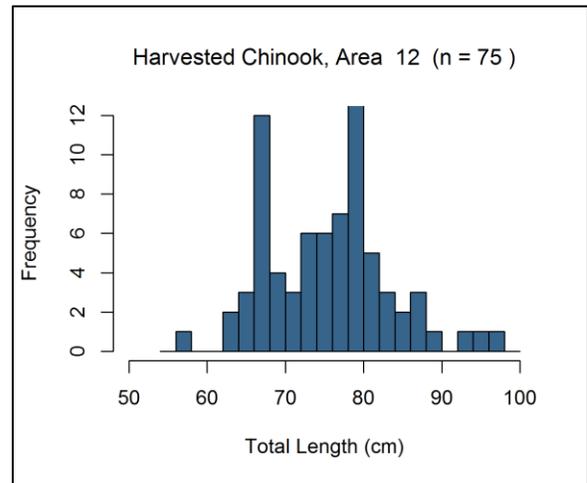
**Figure 6.1** Temporal patterns in fishing effort during the 2014 summer Chinook MSF in Marine Area 12. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates.



**Figure 6.3** Temporal patterns in Chinook encounters (retained and released) during the 2014 summer Chinook MSF in Marine Area 12. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates.



**Figure 6.2** Temporal patterns in CPUE (landed Chinook per angler trip) during the 2014 summer Chinook MSF in Marine Area 12. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates.



**Figure 6.4** Length-frequency distributions of retained marked Chinook sampled in dockside angler interviews during the 2014 summer Chinook MSF in Marine Area 12.

**Table 6.3** Summary of total length samples from retained Chinook salmon collected during dockside angler interviews in the 2014 summer Chinook MSF in Marine Area 12.

Mark Type	Number Sampled		
	Legal-size	Sublegal-size	Total
Marked	61	0	61
Unmarked	0	0	0
<b>Total</b>	<b>61</b>	<b>0</b>	<b>61</b>

**Table 6.4** Summary of coded-wire tags recovered from Chinook salmon harvested during the 2014 summer Chinook MSF in Marine Area 12. The field “Number DITs” corresponds to the number of tags that belonged to double-index tag groups.

Release Domain	Release Region	Release Site	Rearing Location	CWTs Recovered	Number DITs
Washington (100%)	Hood Canal (100%)	Purdy Cr 16.0005	George Adams Hatchery	3 (100%)	3
<b>Total</b>				<b>3</b>	<b>3</b>

**Table 6.5** Total Chinook encountered (retained and released) by private-boat anglers logging their trips on voluntary trip reports (VTRs) during the 2014 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	2 1-trip VTRs, 4 Angler Trips	5	0	0	0	5	1.00	1.00
Size/mark-status composition:		1.00	0.00	0.00	0.00			
Variance:		(0.0000)	(0.0000)	(0.0000)	(0.0000)			

**Table 6.6** List of sites sampled with the number of sampling events (site-days) during the 2014 summer Chinook MSF in Marine Area 12.

Location	Number of Site-Days Sampled per Month			Total Site-Days	% of Total
	Jul	Aug	Sept		
Skokomish Ramp	4	3	3	10	19.2%
Misery Point Ramp	0	0	9	9	17.3%
Salsbury County Park Ramp	0	1	0	1	1.9%
Tahuya Ramp	0	0	2	2	3.8%
Union Ramp	2	9	2	13	25.0%
Hood Canal Marina (Union)	1	0	0	1	1.9%
Skokomish Tide Flats	16	0	0	16	30.8%
<b>Grand Total</b>	<b>23</b>	<b>13</b>	<b>16</b>	<b>52</b>	<b>100%</b>

## 7) Marine Area 13 Summer Mark-Selective Chinook Fishery

The Washington Department of Fish and Wildlife (WDFW) implemented an eighth consecutive summer Chinook MSF in Marine Area 13 from May 1 through September 30, 2014. WDFW's Puget Sound Sampling Unit (PSSU) implemented a "Baseline Sampling" program (see WDFW 2012a for details) consisting of dockside angler interviews with catch sampling along with efforts to distribute and collect voluntary trip reports (VTRs) from the angling public.

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

**Table 7.1** summarizes the parameters estimated and the sampling activities associated with each parameter. Specific procedures used for collecting these data and estimating critical data parameters are presented in detail in our separate Methods Report (WDFW 2012a). In this section we present results from our monitoring activities during the Area 13 summer Chinook MSF, 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.

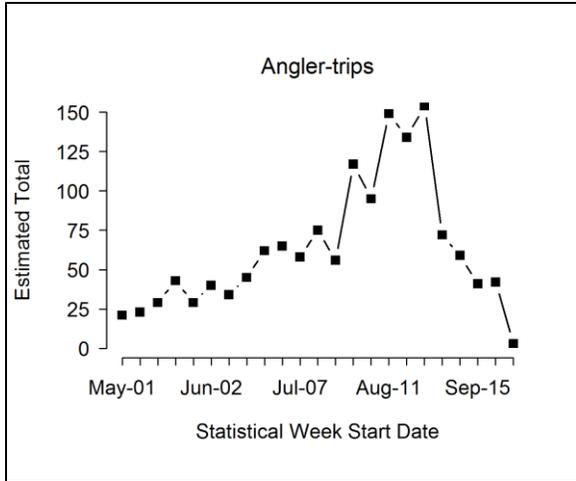
**Table 7.1** Sampling/estimation details on target parameters associated with the overall Area 13 mark-selective fishery monitoring program.

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	Encounter data for non-Chinook species (e.g., coho) that the angler may record on the VTR form	Fish encounter	Season	When CRC-based retained Chinook estimates become available VTR data may be used in the estimation of total Chinook encounters by size/mark group (LM = 82%, LU = 12%, SM = 0%, SU = 6%; <b>Table 7.5</b> ), along with associated impacts, using the methods described in WDFW & NWIFC (2013).
Overall Fishery Impacts Estimation	Total Chinook encounters and mortalities, by size/mark-status group	Ratios of encounters and mortalities per kept Chinook	N/A	Season	Will be estimated at a later date using the CRC-based retained Chinook estimate, when it becomes available.
Coded-wire tag (CWT) Impacts Estimation	Marked/unmarked double-index tag (DIT) encounters and mortalities	N/A	N/A	Season	Will be estimated at a later date using the CRC-based retained Chinook estimate, when it becomes available. The temporal resolution of DIT impacts is constrained by the total number of tags recovered.

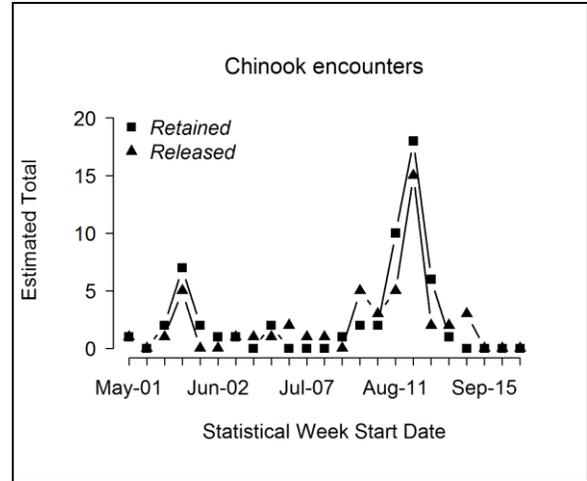
<sup>1</sup> The length and CWT composition of landed catch was assessed on a season-wide basis for impact estimation.

**Table 7.2** Observations of fishing effort, salmon harvest, and reported salmon releases, by week, for the 2014 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.

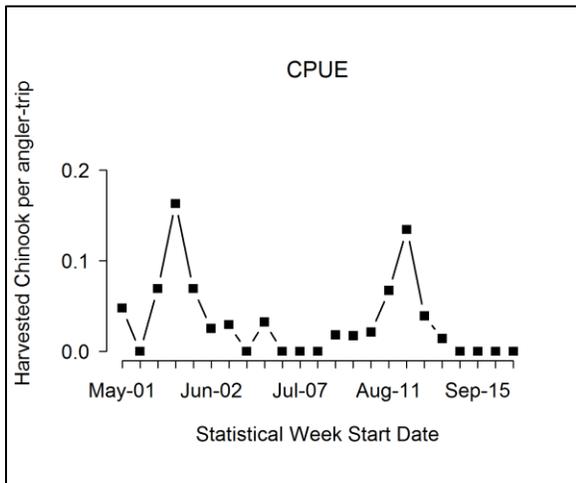
Month	Stat Week	Effort		Retained Fish				Released Fish								
		Boats	Anglers	Chinook		Coho		Chinook			Coho			Steelhead	Cutthroat	Unknown Salmon
				AD	UM	AD	UM	AD	UM	UK	AD	UM	UK			
May	18	10	21	1	0	0	0	0	0	1	0	0	0	0	0	0
	19	15	23	0	0	0	0	0	0	0	0	0	0	0	0	0
	20	19	29	2	0	0	0	0	1	0	0	0	0	0	0	0
	21	19	43	7	0	0	0	0	1	4	0	0	0	0	0	0
	22	16	29	2	0	0	0	0	0	0	0	0	0	0	0	0
Jun	23	18	40	1	0	0	0	0	0	0	0	0	0	0	0	0
	24	15	34	1	0	0	0	0	1	0	0	0	0	0	0	0
	25	26	45	0	0	0	0	0	1	0	0	0	0	0	14	0
	26	30	62	2	0	0	0	0	1	0	0	0	0	0	0	0
Jul	27	30	65	0	0	0	0	0	2	0	0	0	0	0	0	0
	28	28	58	0	0	0	0	0	0	1	0	0	0	0	5	0
	29	36	75	0	0	0	0	0	1	0	0	0	0	0	0	0
	30	33	56	1	0	0	0	0	0	0	0	0	0	0	0	1
	31	55	117	2	0	0	0	0	1	4	0	0	0	0	3	0
Aug	32	49	95	2	0	0	0	0	2	1	0	0	0	0	0	0
	33	71	149	10	0	0	0	2	1	2	0	0	2	0	0	0
	34	69	134	18	0	0	0	1	6	8	0	0	0	0	2	0
	35	77	154	6	0	0	0	1	0	1	1	1	0	1	25	0
Sept	36	36	72	1	0	0	0	1	0	1	0	0	0	0	1	4
	37	39	59	0	0	3	0	0	0	3	0	0	0	0	19	1
	38	27	41	0	0	1	0	0	0	0	0	1	0	0	0	0
	39	24	42	0	0	0	0	0	0	0	1	0	1	0	0	0
	40	3	3	0	0	1	0	0	0	0	0	0	0	0	0	0
<b>Total Observed:</b>		<b>745</b>	<b>1446</b>	<b>56</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>5</b>	<b>18</b>	<b>26</b>	<b>2</b>	<b>2</b>	<b>3</b>	<b>1</b>	<b>69</b>	<b>6</b>



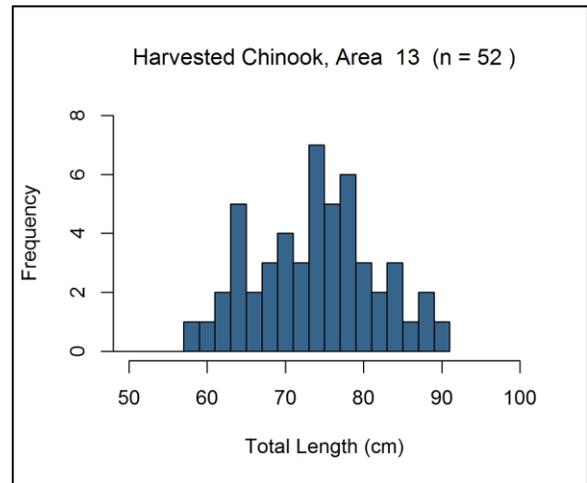
**Figure 7.1** Temporal patterns in fishing effort during the 2014 summer Chinook MSF in Marine Area 13. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates.



**Figure 7.3** Temporal patterns in Chinook encounters (retained and released) during the 2014 summer Chinook MSF in Marine Area 13. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates.



**Figure 7.2** Temporal patterns in CPUE (landed Chinook per angler trip) during the 2014 summer Chinook MSF in Marine Area 13. Note: displayed values are sample observations (summed across sampled sites) and not fishery-total estimates.



**Figure 7.4** Length-frequency distributions of retained marked Chinook sampled in dockside angler interviews during the 2014 summer Chinook MSF in Marine Area 13.

**Table 7.3** Summary of total length samples from retained Chinook salmon collected during dockside angler interviews in the 2014 summer Chinook MSF in Marine Area 13.

Mark Type	Number Sampled		
	Legal-size	Sublegal-size	Total
Marked	51	1	52
Unmarked	0	0	0
<b>Total</b>	<b>51</b>	<b>1</b>	<b>52</b>

**Table 7.4** Summary of coded-wire tags recovered from Chinook salmon harvested during the 2014 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	Number DITs
WA (100%)	S. Puget Sound (100%)	Minter Cr 15.0048	Minter Cr Hatchery	2 (100%)	0
<b>Total</b>				<b>2</b>	<b>0</b>

**Table 7.5** Total Chinook encountered (retained and released) by private-boat anglers logging their trips on voluntary trip reports (VTRs) during the 2014 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	12 1-trip VTRs, 26 Angler Trips	14	2	0	1	17	0.82	0.88
Size/mark-status composition:		0.82	0.12	0.00	0.06			
Variance:		(0.0091)	(0.0065)	(0.0000)	(0.0035)			

**Table 7.6** List of sites sampled with the number of sampling events (site-days) during the 2014 summer Chinook MSF in Marine Area 13.

Location	Number of Site-Days Sampled per Month					Total Site-Days	% of Total
	May	Jun	Jul	Aug	Sept		
Boston Harbor Ramp/Marina	0	3	5	15	15	38	14.9%
Concrete Dock	1	0	0	0	0	1	0.4%
Fox Island Public Ramp	1	2	0	0	0	3	1.2%
Gig Harbor Ramp	0	3	1	0	0	4	1.6%
Gorst Shore	0	0	0	1	0	1	0.4%
Hartstene Is. Ramp	0	1	1	3	6	11	4.3%
Longbranch Public Ramp	0	1	0	0	0	1	0.4%
Luhr Beach Ramp	1	4	8	6	1	20	7.8%
Manchester Public Ramp	0	0	1	0	0	1	0.4%
Narrows Marina (Boathouse, Rental)	1	3	0	5	3	12	4.7%
Narrows Park	0	2	1	0	2	5	2.0%
Narrows Ramp	11	9	4	5	3	32	12.5%
Point Defiance Boathouse	8	3	2	0	0	13	5.1%
Point Defiance Public Ramp	8	8	7	4	1	28	11.0%
Redondo Ramp	0	2	0	0	0	2	0.8%
Solo Point (Tatsolo Pt-Ft Lewis) Rm	1	4	6	12	6	29	11.4%
Steilacoom Public Ramp	1	1	0	4	1	7	2.7%
Swan Town/East Bay Marina/Ramp	0	1	4	6	1	12	4.7%
Wauna Shore	0	0	0	0	1	1	0.4%
Zittels Marina	1	6	8	14	5	34	13.3%
<b>Grand Total</b>	<b>34</b>	<b>53</b>	<b>48</b>	<b>75</b>	<b>45</b>	<b>255</b>	<b>100%</b>

## **ACKNOWLEDGEMENTS**

This review of the 2014 summer Chinook MSFs in Areas 5, 6, 9, 10, 11, 12 and 13 is the result of the dedicated efforts of several individuals. First, we thank the WDFW Puget Sound Sampling Unit (PSSU) field supervisors and their staff, who successfully implemented comprehensive sampling programs during the summer 2013 Chinook MSFs. The PSSU field staff have conducted the dockside creel surveys, test fishery sampling, on-the-water effort surveys, voluntary trip report program, angler education, as well as compiled, error-checked, and delivered high-quality monitoring data to enable mark-selective fishery evaluations. In particular, from Central Sound, we thank Slim Simpson (Central Sound Sampling Supervisor), Jeff McKee, Kathy Young-Berg, Sue Kraemer, Pete Sergeeff, Courtney Adkins, April Bosley, Kendra Baird, Casey Green, Stephen Chandler, Joel Teitge, Daniel Bascom, Area 10 test fishers Joe Short and Ben Nelson, and Area 9 test fishers Christopher Frazier and Toby Black. From the Strait of Juan de Fuca/Peninsula area, we thank Larry Bennett (Peninsula Sampling Supervisor), Connie Warren, Jessica Newberg, Ryan Ollerman, Joseph Boucher, Lorena McGovern, Katherine Vollenweider, Lyle Jennings, James Crook and Tony Rodriguez. From North Sound, we thank Steve Axtell (North Sampling Supervisor), Marcus Thompson, Jim Repoz, Dean Toba, Mary Mureau, Lynn Stricker, Patrick Morrison, Nate Layman, Alexandra Gullikson and Heather McKinnon. From South Sound as well as Hood Canal and the Kitsap Peninsula, we thank Dan O'Brien (South Sound Supervisor), Justin Terry, John Moore, Scott Walker, Cara Crowley, Mary Raymond, Bryan Blazer, Katrina Outland, Robert Green, Tom Matthews, Paul Lorenz, Karen Shields, John Rohr, Yale Johnson, Rodrigo Purpon, Lars Swartling and Maria Garcia-Rojas.

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

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## APPENDICES

**Appendix A.1** Size measures by sample date, for sites sampled during dockside creel surveys in the 2014 summer Chinook MSF in Marine Area 5.

Sample Date	Week	Location #1	Site Size	Location #2	Site Size
7/1/2014	27	Olsen's Ramp	0.3008	Van Ripers South	0.2368
7/5/2014	27	Olsen's East Docks	0.1700	Olsen's Ramp	0.3728
7/6/2014	27	Olsen's Ramp	0.3728	Van Ripers South	0.1954
7/9/2014	28	Curleys Resort	0.0779	Olsen's Ramp	0.3008
7/11/2014	28	Olsen's East Docks	0.1700	Van Ripers North	0.0743
7/13/2014	29	Olsen's Ramp	0.3728	Van Ripers South	0.1954
7/16/2014	29	Olsen's Ramp	0.3008	Van Ripers South	0.2368
7/19/2014	29	Olsen's Ramp	0.3728	Van Ripers South	0.1954
7/20/2014	29	Curleys Resort	0.0881	Olsen's West Docks	0.0994
7/22/2014	30	Van Ripers North	0.1193	Van Ripers South	0.2368
7/25/2014	30	Olsen's Ramp	0.3728	Van Ripers South	0.1954
7/26/2014	30	Olsen's East Docks	0.1700	Van Ripers South	0.1954
7/28/2014	31	Olsen's East Docks	0.1794	Van Ripers North	0.1193
8/1/2014	31	Olsen's West Docks	0.1002	Olsen's Ramp	0.4267
8/2/2014	31	Van Ripers North	0.1368	Van Ripers South	0.1903
8/6/2014	32	Curleys Resort	0.0980	Van Ripers North	0.1657
8/8/2014	32	Olsen's Ramp	0.4267	Van Ripers North	0.1368
8/10/2014	32	Olsen's East Docks	0.0945	Olsen's West Docks	0.1002
8/14/2014	33	Olsen's East Docks	0.1461	Van Ripers South	0.1629

**Appendix A.2** Size measures by sample date, for sites sampled during dockside creel surveys in the 2014 summer Chinook MSF in Marine Area 9.

Sample Date	Week	Location #1	Site Size	Location #2	Site Size
7/16/2014	29	Everett Ramp	0.3099	Port Townsend Boat Haven Ramp	0.3099
7/17/2014	29	Everett Ramp	0.3099	Port Townsend Boat Haven Ramp	0.3099
7/18/2014	29	Everett Ramp	0.2938	Port Townsend Boat Haven Ramp	0.1781
7/19/2014	29	Fort Casey Public Ramp	0.2031	Everett Ramp	0.2938
7/20/2014	29	Everett Ramp	0.2938	Port Townsend Boat Haven Ramp	0.1781
7/22/2014	30	Everett Ramp	0.3099	Port Townsend Boat Haven Ramp	0.3099
7/23/2014	30	Fort Casey Public Ramp	0.2183	Everett Ramp	0.3099
7/25/2014	30	Fort Casey Public Ramp	0.2031	Everett Ramp	0.2938
7/26/2014	30	Everett Ramp	0.2938	Port Townsend Boat Haven Ramp	0.1781
7/27/2014	30	Everett Ramp	0.2938	Port Townsend Boat Haven Ramp	0.1781
7/28/2014	31	Fort Casey Public Ramp	0.2183	Everett Ramp	0.3099
7/31/2014	31	Everett Ramp	0.3099	Kingston Public Ramp	0.0986
8/1/2014	31	Everett Ramp	0.4398	Port Townsend Boat Haven Ramp	0.0934
8/2/2014	31	Everett Ramp	0.4398	Port Townsend Boat Haven Ramp	0.0934
8/3/2014	31	Everett Ramp	0.4398	Port Townsend Boat Haven Ramp	0.0934
8/5/2014	32	Everett Ramp	0.3767	Kingston Public Ramp	0.1010
8/6/2014	32	Fort Casey Public Ramp	0.1119	Everett Ramp	0.3767
8/8/2014	32	Everett Ramp	0.4398	Port Townsend Boat Haven Ramp	0.0934
8/9/2014	32	Mukilteo State Park Public Ramp	0.2319	Port Townsend Boat Haven Ramp	0.0934
8/10/2014	32	Fort Casey Public Ramp	0.1175	Everett Ramp	0.4398
8/11/2014	33	Everett Ramp	0.3767	Port Townsend Boat Haven Ramp	0.1612
8/14/2014	33	Everett Ramp	0.3767	Port Townsend Boat Haven Ramp	0.1612
8/15/2014	33	Everett Ramp	0.4398	Port Townsend Boat Haven Ramp	0.0934

**Appendix A.3** Size measures by sample date, for sites sampled during dockside creel surveys in the 2014 summer Chinook MSF in Marine Area 10.

Sample Date	Week	Location #1	Site Size	Location #2	Site Size
7/16/2014	29	Shilshole Public Ramp	0.5941	Kingston Public Ramp	0.1436
7/17/2014	29	Armeni Public Ramp	0.1188	Shilshole Public Ramp	0.5941
7/18/2014	29	Shilshole Public Ramp	0.4091	Kingston Public Ramp	0.1869
7/19/2014	29	Armeni Public Ramp	0.1566	Shilshole Public Ramp	0.4091
7/20/2014	29	Armeni Public Ramp	0.1566	Shilshole Public Ramp	0.4091
7/22/2014	30	Armeni Public Ramp	0.1188	Shilshole Public Ramp	0.5941
7/23/2014	30	Shilshole Public Ramp	0.5941	Kingston Public Ramp	0.1436
7/25/2014	30	Shilshole Public Ramp	0.4091	Kingston Public Ramp	0.1869
7/26/2014	30	Armeni Public Ramp	0.1566	Shilshole Public Ramp	0.4091
7/27/2014	30	Armeni Public Ramp	0.1566	Armeni Public Ramp	0.0657
7/28/2014	31	Manchester Public Ramp	0.0545	Shilshole Public Ramp	0.5941
7/31/2014	31	Armeni Public Ramp	0.1188	Shilshole Public Ramp	0.5941
8/1/2014	31	Armeni Public Ramp	0.1842	Shilshole Public Ramp	0.3882
8/2/2014	31	Armeni Public Ramp	0.1842	Shilshole Public Ramp	0.3882
8/3/2014	31	Shilshole Public Ramp	0.3882	Kingston Public Ramp	0.1447
8/5/2014	32	Shilshole Public Ramp	0.4692	Kingston Public Ramp	0.0973
8/6/2014	32	Armeni Public Ramp	0.2730	Shilshole Public Ramp	0.4692

**Appendix A.4** Size measures by sample date, for sites sampled during dockside creel surveys in the 2014 summer Chinook MSF in Marine Area 11.

Sample Date	Week	Location #1	Site Size	Location #2	Site Size
6/1/2014	22	Point Defiance Boathouse	0.1665	Point Defiance Public Ramp	0.4605
6/5/2014	23	Point Defiance Boathouse	0.2108	Point Defiance Public Ramp	0.4113
6/6/2014	23	Point Defiance Boathouse	0.1665	Point Defiance Public Ramp	0.4605
6/8/2014	23	Gig Harbor Ramp	0.1160	Point Defiance Public Ramp	0.4605
6/10/2014	24	Point Defiance Boathouse	0.2108	Point Defiance Public Ramp	0.4113
6/13/2014	24	Armeni Public Ramp	0.0796	Point Defiance Public Ramp	0.4605
6/14/2014	24	Narrows Marina	0.0671	Point Defiance Public Ramp	0.4605
6/18/2014	25	Point Defiance Boathouse	0.2108	Point Defiance Public Ramp	0.4113
6/20/2014	25	Narrows Marina	0.0671	Point Defiance Public Ramp	0.4605
6/21/2014	25	Point Defiance Public Ramp	0.4605	Redondo Ramp	0.1103
6/23/2014	26	Gig Harbor Ramp	0.1826	Point Defiance Public Ramp	0.4113
6/27/2014	26	Armeni Public Ramp	0.0796	Point Defiance Public Ramp	0.4605
6/29/2014	26	Point Defiance Boathouse	0.1665	Point Defiance Public Ramp	0.4605
7/1/2014	27	Gig Harbor Ramp	0.1032	Point Defiance Public Ramp	0.5134
7/5/2014	27	Point Defiance Public Ramp	0.4355	Redondo Ramp	0.2353
7/6/2014	27	Point Defiance Boathouse	0.1490	Point Defiance Public Ramp	0.4355
7/9/2014	28	Point Defiance Boathouse	0.1362	Point Defiance Public Ramp	0.5134
7/11/2014	28	Point Defiance Public Ramp	0.4355	Redondo Ramp	0.2353
7/13/2014	28	Point Defiance Public Ramp	0.4355	Redondo Ramp	0.2353
7/16/2014	29	Gig Harbor Ramp	0.1032	Point Defiance Public Ramp	0.5134
7/19/2014	29	Point Defiance Boathouse	0.1490	Point Defiance Public Ramp	0.4355
7/20/2014	29	Armeni Public Ramp	0.0538	Point Defiance Public Ramp	0.4355
7/22/2014	30	Point Defiance Public Ramp	0.5134	Redondo Ramp	0.1254
7/25/2014	30	Point Defiance Boathouse	0.1490	Point Defiance Public Ramp	0.4355
7/26/2014	30	Point Defiance Public Ramp	0.4355	Redondo Ramp	0.2353
7/28/2014	31	Point Defiance Public Ramp	0.5134	Redondo Ramp	0.1254
8/1/2014	31	Point Defiance Public Ramp	0.4689	Redondo Ramp	0.2432
8/2/2014	31	Point Defiance Public Ramp	0.4689	Redondo Ramp	0.2432
8/6/2014	32	Gig Harbor Ramp	0.1134	Point Defiance Public Ramp	0.4091
8/8/2014	32	Point Defiance Boathouse	0.1060	Point Defiance Public Ramp	0.4689
8/10/2014	32	Gig Harbor Ramp	0.0846	Point Defiance Public Ramp	0.4689
8/14/2014	33	Point Defiance Boathouse	0.1423	Point Defiance Public Ramp	0.4091
8/16/2014	33	Point Defiance Public Ramp	0.4689	Redondo Ramp	0.2432
8/17/2014	33	Point Defiance Boathouse	0.1060	Point Defiance Public Ramp	0.4689
8/19/2014	34	Point Defiance Public Ramp	0.4091	Redondo Ramp	0.1975

Sample Date	Week	Location #1	Site Size	Location #2	Site Size
8/23/2014	34	Point Defiance Boathouse	0.1060	Point Defiance Public Ramp	0.4689
8/24/2014	34	Point Defiance Public Ramp	0.4689	Redondo Ramp	0.2432
8/28/2014	35	Point Defiance Public Ramp	0.4091	Redondo Ramp	0.1975
8/29/2014	35	Point Defiance Boathouse	0.1060	Point Defiance Public Ramp	0.4689
8/30/2014	35	Gig Harbor Ramp	0.0846	Point Defiance Public Ramp	0.4689
9/4/2014	36	Point Defiance Public Ramp	0.3180	Redondo Ramp	0.2764
9/5/2014	36	Point Defiance Public Ramp	0.4388	Redondo Ramp	0.3138
9/7/2014	36	Point Defiance Boathouse	0.0825	Point Defiance Public Ramp	0.4388
9/8/2014	37	Point Defiance Public Ramp	0.3180	Redondo Ramp	0.2764
9/12/2014	37	Gig Harbor Ramp	0.1129	Point Defiance Public Ramp	0.4388
9/14/2014	37	Point Defiance Public Ramp	0.4388	Redondo Ramp	0.3138
9/18/2014	38	Point Defiance Boathouse	0.2378	Point Defiance Public Ramp	0.3180
9/19/2014	38	Gig Harbor Ramp	0.1129	Point Defiance Public Ramp	0.4388
9/21/2014	38	Point Defiance Boathouse	0.0825	Point Defiance Public Ramp	0.4388
9/23/2014	39	Gig Harbor Ramp	0.1129	Point Defiance Public Ramp	0.3180
9/26/2014	39	Gig Harbor Ramp	0.1129	Point Defiance Public Ramp	0.4388
9/27/2014	39	Point Defiance Public Ramp	0.4388	Redondo Ramp	0.3138
9/29/2014	40	Point Defiance Public Ramp	0.3180	Redondo Ramp	0.2764

**Appendix B.1** Coded-wire tag (CWT) recoveries in the 2014 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-14	635593	2010	FINCH CR 16.0222	HOODSPORT HATCHERY	WDFW		57	63759	AD
5	1-Jul-14	211011	2011	GROVERS CR HATCHERY	GROVERS CR HATCHERY	SUQ		53	77669	AD
5	1-Jul-14	90571	2011	TANNER CR (BNVILLE)	BONNEVILLE HATCH	ODFW		70	77670	AD
5	1-Jul-14	55233	2011	Ltl White Salmon @ NFH	Ltl White Salmon NFH	FWS		81	77692	AD
5	1-Jul-14	181198	2010	R-Shuswap R Low	H-Shuswap River, Middle,	CDFO		76	77693	AD
5	1-Jul-14	635776	2010	WENATCHEE R 45.0030	DRYDEN POND	WDFW		58	77694	AD
5	1-Jul-14	635693	2010	BIG SOOS CR 09.0072	SOOS CREEK HATCHERY	WDFW	635696	60	77695	AD
5	1-Jul-14	100201	2011	SNAKE @ HLLS CNYON	OXBOW HATCHERY	IDFG		60	77696	AD
5	1-Jul-14	211011	2011	GROVERS CR HATCHERY	GROVERS CR HATCHERY	SUQ		59	77749	AD
5	1-Jul-14	55527	2011	SPRING CR 29.0159	SPRING CR NFH	FWS	055399; 055404; 055528	71	77750	AD
5	1-Jul-14	635768	2010	PURDY CR 16.0005	GEORGE ADAMS HATCH	WDFW	635767	62	77751	AD
5	1-Jul-14	635593	2010	FINCH CR 16.0222	HOODSPORT HATCHERY	WDFW		62	77752	AD
5	1-Jul-14	636095	2011	MINTER CR 15.0048	MINTER CR HATCHERY	WDFW		54	77753	AD
5	1-Jul-14	182068	2011	R-Chilliwack R	H-Chilliwack River H	CDFO	182467; 181982; 180279; 182385	60	77920	AD
5	1-Jul-14	635593	2010	FINCH CR 16.0222	HOODSPORT HATCHERY	WDFW		52	77923	AD
5	2-Jul-14	636095	2011	MINTER CR 15.0048	MINTER CR HATCHERY	WDFW		73	63723	AD
5	2-Jul-14	210957	2010	CLEAR CR 11.0013C	CLEAR CREEK HATCH	NISQ	635692	58	63725	AD
5	2-Jul-14	182068	2011	R-Chilliwack R	H-Chilliwack River H	CDFO	182467; 181982; 180279; 182385	56	63726	AD
5	2-Jul-14	636099	2011	FRIDAY CR 03.0017	SAMISH HATCHERY	WDFW	636098	59	63727	AD
5	2-Jul-14	211004	2011	CLEAR CR 11.0013C	CLEAR CREEK HATCH	NISQ		62	63728	AD
5	2-Jul-14	210964	2010	CO LINE PD2 03.1853B	MARBLEMOUNT HATCH	WDFW		68	77697	AD
5	2-Jul-14	211011	2011	GROVERS CR HATCHERY	GROVERS CR HATCHERY	SUQ		58	77732	AD
5	2-Jul-14	211016	2010	GORST CR 15.0216	GORST CR REARING PND	SUQ		57	77733	AD
5	2-Jul-14	210963	2010	GROVERS CR HATCHERY	GROVERS CR HATCHERY	SUQ	635695	76	77744	AD
5	2-Jul-14	181982	2011	R-Chilliwack R	H-Chilliwack River H	CDFO	182068; 182467; 180279; 182385	56	77746	AD
5	2-Jul-14	635697	2010	FRIDAY CR 03.0017	SAMISH HATCHERY	WDFW	635698	62	77747	AD
5	2-Jul-14	635590	2010	WALLACE R 07.0940	WALLACE R HATCHERY	WDFW		80	77748	AD
5	2-Jul-14	90582	2011	BIG CR (LWR COL R)	BIG CR HATCHERY	ODFW	090583; 090567; 090566	59	77921	AD
5	2-Jul-14	211005	2011	WHITEHORSE SPRINGS	STILLAGUAMISH HATCH	STIL		56	77922	AD
5	5-Jul-14	636099	2011	FRIDAY CR 03.0017	SAMISH HATCHERY	WDFW	636098	61	63729	AD
5	5-Jul-14	55527	2011	SPRING CR 29.0159	SPRING CR NFH	FWS	055399; 055404; 055528	64	63730	AD
5	5-Jul-14	181974	2011	R-Cowichan R	H-Cowichan River H	CDFO		62	63731	AD
5	5-Jul-14	90567	2011	BIG CR (LWR COL R)	BIG CR HATCHERY	ODFW	090583; 090582; 090566	66	63732	AD
5	5-Jul-14	211019	2011	KALAMA CR 11.0017	KALAMA CR HATCHERY	NISQ		51	63734	AD
5	5-Jul-14	181585	2010	R-Shuswap R Low	H-Shuswap River, Middle,	CDFO		79	63762	AD
5	5-Jul-14	181497	2011	R-Harrison R	H-Chehalis River H	CDFO		59	63763	AD
5	5-Jul-14	180279	2011	R-Chilliwack R	H-Chilliwack River H	CDFO	182068; 182467; 181982; 182385	77	63764	AD
5	5-Jul-14	635681	2011	BOYD CR 01.0490	KENDALL CR HATCHERY	WDFW		62	63765	AD

Area	Recovery Date	Tag Code	Brood Year	Release Site	Rearing Hatchery	Release Agency	DIT Codes	FL (cm)	Label	Recovery Mark
5	5-Jul-14	636095	2011	MINTER CR 15.0048	MINTER CR HATCHERY	WDFW		56	77740	AD
5	5-Jul-14	635599	2011	COWLITZ R 26.0002	COWLITZ SALMON H	WDFW		55	77741	AD
5	5-Jul-14	90587	2011	SNAKE R-1 (HELLS CAN	IRRIGON HATCHERY	ODFW		58	77743	AD
5	5-Jul-14	181982	2011	R-Chilliwack R	H-Chilliwack River H	CDFO	182068; 182467; 180279; 182385	58	77745	AD
5	5-Jul-14	100201	2011	SNAKE @ HLLS CNYON	OXBOW HATCHERY	IDFG		62	77754	AD
5	5-Jul-14	181584	2010	R-Chilliwack R	H-Chilliwack River H	CDFO	181679; 181592; 181588; 181590	69	77755	AD
5	5-Jul-14	220321	2010	CAPTAIN JOHNS PD	LYONS FERRY HATCH	NEZP		69	77756	AD
5	5-Jul-14	55513	2011	COLEMAN NFH	COLEMAN NFH	FWS		59	77757	AD
5	5-Jul-14	211011	2011	GROVERS CR HATCHERY	GROVERS CR HATCHERY	SUQ		52	77758	AD
5	5-Jul-14	636099	2011	FRIDAY CR 03.0017	SAMISH HATCHERY	WDFW	636098	59	77759	AD
5	5-Jul-14	636197	2011	VOIGHT CR 10.0414	VOIGHTS CR HATCHERY	WDFW		56	77924	AD
5	5-Jul-14	90586	2011	UMATILLA R	UMATILLA HATCHERY	ODFW		56	77925	AD
5	5-Jul-14	181978	2011	R-Cowichan R	H-Cowichan River H	CDFO		66	77926	AD
5	6-Jul-14	635199	2011	MINTER CR 15.0048	MINTER CR HATCHERY	WDFW		54	63735	AD
5	6-Jul-14	211019	2011	KALAMA CR 11.0017	KALAMA CR HATCHERY	NISQ		51	63737	AD
5	6-Jul-14	211011	2011	GROVERS CR HATCHERY	GROVERS CR HATCHERY	SUQ		59	77008	AD
5	6-Jul-14	211015	2011	TULALIP CR 07.0001	BERNIE GOBIN HATCH	TULA		45	77011	AD
5	6-Jul-14	210973	2010	GORST CR 15.0216	GORST CR REARING PND	SUQ		67	77012	AD
5	6-Jul-14	181196	2010	R-Shuswap R Low	H-Shuswap River, Middle,	CDFO		80	77013	AD
5	6-Jul-14	635768	2010	PURDY CR 16.0005	GEORGE ADAMS HATCH	WDFW	635767	64	77014	AD
5	6-Jul-14	636277	2011	CASCADE R 03.1411	MARBLEMOUNT HATCH	WDFW	636278	51	77735	AD
5	6-Jul-14	210923	2009	TULALIP CR 07.0001	BERNIE GOBIN HATCH	TULA		79	77736	AD
5	6-Jul-14	636166	2011	FINCH CR 16.0222	HOODSPORT HATCHERY	WDFW		60	77738	AD
5	6-Jul-14	635589	2010	ICY CR 09.0125	ICY CR HATCHERY	WDFW		60	77739	AD
5	6-Jul-14	211004	2011	CLEAR CR 11.0013C	CLEAR CREEK HATCH	NISQ		51	77760	AD
5	6-Jul-14	636095	2011	MINTER CR 15.0048	MINTER CR HATCHERY	WDFW		57	77761	AD
5	6-Jul-14	90567	2011	BIG CR (LWR COL R)	BIG CR HATCHERY	ODFW	090583; 090582; 090566	64	77762	AD
5	6-Jul-14	635681	2011	BOYD CR 01.0490	KENDALL CR HATCHERY	WDFW		55	77763	AD
5	6-Jul-14	636197	2011	VOIGHT CR 10.0414	VOIGHTS CR HATCHERY	WDFW		55	77764	AD
5	9-Jul-14	211005	2011	WHITEHORSE SPRINGS	STILLAGUAMISH HATCH	STIL		53	87042	AD
5	9-Jul-14	211005	2011	WHITEHORSE SPRINGS	STILLAGUAMISH HATCH	STIL		70	87043	AD
5	10-Jul-14	181498	2011	R-Harrison R	H-Chehalis River H	CDFO		58	63741	AD
5	10-Jul-14	636264	2011	KALAMA R 27.0002	KALAMA FALLS HATCH	WDFW		50	63742	AD
5	10-Jul-14	635964	2010	COLUMBIA NEAR WELLS	WELLS HATCHERY	WDFW		55	77734	AD
5	10-Jul-14	636166	2011	FINCH CR 16.0222	HOODSPORT HATCHERY	WDFW		53	77737	AD
5	10-Jul-14	90571	2011	TANNER CR (BNVILLE)	BONNEVILLE HATCH	ODFW		61	77927	AD
5	10-Jul-14	211011	2011	GROVERS CR HATCHERY	GROVERS CR HATCHERY	SUQ		58	77929	AD
5	10-Jul-14	90281	2010	ELK R	ELK R HATCHERY	ODFW		70	77932	AD
5	10-Jul-14	55399	2011	SPRING CR 29.0159	SPRING CR NFH	FWS	055404; 055527; 055528	72	77933	AD
5	10-Jul-14	181592	2010	R-Chilliwack R	H-Chilliwack River H	CDFO	181584; 181679; 181588; 181590	77	77945	AD

Area	Recovery Date	Tag Code	Brood Year	Release Site	Rearing Hatchery	Release Agency	DIT Codes	FL (cm)	Label	Recovery Mark
5	10-Jul-14	182068	2011	R-Chilliwack R	H-Chilliwack River H	CDFO	182467; 181982; 180279; 182385	71	87041	AD
5	11-Jul-14	210963	2010	GROVERS CR HATCHERY	GROVERS CR HATCHERY	SUQ	635695	71	77768	AD
5	11-Jul-14	635589	2010	ICY CR 09.0125	ICY CR HATCHERY	WDFW		72	77935	AD
5	11-Jul-14	636095	2011	MINTER CR 15.0048	MINTER CR HATCHERY	WDFW		52	77936	AD
5	11-Jul-14	90587	2011	SNAKE R-1 (HELLS CAN	IRRIGON HATCHERY	ODFW		71	77951	AD
5	12-Jul-14	211005	2011	WHITEHORSE SPRINGS	STILLAGUAMISH HATCH	STIL		55	77698	AD
5	12-Jul-14	636416	2011	COWLITZ R 26.0002	COWLITZ SALMON H	WDFW		62	77704	AD
5	12-Jul-14	636099	2011	FRIDAY CR 03.0017	SAMISH HATCHERY	WDFW	636098	57	77705	AD
5	12-Jul-14	211004	2011	CLEAR CR 11.0013C	CLEAR CREEK HATCH	NISQ		54	77706	AD
5	12-Jul-14	211005	2011	WHITEHORSE SPRINGS	STILLAGUAMISH HATCH	STIL		57	77937	AD
5	12-Jul-14	636099	2011	FRIDAY CR 03.0017	SAMISH HATCHERY	WDFW	636098	54	77938	AD
5	13-Jul-14	211004	2011	CLEAR CR 11.0013C	CLEAR CREEK HATCH	NISQ		58	77699	AD
5	13-Jul-14	181982	2011	R-Chilliwack R	H-Chilliwack River H	CDFO	182068; 182467; 180279; 182385	60	77700	AD
5	13-Jul-14	181386	2010	R-Shuswap R Low	H-Shuswap River, Middle,	CDFO		83	77709	AD
5	13-Jul-14	181498	2011	R-Harrison R	H-Chehalis River H	CDFO		57	77710	AD
5	13-Jul-14	181498	2011	R-Harrison R	H-Chehalis River H	CDFO		63	77711	AD
5	13-Jul-14	90587	2011	SNAKE R-1 (HELLS CAN	IRRIGON HATCHERY	ODFW		60	77721	AD
5	13-Jul-14	635768	2010	PURDY CR 16.0005	GEORGE ADAMS HATCH	WDFW	635767	59	77731	AD
5	13-Jul-14	211011	2011	GROVERS CR HATCHERY	GROVERS CR HATCHERY	SUQ		56	77952	AD
5	13-Jul-14	211011	2011	GROVERS CR HATCHERY	GROVERS CR HATCHERY	SUQ		55	87351	AD
5	15-Jul-14	211017	2010	GORST CR 15.0216	GORST CR REARING PND	SUQ		57	63748	AD
5	15-Jul-14	182068	2011	R-Chilliwack R	H-Chilliwack River H	CDFO	182467; 181982; 180279; 182385	67	63749	AD
5	15-Jul-14	182068	2011	R-Chilliwack R	H-Chilliwack River H	CDFO	182467; 181982; 180279; 182385	59	63750	AD
5	16-Jul-14	635199	2011	MINTER CR 15.0048	MINTER CR HATCHERY	WDFW		55	71794	AD
5	16-Jul-14	211016	2010	GORST CR 15.0216	GORST CR REARING PND	SUQ		52	71795	AD
5	16-Jul-14	181498	2011	R-Harrison R	H-Chehalis River H	CDFO		60	71796	AD
5	17-Jul-14	90566	2011	BIG CR (LWR COL R)	BIG CR HATCHERY	ODFW	090583; 090582; 090567	60	63751	AD
5	17-Jul-14	181497	2011	R-Harrison R	H-Chehalis River H	CDFO		56	63752	AD
5	17-Jul-14	210998	2011	PALMER HATCHERY	KETA CREEK COMPLEX	MUCK		54	77943	AD
5	18-Jul-14	636416	2011	COWLITZ R 26.0002	COWLITZ SALMON H	WDFW		54	63755	AD
5	18-Jul-14	211004	2011	CLEAR CR 11.0013C	CLEAR CREEK HATCH	NISQ		55	70366	AD
5	18-Jul-14	90566	2011	BIG CR (LWR COL R)	BIG CR HATCHERY	ODFW	090583; 090582; 090567	75	77671	AD
5	19-Jul-14	635593	2010	FINCH CR 16.0222	HOODSPORT HATCHERY	WDFW		74	70071	AD
5	19-Jul-14	211011	2011	GROVERS CR HATCHERY	GROVERS CR HATCHERY	SUQ		54	70368	AD
5	19-Jul-14	181592	2010	R-Chilliwack R	H-Chilliwack River H	CDFO	181584; 181679; 181588; 181590	77	71815	AD
5	19-Jul-14	184931	2011	R-Shuswap R Low	H-Shuswap River, Middle,	CDFO		66	71816	AD
5	19-Jul-14	636489	2012	FINCH CR 16.0222	HOODSPORT HATCHERY	WDFW		35	77954	AD
5	19-Jul-14	90568	2012	TANNER CR (BNVILLE)	BONNEVILLE HATCH	ODFW		38	77955	AD
5	20-Jul-14	181982	2011	R-Chilliwack R	H-Chilliwack River H	CDFO	182068; 182467; 180279; 182385	59	70088	AD
5	20-Jul-14	182068	2011	R-Chilliwack R	H-Chilliwack River H	CDFO	182467; 181982; 180279; 182385	69	77672	AD

Area	Recovery Date	Tag Code	Brood Year	Release Site	Rearing Hatchery	Release Agency	DIT Codes	FL (cm)	Label	Recovery Mark
5	20-Jul-14	635590	2010	WALLACE R 07.0940	WALLACE R HATCHERY	WDFW		71	77775	AD
5	21-Jul-14	636168	2011	MAY CR 07.0943	WALLACE R HATCHERY	WDFW	636169	55	77674	AD
5	21-Jul-14	636197	2011	VOIGHT CR 10.0414	VOIGHTS CR HATCHERY	WDFW		52	77773	AD
5	21-Jul-14	211019	2011	KALAMA CR 11.0017	KALAMA CR HATCHERY	NISQ		53	77777	AD
5	22-Jul-14	636173	2011	SIMILKAMEEN R 490325	SIMILKAMEEN HATCH	WDFW		57	70094	AD
5	22-Jul-14	636099	2011	FRIDAY CR 03.0017	SAMISH HATCHERY	WDFW	636098	58	71758	AD
5	24-Jul-14	181978	2011	R-Cowichan R	H-Cowichan River H	CDFO		60	87045	AD
5	24-Jul-14	635366	2009	PURDY CR 16.0005	GEORGE ADAMS HATCH	WDFW	635367	73	87365	AD
5	25-Jul-14	210957	2010	CLEAR CR 11.0013C	CLEAR CREEK HATCH	NISQ	635692	67	70076	AD
5	25-Jul-14	181383	2010	R-Shuswap R Low	H-Shuswap River, Middle,	CDFO		81	70077	AD
5	25-Jul-14	211006	2011	HOKO R 19.0148	HOKO FALLS HATCHERY	MAKA		63	71742	AD
5	25-Jul-14	211005	2011	WHITEHORSE SPRINGS	STILLAGUAMISH HATCH	STIL		56	71759	AD
5	25-Jul-14	635593	2010	FINCH CR 16.0222	HOODSPORT HATCHERY	WDFW		74	77676	AD
5	25-Jul-14	636099	2011	FRIDAY CR 03.0017	SAMISH HATCHERY	WDFW	636098	55	77781	AD
5	26-Jul-14	636416	2011	COWLITZ R 26.0002	COWLITZ SALMON H	WDFW		62	71740	AD
5	26-Jul-14	635599	2011	COWLITZ R 26.0002	COWLITZ SALMON H	WDFW		61	71761	AD
5	27-Jul-14	180571	2011	R-Bedwell R	H-Tofino H	CDFO		68	70090	AD
5	27-Jul-14	90566	2011	BIG CR (LWR COL R)	BIG CR HATCHERY	ODFW	090583; 090582; 090567	83	70098	AD
5	27-Jul-14	636080	2010	LYONS FERRY REL.SITE	LYONS FERRY HATCH	WDFW		70	70107	AD
5	31-Jul-14	181982	2011	R-Chilliwack R	H-Chilliwack River H	CDFO	182068; 182467; 180279; 182385	60	70109	AD
5	31-Jul-14	181590	2010	R-Chilliwack R	H-Chilliwack River H	CDFO	181584; 181679; 181592; 181588	80	77793	AD
5	31-Jul-14	636416	2011	COWLITZ R 26.0002	COWLITZ SALMON H	WDFW		56	77794	AD
5	1-Aug-14	636080	2010	LYONS FERRY REL.SITE	LYONS FERRY HATCH	WDFW		68	70062	AD
5	1-Aug-14	636195	2011	WASHOUGAL R 28.0159	WASHOUGAL HATCH	WDFW		63	77725	AD
5	1-Aug-14	181483	2010	R-Robertson Cr	H-Robertson Creek H	CDFO		74	77726	AD
5	1-Aug-14	181982	2011	R-Chilliwack R	H-Chilliwack River H	CDFO	182068; 182467; 180279; 182385	60	77729	AD
5	2-Aug-14	211011	2011	GROVERS CR HATCHERY	GROVERS CR HATCHERY	SUQ		59	71747	AD
5	2-Aug-14	636099	2011	FRIDAY CR 03.0017	SAMISH HATCHERY	WDFW	636098	55	71750	AD
5	3-Aug-14	211004	2011	CLEAR CR 11.0013C	CLEAR CREEK HATCH	NISQ		61	60784	AD
5	3-Aug-14	636099	2011	FRIDAY CR 03.0017	SAMISH HATCHERY	WDFW	636098	49	70032	AD
5	3-Aug-14	636099	2011	FRIDAY CR 03.0017	SAMISH HATCHERY	WDFW	636098	50	70082	AD
5	3-Aug-14	181497	2011	R-Harrison R	H-Chehalis River H	CDFO		57	71772	AD
5	3-Aug-14	90582	2011	BIG CR (LWR COL R)	BIG CR HATCHERY	ODFW	090583; 090567; 090566	78	71773	AD
5	3-Aug-14	635686	2010	CHELAN R 47.0052	CHELAN FALLS HATCH	WDFW		65	71775	AD
5	6-Aug-14	636166	2011	FINCH CR 16.0222	HOODSPORT HATCHERY	WDFW		62	70025	AD
5	6-Aug-14	181588	2010	R-Chilliwack R	H-Chilliwack River H	CDFO	181584; 181679; 181592; 181590	76	70026	AD
5	7-Aug-14	636099	2011	FRIDAY CR 03.0017	SAMISH HATCHERY	WDFW	636098	56	70068	AD
5	7-Aug-14	636166	2011	FINCH CR 16.0222	HOODSPORT HATCHERY	WDFW		62	71782	AD
5	8-Aug-14	220119	2010	CAPTAIN JOHNS PD	LYONS FERRY HATCH	NEZP		82	60787	AD
5	8-Aug-14	210959	2010	HOKO R 19.0148	HOKO FALLS HATCHERY	MAKA		87	70034	AD

Area	Recovery Date	Tag Code	Brood Year	Release Site	Rearing Hatchery	Release Agency	DIT Codes	FL (cm)	Label	Recovery Mark
5	9-Aug-14	636099	2011	FRIDAY CR 03.0017	SAMISH HATCHERY	WDFW	636098	59	70018	AD
5	9-Aug-14	211016	2010	GORST CR 15.0216	GORST CR REARING PND	SUQ		63	70037	AD
5	9-Aug-14	220226	2012	NPT HATCHERY	NPT HATCHERY	NEZP		47	70115	AD
5	9-Aug-14	211004	2011	CLEAR CR 11.0013C	CLEAR CREEK HATCH	NISQ		48	70116	AD
5	9-Aug-14	210959	2010	HOKO R 19.0148	HOKO FALLS HATCHERY	MAKA		86	71653	AD
5	9-Aug-14	90571	2011	TANNER CR (BNVILLE)	BONNEVILLE HATCH	ODFW		64	71787	AD
5	9-Aug-14	211011	2011	GROVERS CR HATCHERY	GROVERS CR HATCHERY	SUQ		52	77962	AD
5	13-Aug-14	210959	2010	HOKO R 19.0148	HOKO FALLS HATCHERY	MAKA		84	70006	AD
5	13-Aug-14	182068	2011	R-Chilliwack R	H-Chilliwack River H	CDFO	182467; 181982; 180279; 182385	70	71729	AD
5	13-Aug-14	635589	2010	ICY CR 09.0125	ICY CR HATCHERY	WDFW		71	71730	AD
5	13-Aug-14	636080	2010	LYONS FERRY REL.SITE	LYONS FERRY HATCH	WDFW		65	71792	AD
5	14-Aug-14	181471	2010	R-Harrison R	H-Chehalis River H	CDFO		86	70048	AD
5	14-Aug-14	181982	2011	R-Chilliwack R	H-Chilliwack River H	CDFO	182068; 182467; 180279; 182385	62	70127	AD
5	15-Aug-14	211019	2011	KALAMA CR 11.0017	KALAMA CR HATCHERY	NISQ		55	70054	AD
5	15-Aug-14	636197	2011	VOIGHT CR 10.0414	VOIGHTS CR HATCHERY	WDFW		51	70055	AD
5	15-Aug-14	210959	2010	HOKO R 19.0148	HOKO FALLS HATCHERY	MAKA		84	70059	AD

**Appendix B.2** Coded-wire tag (CWT) recoveries in the 2014 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-14	211004	2011	CLEAR CR 11.0013C	CLEAR CREEK HATCH	NISQ		75	77001	AD
6	1-Jul-14	55260	2011	Ltl White Salmon @ NFH	Ltl White Salmon NFH	FWS		77	77002	AD
6	1-Jul-14	210973	2010	GORST CR 15.0216	GORST CR REARING PND	SUQ		69	77003	AD
6	1-Jul-14	211011	2011	GROVERS CR HATCHERY	GROVERS CR HATCHERY	SUQ		62	77004	AD
6	1-Jul-14	636096	2011	MINTER CR 15.0048	MINTER CR HATCHERY	WDFW		58	77005	AD
6	1-Jul-14	635768	2010	PURDY CR 16.0005	GEORGE ADAMS HATCH	WDFW	635767	74	77006	AD
6	1-Jul-14	210957	2010	CLEAR CR 11.0013C	CLEAR CREEK HATCH	NISQ	635692	68	77007	AD
6	1-Jul-14	635593	2010	FINCH CR 16.0222	HOODSPORT HATCHERY	WDFW		79	77579	AD
6	3-Jul-14	90571	2011	TANNER CR (BNVILLE)	BONNEVILLE HATCH	ODFW		71	77916	AD
6	5-Jul-14	635768	2010	PURDY CR 16.0005	GEORGE ADAMS HATCH	WDFW	635767	70	77905	AD
6	6-Jul-14	182068	2011	R-Chilliwack R	H-Chilliwack River H	CDFO	182467; 181982; 180279; 182385	71	77915	AD
6	9-Jul-14	90567	2011	BIG CR (LWR COL R)	BIG CR HATCHERY	ODFW	090583; 090582; 090566	71	77018	AD
6	9-Jul-14	55405	2010	SPRING CR 29.0159	SPRING CR NFH	FWS	55406	89	77020	AD
6	11-Jul-14	635768	2010	PURDY CR 16.0005	GEORGE ADAMS HATCH	WDFW	635767	75	77019	AD
6	11-Jul-14	635590	2010	WALLACE R 07.0940	WALLACE R HATCHERY	WDFW		72	77021	AD
6	12-Jul-14	211011	2011	GROVERS CR HATCHERY	GROVERS CR HATCHERY	SUQ		66	77022	AD
6	12-Jul-14	635768	2010	PURDY CR 16.0005	GEORGE ADAMS HATCH	WDFW	635767	67	77908	AD
6	12-Jul-14	635283	2010	FINCH CR 16.0222	HOODSPORT HATCHERY	WDFW		71	77911	AD

Area	Recovery Date	Tag Code	Brood Year	Release Site	Rearing Hatchery	Release Agency	DIT Codes	FL (cm)	Label	Recovery Mark
6	12-Jul-14	211011	2011	GROVERS CR HATCHERY	GROVERS CR HATCHERY	SUQ		69	77917	AD
6	13-Jul-14	636069	2010	EAST SOUND BAY (SAN)	GLENWOOD SPRINGS	COOP		63	77023	AD
6	13-Jul-14	635593	2010	FINCH CR 16.0222	HOODSPORT HATCHERY	WDFW		65	77024	AD
6	13-Jul-14	635589	2010	ICY CR 09.0125	ICY CR HATCHERY	WDFW		72	77907	AD
6	15-Jul-14	635283	2010	FINCH CR 16.0222	HOODSPORT HATCHERY	WDFW		75	77016	AD
6	15-Jul-14	210972	2010	GORST CR 15.0216	GORST CR REARING PND	SUQ		68	77025	AD
6	16-Jul-14	210957	2010	CLEAR CR 11.0013C	CLEAR CREEK HATCH	NISQ	635692	70	65871	AD
6	16-Jul-14	635593	2010	FINCH CR 16.0222	HOODSPORT HATCHERY	WDFW		68	65872	AD
6	16-Jul-14	636099	2011	FRIDAY CR 03.0017	SAMISH HATCHERY	WDFW	636098	70	65873	AD
6	16-Jul-14	181889	2011	R-Cowichan R	H-Cowichan River H	CDFO		59	65874	AD
6	16-Jul-14	636168	2011	MAY CR 07.0943	WALLACE R HATCHERY	WDFW	636169	52	65875	AD
6	16-Jul-14	211011	2011	GROVERS CR HATCHERY	GROVERS CR HATCHERY	SUQ		71	65876	AD
6	19-Jul-14	181482	2010	R-Robertson Cr	H-Robertson Creek H	CDFO		74	77015	AD
6	19-Jul-14	211004	2011	CLEAR CR 11.0013C	CLEAR CREEK HATCH	NISQ		50	77017	AD
6	23-Jul-14	636166	2011	FINCH CR 16.0222	HOODSPORT HATCHERY	WDFW		60	77051	AD
6	24-Jul-14	211011	2011	GROVERS CR HATCHERY	GROVERS CR HATCHERY	SUQ		73	77057	AD
6	25-Jul-14	210957	2010	CLEAR CR 11.0013C	CLEAR CREEK HATCH	NISQ	635692	61	77026	AD
6	25-Jul-14	635593	2010	FINCH CR 16.0222	HOODSPORT HATCHERY	WDFW		75	77027	AD
6	26-Jul-14	635283	2010	FINCH CR 16.0222	HOODSPORT HATCHERY	WDFW		76	65877	AD
6	2-Aug-14	210963	2010	GROVERS CR HATCHERY	GROVERS CR HATCHERY	SUQ	635695	78	77912	AD
6	3-Aug-14	181980	2011	R-Cowichan R	H-Cowichan River H	CDFO		69	77032	AD
6	9-Aug-14	635589	2010	ICY CR 09.0125	ICY CR HATCHERY	WDFW		60	65885	AD
6	9-Aug-14	211004	2011	CLEAR CR 11.0013C	CLEAR CREEK HATCH	NISQ		67	77055	AD
6	9-Aug-14	181892	2011	R-Cowichan R	H-Cowichan River H	CDFO		67	77910	AD
6	14-Aug-14	181592	2010	R-Chilliwack R	H-Chilliwack River H	CDFO	181584; 181679; 181588; 181590	85	77056	AD

**Appendix B.3** Coded-wire tag (CWT) recoveries in the 2014 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-14	211004	2011	CLEAR CR 11.0013C	CLEAR CREEK HATCH	NISQ		71	62286	AD
9	16-Jul-14	635593	2010	FINCH CR 16.0222	HOODSPORT HATCHERY	WDFW		81	62287	AD
9	16-Jul-14	635590	2010	WALLACE R 07.0940	WALLACE R HATCHERY	WDFW		80	62290	AD
9	16-Jul-14	211011	2011	GROVERS CR HATCHERY	GROVERS CR HATCHERY	SUQ		71	76101	AD
9	16-Jul-14	211015	2011	TULALIP CR 07.0001	BERNIE GOBIN HATCH	TULA		70	76151	AD
9	16-Jul-14	635589	2010	ICY CR 09.0125	ICY CR HATCHERY	WDFW		76	76152	AD
9	16-Jul-14	636166	2011	FINCH CR 16.0222	HOODSPORT HATCHERY	WDFW		67	76153	AD
9	17-Jul-14	636095	2011	MINTER CR 15.0048	MINTER CR HATCHERY	WDFW		62	62289	AD
9	17-Jul-14	211011	2011	GROVERS CR HATCHERY	GROVERS CR HATCHERY	SUQ		69	76051	AD

Area	Recovery Date	Tag Code	Brood Year	Release Site	Rearing Hatchery	Release Agency	DIT Codes	FL (cm)	Label	Recovery Mark
9	17-Jul-14	635697	2010	FRIDAY CR 03.0017	SAMISH HATCHERY	WDFW	635698	70	76154	AD
9	17-Jul-14	210972	2010	GORST CR 15.0216	GORST CR REARING PND	SUQ		73	78814	AD
9	18-Jul-14	635593	2010	FINCH CR 16.0222	HOODSPORT HATCHERY	WDFW		84	62293	AD
9	18-Jul-14	211011	2011	GROVERS CR HATCHERY	GROVERS CR HATCHERY	SUQ		74	76155	AD
9	18-Jul-14	635589	2010	ICY CR 09.0125	ICY CR HATCHERY	WDFW		87	76156	AD
9	18-Jul-14	635697	2010	FRIDAY CR 03.0017	SAMISH HATCHERY	WDFW	635698	88	77601	AD
9	20-Jul-14	211011	2011	GROVERS CR HATCHERY	GROVERS CR HATCHERY	SUQ		74	62294	AD
9	20-Jul-14	211005	2011	WHITEHORSE SPRINGS	STILLAGUAMISH HATCH	STIL		67	76052	AD
9	20-Jul-14	635589	2010	ICY CR 09.0125	ICY CR HATCHERY	WDFW		66	76103	AD
9	20-Jul-14	635681	2011	BOYD CR 01.0490	KENDALL CR HATCHERY	WDFW		58	76104	AD
9	20-Jul-14	210964	2010	CO LINE PD2 03.1853B	MARBLEMOUNT HATCH	WDFW		68	76157	AD
9	22-Jul-14	635768	2010	PURDY CR 16.0005	GEORGE ADAMS HATCH	WDFW	635767	71	62295	AD
9	22-Jul-14	211005	2011	WHITEHORSE SPRINGS	STILLAGUAMISH HATCH	STIL		61	62296	AD
9	22-Jul-14	636168	2011	MAY CR 07.0943	WALLACE R HATCHERY	WDFW	636169	54	78815	AD
9	23-Jul-14	636099	2011	FRIDAY CR 03.0017	SAMISH HATCHERY	WDFW	636098	59	62297	AD
9	26-Jul-14	635593	2010	FINCH CR 16.0222	HOODSPORT HATCHERY	WDFW		71	62298	AD
9	26-Jul-14	636367	2011	PURDY CR 16.0005	GEORGE ADAMS HATCH	WDFW	636366	73	78816	AD
9	26-Jul-14	181982	2011	R-Chilliwack R	H-Chilliwack River H	CDFO	182068; 182467; 180279; 182385	67	78817	AD
9	27-Jul-14	635593	2010	FINCH CR 16.0222	HOODSPORT HATCHERY	WDFW		79	76159	AD
9	31-Jul-14	635589	2010	ICY CR 09.0125	ICY CR HATCHERY	WDFW		75	78818	AD
9	1-Aug-14	635283	2010	FINCH CR 16.0222	HOODSPORT HATCHERY	WDFW		69	72872	AD
9	1-Aug-14	181592	2010	R-Chilliwack R	H-Chilliwack River H	CDFO	181584; 181679; 181588; 181590	81	78819	AD
9	2-Aug-14	636367	2011	PURDY CR 16.0005	GEORGE ADAMS HATCH	WDFW	636366	65	67284	AD
9	2-Aug-14	636099	2011	FRIDAY CR 03.0017	SAMISH HATCHERY	WDFW	636098	76	76106	AD
9	2-Aug-14	635768	2010	PURDY CR 16.0005	GEORGE ADAMS HATCH	WDFW	635767	73	76160	AD
9	3-Aug-14	211004	2011	CLEAR CR 11.0013C	CLEAR CREEK HATCH	NISQ		57	76256	AD
9	3-Aug-14	635199	2011	MINTER CR 15.0048	MINTER CR HATCHERY	WDFW		69	78820	AD
9	3-Aug-14	635590	2010	WALLACE R 07.0940	WALLACE R HATCHERY	WDFW		84	87852	AD
9	6-Aug-14	211004	2011	CLEAR CR 11.0013C	CLEAR CREEK HATCH	NISQ		78	76161	AD
9	8-Aug-14	180279	2011	R-Chilliwack R	H-Chilliwack River H	CDFO	182068; 182467; 181982; 182385	77	62299	AD
9	8-Aug-14	211016	2010	GORST CR 15.0216	GORST CR REARING PND	SUQ		68	76162	AD
9	8-Aug-14	211011	2011	GROVERS CR HATCHERY	GROVERS CR HATCHERY	SUQ		78	76206	AD
9	8-Aug-14	210963	2010	GROVERS CR HATCHERY	GROVERS CR HATCHERY	SUQ	635695	88	76262	AD
9	9-Aug-14	211011	2011	GROVERS CR HATCHERY	GROVERS CR HATCHERY	SUQ		71	76107	AD
9	9-Aug-14	211011	2011	GROVERS CR HATCHERY	GROVERS CR HATCHERY	SUQ		72	76163	AD
9	9-Aug-14	210963	2010	GROVERS CR HATCHERY	GROVERS CR HATCHERY	SUQ	635695	75	76263	AD
9	10-Aug-14	636099	2011	FRIDAY CR 03.0017	SAMISH HATCHERY	WDFW	636098	65	62288	AD
9	10-Aug-14	210912	2009	GROVERS CR HATCHERY	GROVERS CR HATCHERY	SUQ	635089	65	76053	AD
9	10-Aug-14	635593	2010	FINCH CR 16.0222	HOODSPORT HATCHERY	WDFW		69	78821	AD
9	11-Aug-14	636367	2011	PURDY CR 16.0005	GEORGE ADAMS HATCH	WDFW	636366	64	76164	AD

Area	Recovery Date	Tag Code	Brood Year	Release Site	Rearing Hatchery	Release Agency	DIT Codes	FL (cm)	Label	Recovery Mark
9	11-Aug-14	636099	2011	FRIDAY CR 03.0017	SAMISH HATCHERY	WDFW	636098	73	76265	AD
9	11-Aug-14	211011	2011	GROVERS CR HATCHERY	GROVERS CR HATCHERY	SUQ		67	78822	AD
9	14-Aug-14	636197	2011	VOIGHT CR 10.0414	VOIGHTS CR HATCHERY	WDFW		64	72750	AD
9	14-Aug-14	635695	2010	GROVERS CR HATCHERY	GROVERS CR HATCHERY	SUQ	210963	71	78823	UM
9	14-Aug-14	635291	2009	FINCH CR 16.0222	HOODSPORT HATCHERY	WDFW		73	78824	AD
9	15-Aug-14	636069	2010	EAST SOUND BAY (SAN)	GLENWOOD SPRINGS	COOP		72	76054	AD
9	15-Aug-14	635590	2010	WALLACE R 07.0940	WALLACE R HATCHERY	WDFW		73	76108	AD
9	15-Aug-14	211016	2010	GORST CR 15.0216	GORST CR REARING PND	SUQ		61	76165	AD

**Appendix B.4** Coded-wire tag (CWT) recoveries in the 2014 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-14	211011	2011	GROVERS CR HATCHERY	GROVERS CR HATCHERY	SUQ		79	87851	AD
10	18-Jul-14	635693	2010	BIG SOOS CR 09.0072	SOOS CREEK HATCHERY	WDFW	635696	84	78947	AD
10	19-Jul-14	635768	2010	PURDY CR 16.0005	GEORGE ADAMS HATCH	WDFW	635767	82	78948	AD
10	19-Jul-14	635593	2010	FINCH CR 16.0222	HOODSPORT HATCHERY	WDFW		74	78949	AD
10	22-Jul-14	210912	2009	GROVERS CR HATCHERY	GROVERS CR HATCHERY	SUQ	635089	86	72747	AD
10	25-Jul-14	636099	2011	FRIDAY CR 03.0017	SAMISH HATCHERY	WDFW	636098	76	76252	AD
10	26-Jul-14	635593	2010	FINCH CR 16.0222	HOODSPORT HATCHERY	WDFW		67	76253	AD
10	1-Aug-14	182385	2011	R-Chilliwack R	H-Chilliwack River H	CDFO	182068; 182467; 181982; 180279	64	72748	AD
10	1-Aug-14	182385	2011	R-Chilliwack R	H-Chilliwack River H	CDFO	182068; 182467; 181982; 180279	77	76001	AD
10	2-Aug-14	211016	2010	GORST CR 15.0216	GORST CR REARING PND	SUQ		68	72873	AD
10	2-Aug-14	636166	2011	FINCH CR 16.0222	HOODSPORT HATCHERY	WDFW		60	76254	AD
10	2-Aug-14	210963	2010	GROVERS CR HATCHERY	GROVERS CR HATCHERY	SUQ	635695	79	78950	AD
10	3-Aug-14	635589	2010	ICY CR 09.0125	ICY CR HATCHERY	WDFW		76	72874	AD
10	3-Aug-14	636367	2011	PURDY CR 16.0005	GEORGE ADAMS HATCH	WDFW	636366	64	76255	AD
10	3-Aug-14	211011	2011	GROVERS CR HATCHERY	GROVERS CR HATCHERY	SUQ		64	87854	AD
10	5-Aug-14	636166	2011	FINCH CR 16.0222	HOODSPORT HATCHERY	WDFW		57	76257	AD
10	6-Aug-14	636367	2011	PURDY CR 16.0005	GEORGE ADAMS HATCH	WDFW	636366	74	72749	AD
10	6-Aug-14	211011	2011	GROVERS CR HATCHERY	GROVERS CR HATCHERY	SUQ		62	72875	AD
10	6-Aug-14	210998	2011	PALMER HATCHERY	KETA CREEK COMPLEX	MUCK		70	76258	AD
10	6-Aug-14	211011	2011	GROVERS CR HATCHERY	GROVERS CR HATCHERY	SUQ		65	76259	AD
10	6-Aug-14	636096	2011	MINTER CR 15.0048	MINTER CR HATCHERY	WDFW		56	76260	AD
10	6-Aug-14	211016	2010	GORST CR 15.0216	GORST CR REARING PND	SUQ		60	76261	AD
10	7-Aug-14	182068	2011	R-Chilliwack R	H-Chilliwack River H	CDFO	182467; 181982; 180279; 182385	72	76002	AD
10	7-Aug-14	636164	2011	BIG SOOS CR 09.0072	SOOS CREEK HATCHERY	WDFW		65	76003	AD

**Appendix B.5** Coded-wire tag (CWT) recoveries in the 2014 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-14	636095	2011	MINTER CR 15.0048	MINTER CR HATCHERY	WDFW		65	85001	AD
11	1-Jun-14	636095	2011	MINTER CR 15.0048	MINTER CR HATCHERY	WDFW		69	85002	AD
11	1-Jun-14	636095	2011	MINTER CR 15.0048	MINTER CR HATCHERY	WDFW		62	87603	AD
11	1-Jun-14	635199	2011	MINTER CR 15.0048	MINTER CR HATCHERY	WDFW		69	87604	AD
11	3-Jun-14	636095	2011	MINTER CR 15.0048	MINTER CR HATCHERY	WDFW		63	85050	AD
11	4-Jun-14	636096	2011	MINTER CR 15.0048	MINTER CR HATCHERY	WDFW		63	87605	AD
11	4-Jun-14	635899	2010	CASCADE R 03.1411	MARBLEMOUNT HATCH	WDFW	636085	66	87606	AD
11	5-Jun-14	636095	2011	MINTER CR 15.0048	MINTER CR HATCHERY	WDFW		62	87607	AD
11	19-Jun-14	636095	2011	MINTER CR 15.0048	MINTER CR HATCHERY	WDFW		61	62879	AD
11	19-Jun-14	636095	2011	MINTER CR 15.0048	MINTER CR HATCHERY	WDFW		62	87608	AD
11	24-Jun-14	636099	2011	FRIDAY CR 03.0017	SAMISH HATCHERY	WDFW	636098	70	85049	AD
11	27-Jun-14	211005	2011	WHITEHORSE SPRINGS	STILLAGUAMISH HATCH	STIL		57	62882	AD
11	27-Jun-14	211004	2011	CLEAR CR 11.0013C	CLEAR CREEK HATCH	NISQ		64	85048	AD
11	29-Jun-14	636095	2011	MINTER CR 15.0048	MINTER CR HATCHERY	WDFW		56	62883	AD
11	29-Jun-14	211017	2010	GORST CR 15.0216	GORST CR REARING PND	SUQ		76	87610	AD
11	29-Jun-14	635589	2010	ICY CR 09.0125	ICY CR HATCHERY	WDFW		89	87753	AD
11	5-Jul-14	635093	2008	COLUMBIA NEAR WELLS	WELLS HATCHERY	WDFW		72	62884	AD
11	5-Jul-14	635589	2010	ICY CR 09.0125	ICY CR HATCHERY	WDFW		76	87901	AD
11	9-Jul-14	635283	2010	FINCH CR 16.0222	HOODSPORT HATCHERY	WDFW		71	87902	AD
11	11-Jul-14	635199	2011	MINTER CR 15.0048	MINTER CR HATCHERY	WDFW		70	62885	AD
11	15-Jul-14	635589	2010	ICY CR 09.0125	ICY CR HATCHERY	WDFW		79	51592	AD
11	15-Jul-14	635768	2010	PURDY CR 16.0005	GEORGE ADAMS HATCH	WDFW	635767	84	51593	AD
11	16-Jul-14	211011	2011	GROVERS CR HATCHERY	GROVERS CR HATCHERY	SUQ		75	51594	AD
11	1-Aug-14	636092	2011	GROVERS CR HATCHERY	GROVERS CR HATCHERY	SUQ		69	51595	UM
11	1-Aug-14	635693	2010	BIG SOOS CR 09.0072	SOOS CREEK HATCHERY	WDFW	635696	70	87903	AD
11	2-Aug-14	635768	2010	PURDY CR 16.0005	GEORGE ADAMS HATCH	WDFW	635767	87	62894	AD
11	4-Aug-14	636095	2011	MINTER CR 15.0048	MINTER CR HATCHERY	WDFW		61	62886	AD
11	8-Aug-14	635199	2011	MINTER CR 15.0048	MINTER CR HATCHERY	WDFW		76	87905	AD
11	9-Aug-14	636197	2011	VOIGHT CR 10.0414	VOIGHTS CR HATCHERY	WDFW		63	51979	AD
11	9-Aug-14	210957	2010	CLEAR CR 11.0013C	CLEAR CREEK HATCH	NISQ	635692	71	62887	AD
11	10-Aug-14	210972	2010	GORST CR 15.0216	GORST CR REARING PND	SUQ		72	85003	AD
11	10-Aug-14	210957	2010	CLEAR CR 11.0013C	CLEAR CREEK HATCH	NISQ	635692	69	87906	AD
11	15-Aug-14	636096	2011	MINTER CR 15.0048	MINTER CR HATCHERY	WDFW		65	72877	AD
11	16-Aug-14	181864	2012	R-Chilliwack R	H-Chilliwack River H	CDFO		57	51596	AD
11	17-Aug-14	211004	2011	CLEAR CR 11.0013C	CLEAR CREEK HATCH	NISQ		60	87907	AD
11	18-Aug-14	210972	2010	GORST CR 15.0216	GORST CR REARING PND	SUQ		79	72949	AD
11	21-Aug-14	211017	2010	GORST CR 15.0216	GORST CR REARING PND	SUQ		62	72878	AD
11	23-Aug-14	635589	2010	ICY CR 09.0125	ICY CR HATCHERY	WDFW		68	51597	AD

Area	Recovery Date	Tag Code	Brood Year	Release Site	Rearing Hatchery	Release Agency	DIT Codes	FL (cm)	Label	Recovery Mark
11	23-Aug-14	211004	2011	CLEAR CR 11.0013C	CLEAR CREEK HATCH	NISQ		62	51598	AD
11	23-Aug-14	635692	2010	CLEAR CR 11.0013C	CLEAR CREEK HATCH	NISQ	210957	77	51980	UM
11	25-Aug-14	210905	2009	CLEAR CR 11.0013C	CLEAR CREEK HATCH	NISQ	635096	72	62888	AD
11	28-Aug-14	636197	2011	VOIGHT CR 10.0414	VOIGHTS CR HATCHERY	WDFW		70	62889	AD
11	29-Aug-14	636095	2011	MINTER CR 15.0048	MINTER CR HATCHERY	WDFW		61	62890	AD

**Appendix B.6** Coded-wire tag (CWT) recoveries in the 2014 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	6-Aug-14	635768	2010	PURDY CR 16.0005	GEORGE ADAMS HATCH	WDFW	635767		73573	AD
12	10-Aug-14	635768	2010	PURDY CR 16.0005	GEORGE ADAMS HATCH	WDFW	635767		73576	AD
12	10-Aug-14	636367	2011	PURDY CR 16.0005	GEORGE ADAMS HATCH	WDFW	636366		73577	AD

**Appendix B.7** Coded-wire tag (CWT) recoveries in the 2014 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	24-May-14	636096	2011	MINTER CR 15.0048	MINTER CR HATCHERY	WDFW		61	70853	AD
13	23-Jun-14	635199	2011	MINTER CR 15.0048	MINTER CR HATCHERY	WDFW		71	87609	AD