PACIFIC SALMON COMMISSION JOINT CHINOOK TECHNICAL COMMITTEE REPORT

2022 Exploitation Rate Analysis

TCCHINOOK (23)-01

January 16, 2023

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## List of Acronyms and Abbreviations ${ }^{1}$

| 3YA | Running 3-year Calendar Year Exploitation Rate Average | LC | Landed Catch |
| :---: | :---: | :---: | :---: |
| AABM | Aggregate Abundance-Based Management | MDT | Mortality Distribution Table |
| ADF\&G | Alaska Department of Fish \& Game | MRP | Mark Recovery Program |
| AEQ | Adult Equivalent | MSF | Mark-Selective Fishery |
| AWG | Analytical Working Group of the CTC | N | Net |
| BC | British Columbia | NBC | Northern B.C. Dixon Entrance to Kitimat including Haida Gwaii |
| BY | Brood Year | NOAA | National Oceanic and Atmospheric Administration |
| BYER | Brood Year Exploitation Rate | NWIFC | Northwest Indian Fisheries Commission |
| CAS | Cohort Analysis System | ODFW | Oregon Department of Fish \& Wildlife |
| CBC | Central British Columbia | OR | Oregon |
| CCT | Confederated Colville Tribes | PFMA | Pacific Fishery Management Area |
| CIG | Chinook Interface Group | PFMC | Pacific Fishery Management Council |
| CNR | Chinook Nonretention | PSC | Pacific Salmon Commission |
| CRITFC | Columbia River Intertribal Fish Commission | PST | Pacific Salmon Treaty |
| CTC | Chinook Technical Committee | QIN | Quinault Indian Nation |
| CWT | Coded-wire Tag | RM | Release Mortality |
| CWTIP | Coded-wire Tag Improvement Program | RMIS | Regional Mark Information System |
| CY | Calendar Year | ROM | Ratio of Means |
| CYER | Calendar Year Exploitation Rate | S | Sport |
| CYER | Calendar Year Exploitation Rate Work Group | SACE | Stock Aggregate Cohort Evaluation |
| CYM | Calendar Year Mortalities | SEAK | Southeast Alaska Cape Suckling to Dixon Entrance |
| DFO | Department of Fisheries and Oceans Canada | SFEC | Selective Fishery Evaluation Committee |
| DIT | Double Index Tag | SIT | Single Index Tag |
| EIS | Escapement Indicator Stock | SPFI | Stratified Proportional Fishery Index |
| ERA | Exploitation Rate Analysis | T | Troll |
| ERIS | Exploitation Rate Indicator Stock | TAM | Terminal Adjustment Methods |
| ETD | Electronic tag detection | TBD | To Be Determined |
| FI | Fishery indices | TBR | Transboundary Rivers |
| FNC | First Nations Caucus | TM | Total Mortality |
| IDF\&G | Idaho Department of Fish and Game | UAF | University of Alaska Fairbanks |
| IDL | Inter-dam Loss | U.S. | United States |

[^0]| IM | Incidental Mortality | USFWS | U.S. Fish \& Wildlife Service |
| :--- | :--- | :--- | :--- |
| ISBM | Individual Stock-Based Management | WA | Washington |
| WCVI | West Coast Vancouver Island <br> excluding Area 20 |  |  |
| WDFW | Washington Department of Fish and <br> Wildlife |  |  |

## Table of Contents

Table of Contents ..... iii
List of Tables ..... v
List of Figures ..... vii
List of Appendices ..... ix
Executive Summary ..... x

1. Introduction ..... 1
2. Exploitation Rate Analysis Methods .....  2
2.1 Overview of Coded-Wire Tag-Based Exploitation Rate Analyses ..... 8
2.1.1 Description of Incidental Mortality ..... 8
2.1.2 Calendar Year Exploitation Rates ..... 8
2.1.3 Assumptions of the CWT Exploitation Rate Analyses ..... 8
3. Exploitation Rate Analysis Results ..... 11
3.1 Southeast Alaska and Transboundary Stocks ..... 11
3.1.1 Brood Year Exploitation Rates ..... 11
3.1.2 Survival Rates ..... 12
3.1.3 Mortality Distributions ..... 12
3.1.4 Regional Summary for Southeast Alaska Stocks ..... 13
3.2 North and Central British Columbia Stocks ..... 14
3.2.1 Brood Year Exploitation Rates ..... 14
3.2.2 Survival Rates ..... 14
3.2.3 Mortality Distributions ..... 14
3.3 West Coast Vancouver Island Stocks ..... 15
3.3.1 Brood Year Exploitation Rates ..... 16
3.3.2 Survival Rates ..... 16
3.3.3 Mortality Distributions ..... 16
3.3.4 Terminal Area Adjustments ..... 17
3.4 Strait of Georgia Stocks ..... 18
3.4.1 Brood Year Exploitation Rates ..... 18
3.4.2 Survival Rates ..... 19
3.4.3 Mortality Distributions ..... 20
3.4.4 Terminal Area Adjustments ..... 21
3.5 Fraser River Stocks ..... 21
3.5.1 Brood Year Exploitation Rates ..... 22
3.5.2 Survival Rates ..... 22
3.5.3 Mortality Distributions ..... 23
3.6 Regional Summary for Canada ..... 24
3.7 Washington Coast Stocks ..... 26
3.7.1 Brood Year Exploitation Rates ..... 26
3.7.2 Survival Rates ..... 27
3.7.3 Mortality Distributions ..... 27
3.7.4 Terminal Area Adjustments ..... 28
3.8 Salish Sea Stocks ..... 29
3.8.1 North Puget Sound ..... 30
3.8.2 Central Puget Sound ..... 31
3.8.3 South Puget Sound ..... 31
3.8.4 Juan de Fuca and Hood Canal ..... 32
3.8.5 Regional Summary for Washington Salish Sea Stocks. ..... 34
3.9 Columbia River Stocks ..... 36
3.9.1 Brood Year Exploitation Rates ..... 37
3.9.2 Survival Rates ..... 37
3.9.3 Mortality Distributions ..... 38
3.9.4 Regional Summary for Columbia River Stocks ..... 39
3.10 Oregon Coast Stocks ..... 40
3.10.1 Brood Year Exploitation Rates ..... 41
3.10.2 Survival Rates ..... 41
3.10.3 Mortality Distributions ..... 41
3.10.4 Terminal Area Adjustments ..... 42
3.10.5 Regional Summary for Oregon Coast Stocks ..... 44
4. ISBM Fishery Performance ..... 46
4.1 ISBM Fishery Performance under 2019 PST Agreement ..... 46
4.1.1 ISBM Management Framework ..... 46
4.2 ISBM Performance Evaluation for 2020 ..... 50
4.2.1 Canadian ISBM Fisheries Performance ..... 51
4.2.2 U.S. ISBM Fishery Performance ..... 52
5. Coded-Wire Tag Analysis and Mark-Selective Fisheries ..... 54
5.1 Catch in Mark-Selective Fisheries ..... 54
5.2 Methods to Estimate the Impact of Mark-Selective Fisheries on Unmarked Chinook Salmon Stocks ..... 59
5.2.1 Double Index Tag Methods ..... 59
5.2.2 Single Index Tag Methods ..... 61
6. References Cited ..... 71
List of Appendices ..... 74
Appendix A: Relationship between exploitation rate indicator stocks, escapement indicator stocks, and model stocks in the Pacific Salmon Treaty ..... 75
Appendix B: Parameters used in the 2021 Exploitation Rate Analysis ..... 82
Appendix C: Percent distribution of landed catch and total mortality and escapement for exploitation rate indicator stocks by calendar year ..... 84
Appendix D: Brood Year Exploitation Rate Plots ..... 84
Appendix E: Survival Rate Plots ..... 166
Appendix F: Terminal Area Adjustment Data ..... 168
Appendix G: Fishery exploitation rate indices by stock, age and fishery, based on Coded-Wire Tag (CWT) data ..... 192
Appendix H: Calendar Year Exploitation Rate Metrics ..... 192
Appendix I: Issues with and changes to the Exploitation Rate Analysis ..... 209

## List of Tables

Table Page
Table 2.1-Summary of current and historic (last tagged brood year in brackets) coded-wire tag (CWT) exploitation rate indicator stocks, location, run type, and smolt age ..... 4
Table 2.2-Coded-wire tag (CWT) exploitation rate indicator stocks used in the exploitation rate analysis (ERA) and data derived from them: fishery indices, individual stock-based management (ISBM) calendar year exploitation rates (CYER)—(ISBM CYER Limit), survival indices, brood year exploitation rates (BYER), and stock catch distribution (Dist) with escapement estimates (Esc) and base period (1979-1982) tag recoveries (Base Recoveries). ..... 6
Table 3.1-Summary of statistics generated by the 2022 coded-wire tag (CWT) cohort analysis for Southeast Alaska and transboundary river indicator stocks. Statistics include total mortality (catch plus incidental mortality), brood year exploitation rate (BYER), cohort survival rate to age 3, and calendar year (CY) percent distribution of the total mortality in escapement ..... 13
Table 3.2—Summary of statistics generated by the 2022 coded-wire tag (CWT) cohort analysis for Canadian indicator stocks by region. Statistics include total mortality (catch plus incidental mortality) brood year exploitation rate (BYER), cohort survival rate to age 2 (age 3 for Kitsumkalum), and calendar year (CY) percent distribution of the total mortality and the escapement. ..... 25
Table 3.3-Summary of statistics generated by the 2022 coded-wire tag (CWT) cohort analysis for Washington Coast indicator stocks. Statistics include total mortality (catch plus incidental mortality) brood year exploitation rate (BYER), cohort survival rate to age 2 , and calendar year (CY) percent distribution of the total mortality in the escapement. ..... 27
Table 3.4-Summary of statistics generated by the 2022 coded-wire tag (CWT) cohort analysis for Washington Salish Sea indicator stocks by region. Statistics include brood year exploitation rate (BYER), cohort survival rate to age 2 (age 3 for yearling stocks), and calendar year (CY) percent of total mortality in escapement. ..... 36
Table 3.5-Summary of statistics generated by the 2022 coded-wire tag (CWT) cohort analysis for Columbia River indicator stocks. Statistics include total mortality (catch plus incidental mortality), brood year exploitation rate (BYER), cohort survival rate to age 2, and calendar year (CY) percent distribution of the total mortality in the escapement. ..... 40
Table 3.6-Summary of statistics generated by the 2022 coded-wire tag (CWT) cohort analysis for Oregon Coast indicator stocks. Statistics include total mortality (catch plus incidental mortality) brood year exploitation rate (BYER), cohort survival rate to age 2 , and calendar year (CY) percent distribution of the total mortality. ..... 45
Table 4.1-Attachment I individual stock-based management (ISBM) indicator stocks, management objectives, and calendar year exploitation rate (CYER) limits as percentages of the 2009-2015 average CYER. To represent naturally spawning stocks, some exploitation rate indicators require adjustment for impacts of terminal fisheries targeting hatchery-origin fish. ..... 47
Table 4.2-Chinook Technical Committee (CTC) exploitation rate analysis fisheries included in individual stock-based management (ISBM) metrics by country. ..... 48
Table 4.3-Review of performance in the Canadian individual stock-based management (ISBM) fisheries, 2020 ..... 51
Table 4.4-Review of performance in the United States individual stock-based management (ISBM) fisheries, 2020.53
Table 5.1-Estimated landed catch of tagged and marked Pacific Salmon Commission (PSC) Chinook indicator stocks in British Columbia, Washington, and Oregon, in all net, troll, and sport fisheries for catch years 2019-2020, along with averages for 20092018, and the percent of the total tagged and marked catch landed in mark-selective fisheries (MSFs).60
Table 5.2—Percent distribution of Nicola River adult equivalent (AEQ) total fishing mortalities and escapement to represent unmarked fish when recoveries with incomplete data were assumed to have been caught in non-selective fisheries. ..... 64
Table 5.3-Percent distribution of Nicola River adult equivalent (AEQ) total fishing mortalities and escapement to represent unmarked fish when recoveries with incomplete data were assumed to have been caught in mark-selective fisheries (MSFs). ..... 65Table 5.4-Percent distribution of Lower Shuswap River adult equivalent (AEQ) total fishingmortalities and escapement to represent unmarked fish when recoveries withincomplete data were assumed to have been caught in non-selective fisheries.66
Table 5.5-Percent distribution of Lower Shuswap River adult equivalent (AEQ) total fishing mortalities and escapement to represent unmarked fish when recoveries with incomplete data were assumed to have been caught in mark-selective fisheries (MSFs). ..... 67
Table 5.6—Percent distribution of Middle Shuswap River adult equivalent (AEQ) total fishingmortalities and escapement to represent unmarked fish when recoveries withincomplete data were assumed to have been caught in non-selective fisheries.68
Table 5.7-Percent distribution of Middle Shuswap River adult equivalent (AEQ) total fishing mortalities and escapement to represent unmarked fish when recoveries with incomplete data were assumed to have been caught in mark-selective fisheries (MSFs). ..... 69
Table 5.8-Average absolute changes in Nicola, Lower Shuswap, and Middle Shuswap calendar year exploitation rates (CYERs) (2002, 2008-2020) when coded-wire tag (CWT) recoveries with incomplete data were assumed to have been caught in non-selective fisheries or mark-selective fisheries (MSFs) ..... 70

## List of Figures

## Figure

## Page

Figure 2.1-Geographical locations of historic and current Chinook salmon coded-wire tag (CWT) exploitation rate indicator stocks.3

Figure 3.1—Distribution of total mortality for Southeast Alaska indicator stocks from the 2009 (2009-2018) and 2019 (2019-2028) Pacific Salmon Treaty Agreement periods.13

Figure 3.2-Distribution of total mortality for North (KLM) and Central (ATN) British Columbia indicator stocks from the 2009 (2009-2018) and 2019 (2019-2028) Pacific Salmon Treaty Agreement periods.15

Figure 3.3—Distribution of total mortality for West Coast Vancouver Island indicator stock from the 2009 (2009-2018) and 2019 (2019-2028) Pacific Salmon Treaty Agreement periods.17

Figure 3.4-Distribution of total mortality for the West Coast Vancouver Island hatchery indicator stock before applying the terminal area adjustment (Robertson Creek Fall [RBT]) and after the terminal area adjustments for the escapement indicator stocks (Northwest Vancouver Island [NWVI] and Southwest Vancouver Island [SWVI]) for the 2009 (2009-2018) and 2019 (2019-2028) Pacific Salmon Treaty Agreement periods.18

Figure 3.5—Distribution of total mortality for Strait of Georgia indicator stocks from the 2009 (2009-2018) and 2019 (2019-2028) Pacific Salmon Treaty Agreement (PST) periods.20

Figure 3.6-Distribution of total mortality for the Upper Strait of Georgia hatchery indicator stock before applying the terminal area adjustment (Quinsam [QUI]) and after the terminal area adjustments for the escapement indicator stock (East Vancouver Island North [EVIN]) for the 2009 (2009-2018) and 2019 (2019-2028) Pacific Salmon Treaty Agreement periods.21

Figure 3.7-Distribution of total mortality for Fraser River indicator stocks from the 2009 (2009
2018) and 2019 (2019-2028) Pacific Salmon Treaty Agreement periods. ..... 24

Figure 3.8-Distribution of total mortality for Washington Coast indicator stocks from the 2009 (2009-2018) and 2019 (2019-2028) Pacific Salmon Treaty Agreement periods. The figure on the right only contains data for 2019 and 2020 due to reporting restrictions.28

Figure 3.9—Distribution of total mortality for the Washington Coastal hatchery indicator stock before applying the terminal area adjustment (Queets [QUE]) and after the terminal area adjustments for the escapement indicator stocks (Grays Harbor, Hoh, and Quillayute) for the 2009 (2009-2018) and 2019 (2019-2028) Pacific Salmon Treaty Agreement periods. The figure on the right only contains data for 2019 and 2020 due to reporting restrictions.29

Figure 3.10—Distribution of total mortality for Puget Sound indicator stocks from the 2009 (20092018) and 2019 (2019-2028) Pacific Salmon Treaty Agreement periods. The figure on the bottom only contains data through 2020 due to reporting restrictions.35

Figure 3.11—Distribution of total mortality for Columbia River and tributaries indicator stocks from the 2009 (2009-2018) and 2019 (2019-2028) Pacific Salmon Treaty Agreement periods. The figure on the bottom only contains data for 2019 and 2020 due to reporting restrictions.39

Figure 3.12—Distribution of total mortality for Oregon Coast indicator stocks from the 2009 (2009-2018) and 2019 (2019-2028) Pacific Salmon Treaty Agreement periods. The figure on the right only contains data for 2019-2020 due to reporting restrictions.
Figure 3.13-Distribution of total mortality for the North Oregon Coast hatchery indicator stock before applying the terminal area adjustment (Salmon River [SRH]) and after the
terminal area adjustments for the escapement indicator stocks (Siletz, Siuslaw, and Nehalem) for the 2009 (2009-2018) and 2019 (2019-2028) Pacific Salmon Treaty Agreement periods. The figure on the right only contains data for 2019-2020 due to reporting restrictions. ..... 43
Figure 3.14—Distribution of total mortality for the Mid-Oregon Coast hatchery indicator stock before applying the terminal area adjustment (Elk River [ELK]) and after the terminal area adjustments for the escapement indicator stocks (Coquille and South Umpqua) for the 2009 (2009-2018) and 2019 (2019-2028) Pacific Salmon Treaty Agreement periods. The figure on the right only contains data for 2019-2020 due to reporting restrictions. ..... 44
Figure 4.1-Flow diagram depicting the sequence of steps for individual stock-based management (ISBM) fisheries management framework under the 2019 Pacific Salmon Treaty Agreement. ..... 49
Figure 5.1-Estimated total Chinook catch in Columbia River mark-selective and non-selective sport fisheries during spring (May-Jun) and summer-fall (Jul-Dec) seasons (left y- axis) and percent of catch in mark-selective fisheries (MSFs) (right y-axis) for catch years 2003-2020 ..... 56
Figure 5.2-Estimated total Chinook catch in mark-selective and non-selective Puget Sound sport fisheries (left y-axis) and percent of catch in mark-selective fisheries (MSFs) (right y- axis) for catch years 2003-2020. ..... 57
Figure 5.3-Average number of wild fish killed under alternative mark-selective fishery (MSF) regulations, with release mortality rate equal to 0.25 ..... 58
Figure 5.4—Percent of total fishery coded-wire tag (CWT) recoveries in mark-selective fisheries (MSFs) for regional groupings of Chinook indicator stocks, 2003-2020. ..... 61

# List of Appendices 

Appendix Page
Appendix A: Relationship between exploitation rate indicator stocks, escapement indicator stocks, and model stocks in the Pacific Salmon Treaty ..... 75
Appendix B: Parameters used in the 2021 Exploitation Rate Analysis. ..... 82
Appendix C: Percent distribution of landed catch and total mortality and escapement for exploitation rate indicator stocks by calendar year ..... 84
Appendix D: Brood Year Exploitation Rate Plots ..... 146
Appendix E: Survival Rate Plots. ..... 166
Appendix F: Terminal Area Adjustment Data ..... 186
Appendix G: Fishery exploitation rate indices by stock, age and fishery, based on Coded-Wire Tag data ..... 192
Appendix H: Calendar Year Exploitation Rate Metrics ..... 204
Appendix I: Issues with and changes to the Exploitation Rate Analysis. ..... 209
Appendix J: Pseudo recovery inclusion assessment ..... 212

## Executive Summary

Chapter 3 of the 2019 Pacific Salmon Treaty (PST) Agreement (PST 2020) requires the Chinook Technical Committee (CTC) to report annual catches, harvest rate indices, estimates of incidental mortality (IM) and exploitation rates for all Chinook salmon fisheries and stocks harvested within the Treaty area. The CTC provides annual reports to the Pacific Salmon Commission (PSC) to fulfill this obligation, as agreed by Canada and the United States (U.S.) under Chapter 3 of the Treaty. This report contains five sections: an introduction and description of the Chapter 32019 PST Agreement requirements related to the annual exploitation rate analysis (ERA) based on coded-wire tag (CWT) data; a review of the ERA methods; a review of the results from the annual ERA; a performance evaluation of individual stock-based management (ISBM) fisheries; and CWT analyses for mark-selective fisheries (MSFs). This report includes the results of the 2022 annual ERA using CWT data through 2020 for Southern U.S. stocks and 2021 for Alaskan and Canadian stocks.

## Exploitation Rate Analysis

The CTC currently monitors 45 CWT ERA stocks, of which 31 are listed in Attachment I as calendar year exploitation rate (CYER) indicators of ISBM fishery performance. The ERA relies on cohort analysis of CWT recoveries, a procedure that reconstructs the cohort size and exploitation history of a given stock and brood year (BY) using representative CWT data as a proxy (CTC 1988). The ERA provides brood- and stock-specific estimates of total, age- and fishery-specific exploitation rates, maturation rates, smolt to age- 2 or age- 3 survival rates, annual distributions of fishery mortalities used to compute CYERs, and fishery indices for aggregate abundance-based (AABM) fisheries.

Estimates of age- and fishery-specific exploitation and maturation rates and adult equivalent estimates from the ERA are combined with data on catches, escapements, and incidental mortalities to complete the annual calibration of the PSC Chinook Model.

Section 3 of this report provides:

1) calendar year (CY) percent distribution of the total mortality that accrued to escapement, based on CWT data (this is not a measure of performance for the escapement indicator stock(s) represented by the CWT indicator) (Appendix C).
2) brood year exploitation rates (BYERs) based on total mortality (catch plus incidental mortality) of complete broods (Appendix D), and
3) cohort survival rates, calculated to age 2 for stocks that are released usually in the spring following spawning (subyearlings, or ocean type), and to age 3 for stocks that are released in the spring in the year after spawning (yearlings or stream type) (Appendix E).

The most recent calendar year for percent distribution of total mortality in escapement is 2020 for Southern U.S. stocks and 2021 for Alaskan and Canadian stocks. However, because BYERs and survival rates use data for a fully returned cohort of fish, the most recent brood year of data reported for those statistics varies according to regional data availability and life history (yearling vs. subyearling).

Coastwide, BYERs generally showed decreases compared to the long-term means. In Alaska, including transboundary rivers, all stocks showed a decrease in BYERs except for Northern Southeast Alaska Spring. In Canada, all stocks showed a decrease, with the exception of Nicola River Spring. In the Southern U.S., a majority of stocks showed a decrease in BYERs. Some exceptions included Lewis River Wild, Queets Fall Fingerling, and Hoko Fall Fingerling.

With regards to survival rates, changes compared to the long-term means were highly variable. In Alaska, including transboundary rivers, all stocks showed decreases in survival compared to the long-term means. The largest decreases in survival rates were for Southern Southeast Alaska Spring and Northern Southeast Alaska Spring. Just over half of the Canadian stocks showed increases in survival. The highest percent changes in survival rates compared to the long-term mean were for Phillips River Fall, Chilliwack River Fall and Lower Shuswap River Summer. In the Southern U.S., just over half of the stocks showed decreases in survival compared to the long-term means. There were both large percent increases and decreases in survival in this region. The largest increases were for George Adams Fall Fingerling, Tsoo-Yess Fall Fingerling, and Elwha River, while the largest decrease was for Salmon River.

Coastwide, CYERs generally showed increases compared to the long-term means. In Alaska, including transboundary rivers, Northern Southeast Alaska Spring was the only stock that showed a decrease in CYER compared to the long-term mean. In Canada, the exceptions included Robertson Creek Fall, Big Qualicum River Fall and Quinsam River Fall which showed decreases compared to the long-term means. In the Southern U.S., the following stocks showed decreases in CYERs compared to the long-term means: Hoko Fall Fingerling, Queets Fall Fingerling, George Adams Fall Fingerling, and Skagit Spring Fingerling.

Summary of statistics generated by the 2022 exploitation rate analysis. Statistics include brood year exploitation rates (BYERs), cohort survival rates (age 2 or 3), and calendar year (CY) percent distribution of total mortality in escapement for 2021 (in Alaska [Panel A] and Canada [Panel B]) and 2020 (in Southern U.S. stocks [Panel C]). For each statistic, the values are heat mapped, with low to high BYERs ranging from green to red, respectively, and low to high survival rates and $\%$ to escapement ranging from red to green, respectively. Relative changes between the longer-term averages and last full broods (or all years available since 2019 in the case of \% to escapement) are shown by tertile class symbols, where red diamonds indicate the largest relative increases for BYERs, and largest relative decreases for survival rates and $\%$ to escapement, yellow triangles indicate intermediate changes, and green circles indicate the largest relative decreases for BYERs, and largest relative increases for survival rates and \% escapement.
A) Southeast Alaska and Transboundary Stocks

| Region | Indicator Stock ID/Name |  | BYER (total mortality) |  |  | Age 2 or 3 Survival Rate |  |  | Calendar Year \% Escapement |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Mean | Last Full Brood ${ }^{1}$ | Points Change | Mean | Last Full Brood ${ }^{1}$ | \% Change | $\begin{array}{\|l\|l\|} \hline \text { Mean \% } \\ \text { 2009-18 } \end{array}$ | $\begin{aligned} & \text { Mean \% } \\ & \text { 2019-Last } \end{aligned}$ | Points Change |
| SEAK /TBR | SSA | Southern SEAK Spring ${ }^{3}$ | 39\% | 27\% | $\Delta \quad-12$ | 8.1\% | 2.1\% | - $-74 \%$ | 51\% | 67\% | - 16 |
|  | NSA | Northern SEAK Spring ${ }^{3}$ | 36\% | 63\% | - 27 | 5.5\% | 1.6\% | - $-71 \%$ | 54\% | 43\% | - -11 |
|  | CHK | Chilkat River | 16\% | 4\% | - -12 | 8.4\% | 7.3\% | - $-13 \%$ | 85\% | 98\% | 13 |
|  | STI | Stikine River | 34\% | 6\% | - -28 | 4.2\% | 2.6\% | - $-37 \%$ | 73\% | 89\% | 16 |
|  | TAK | Taku River | 16\% | 3\% | - -13 | 7.9\% | 3.6\% | - $-55 \%$ | 82\% | 95\% | 13 |
|  | TST | Taku and Stikine Rivers | 20\% | 4\% | -16 | 7.3\% | 3.2\% | - $-56 \%$ | 76\% | 93\% | - 17 |
|  | UNU | Unuk River | 29\% | 16\% | $\Delta-13$ | 7.0\% | 2.8\% | - $-60 \%$ | 65\% | 80\% | - 15 |

B) Canadian Stocks

| Region | Indicator Stock ID/Name |  | BYER (total mortality) |  |  | Age 2 or 3 Survival Rate |  |  | Calendar Year \% Escapement |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Mean | Last Full <br> Brood ${ }^{1}$ | Points Change | Mean | Last Full <br> Brood ${ }^{1}$ | \% Change | $\begin{array}{\|c} \hline \text { Mean \% } \\ \text { 2009-18 } \end{array}$ | $\begin{aligned} & \text { Mean \% } \\ & \text { 2019-Last } \end{aligned}$ | Points <br> Change |
| Northern | KLM | Kitsumkalum | 45\% | 28\% | -17 | 0.8\% | 0.9\% | - 18\% | 61\% | 71\% | 10 |
| BC | ATN | Atnarko | 39\% | 28\% | - -11 | 2.2\% | 1.4\% | -36\% | 59\% | 69\% | 10 |
| WCVI | RBT | Robertson Creek Fall ${ }^{2,3}$ | 42\% | 25\% | -17 | 4.6\% | 5.2\% | - $14 \%$ | 45\% | 27\% | -18 |
| Strait of Georgia | BQR | Big Qualicum River Fall | 57\% | 46\% | - -11 | 2.1\% | 1.2\% | -45\% | 58\% | 53\% | -5 |
|  | COW | Cowichan River Fall | 66\% | 53\% | -13 | 1.8\% | 1.1\% | -36\% | 37\% | 62\% | 25 |
|  | PPS | Puntledge River Summer | 50\% | 41\% | -9 | 1.2\% | 0.8\% | -34\% | 62\% | 71\% | 9 |
|  | QUI | Quinsam River Fall | 54\% | 43\% | -11 | 2.0\% | 0.9\% | -53\% | 58\% | 53\% | -5 |
|  | PHI | Phillips River Fall | 28\% | 22\% | -6 | 4.5\% | 7.3\% | 62\% | 69\% | 76\% | 7 |
| Fraser | CHI | Chilliwack River Fall | 40\% | 23\% | -17 | 11.6\% | 15.7\% | 35\% | 69\% | 72\% | 3 |
|  | HAR | Harrison River | 45\% | 22\% | -23 | 3.4\% | 4.1\% | - $22 \%$ | 74\% | 76\% | 2 |
|  | NIC | Nicola River Spring | 26\% | 34\% | 8 | 2.8\% | 3.1\% | - 13\% | 78\% | 87\% | - 9 |
|  | SHU | Lower Shuswap R Summer | 51\% | 23\% | - -28 | 2.9\% | 4.0\% | - 35\% | 56\% | 77\% | - 21 |

C) Southern U.S. Stocks

| Region | Indicator Stock ID/Name |  | BYER (total mortality) |  |  | Age 2 or 3 Survival Rate |  |  | Calendar Year \% Escapement |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Mean | Last Full Brood ${ }^{1}$ | Points <br> Change | Mean | Last Full Brood ${ }^{1}$ | \% Change | $\begin{array}{\|l\|l\|} \hline \text { Mean \% } \\ \text { 2009-18 } \end{array}$ | $\begin{aligned} & \hline \text { Mean \% } \\ & \text { 2019-Last } \end{aligned}$ | Points <br> Change |
| WA Coast | HOK | Hoko Fall Fingerling | 34\% | 44\% | - 10 | 1.4\% | 2.0\% | - 46\% | 69\% | 45\% | - -24 |
|  | QUE | Queets Fall Fingerling | 59\% | 72\% | - 13 | 2.6\% | 2.0\% | - $-20 \%$ | 38\% | 28\% | -10 |
|  | SOO | Tsoo-Yess Fall Fingerling | 37\% | 32\% | $\triangle$ | 0.6\% | 1.2\% | - $97 \%$ | 72\% | 77\% | $\triangle \quad 5$ |
|  | ELW | Elwha River ${ }^{3}$ | 56\% | 25\% | - -31 | 0.7\% | 1.4\% | 96\% | 64\% | 76\% | - 12 |
| Puget Sound | NSF | Nooksack Spring Fingerling ${ }^{3}$ | 40\% | 26\% | A -14 | 1.5\% | 1.9\% | - $28 \%$ | 56\% | 59\% | $\triangle 3$ |
|  | SAM | Samish Fall Fingerling ${ }^{3}$ | 43\% | 40\% | ( -3 | 2.5\% | 1.4\% | - $-43 \%$ | 29\% | 30\% | $\triangle \quad 1$ |
|  | SKF | Skagit Spring Fingerling ${ }^{3}$ | 28\% | 25\% | ( -3 | 1.6\% | 1.5\% | - -3\% | 58\% | 56\% | - -2 |
|  | SSF | Skagit Summer Fingerling ${ }^{3}$ | 35\% | 31\% | - | 1.2\% | 2.0\% | - $60 \%$ | 47\% | 74\% | 27 |
|  | STL | Stillaguamish Fall Fingerling ${ }^{3}$ | 47\% | 29\% | -18 | 1.7\% | 1.4\% | - $-20 \%$ | 52\% | 63\% | 11 |
|  | SKY | Skykomish Fall Fingerling ${ }^{3}$ | 33\% | 19\% | - $\mathbf{- 1 4}^{1}$ | 1.1\% | 1.1\% | - $0 \%$ | 66\% | 75\% | - 9 |
|  | SPS | South Puget Sound Fall Fingerling ${ }^{3}$ | 47\% | 34\% | A -13 | 2.3\% | 2.7\% | - 14\% | 59\% | 60\% | - |
|  | NIS | Nisqually Fall Fingerling ${ }^{3}$ | 42\% | 33\% | - -9 | 1.8\% | 2.5\% | - $45 \%$ | 47\% | 48\% | - |
|  | GAD | George Adams Fall Fingerling ${ }^{3}$ | 46\% | 26\% | - -20 | 1.8\% | 4.8\% | - $171 \%$ | 46\% | 31\% | -15 |
| Columbia River | CWF | Cowlitz Fall Tule ${ }^{3}$ | 36\% | 17\% | - -19 | 0.7\% | 0.1\% | - $-83 \%$ | 67\% | 82\% | 15 |
|  | HAN | Hanford Wild Brights | 50\% | 41\% | $\triangle \quad-9$ | 1.4\% | 0.2\% | - $-83 \%$ | 44\% | 67\% | 23 |
|  | LRH | Lower River Hatchery Tule | 59\% | 62\% | $\Delta$ | 1.1\% | 0.8\% | -25\% | 36\% | 49\% | 13 |
|  | LRW | Lewis River Wild | 44\% | 58\% | - 14 | 2.0\% | 1.7\% | - $-13 \%$ | 48\% | 56\% | - 8 |
|  | LYF | Lyons Ferry Fingerling | 35\% | 41\% | $\Delta$ | 2.2\% | 0.6\% | - $-72 \%$ | 64\% | 73\% | $\Delta$ |
|  | LYY | Lyons Ferry Yearling | 47\% | 54\% | $\checkmark$ | 4.4\% | 3.8\% | - $-14 \%$ | 48\% | 49\% | - |
|  | SMK | Similkameen Summer Yearling | 34\% | 25\% | - -9 | 4.9\% | 5.7\% | - $16 \%$ | 55\% | 79\% | 24 |
|  | SPR | Spring Creek Tule | 72\% | 66\% | ( -6 | 2.0\% | 1.1\% | - $-42 \%$ | 29\% | 41\% | 12 |
|  | SUM | Columbia River Summers | 50\% | 14\% | - -36 | 1.8\% | 1.9\% | - 9\% | 49\% | 77\% | 28 |
|  | URB | Columbia Upriver Bright | 51\% | 37\% | $\Delta^{-14}$ | 2.2\% | 0.8\% | - $-62 \%$ | 53\% | 67\% | 14 |
|  | WSH | Willamette Spring ${ }^{3}$ | 12\% | 7\% | ( -5 | 2.8\% | 1.9\% | - $-33 \%$ | 56\% | 76\% | 20 |
| Oregon Coast | ELK | Elk River ${ }^{3}$ | 22\% | 29\% | $\checkmark$ | 7.7\% | 3.2\% | - $-58 \%$ | 52\% | 56\% | $\triangle \quad 4$ |
|  | SRH | Salmon River ${ }^{3}$ | 37\% | 39\% | - 2 | 6.4\% | 0.5\% | - -92\% | 44\% | 52\% | $\Delta$ |

${ }^{1}$ For 2022, the most recent brood is 2016 for subyearling stocks in Canada, and 2015 for yearling stocks in Alaska and Canada (KLM, NIC) and all stocks in the southern US, except LYY and WSH yearlings (2014).
${ }^{2}$ BYER is ocean exploitation rate only to better represent natural spawner BYER in the presence of terminal fisheries targeting hatchery fish.
${ }^{3}$ Terminal adjustments to CYER applied because fishing mortality on hatchery fish does not represent fishing mortality on wild fish.

## Performance Under the 2019 PST Agreement

Implementation of the newly revised PST Agreement began with fishing year 2019. Attachment I of Chapter 3 identifies CYER limits applicable to ISBM obligations for 31 stocks; of these, CYER limits apply to 17 stocks for Canadian ISBM fisheries and to 22 stocks for U.S. ISBM fisheries. Sixteen of the Attachment I indicator stocks have management objectives ${ }^{2}$. The CTC has evaluated status towards achieving PSC-agreed management objectives for the 16 stocks in Attachment I with identified management objectives for which CYER limits are applicable (CTC 2020). In 2020, only Harrison was at less than $85 \%$ of its escapement goal. Thus, for stocks with management objectives, annual CYER limits only applied to Harrison for 2020 as per paragraph 5(a).

Relative to Canadian ISBM fisheries performance for 2020, annual ISBM obligations were met for 11 of the 15 stocks that could be evaluated; 5 that met their management objectives and

[^1]thus had no applicable CYER limits, and 6 with CYERs that were below the applicable limits. Annual CYER obligations were not met for 4 stocks—Nicola, Harrison, Nooksack Spring ${ }^{3}$, and Snohomish.

Relative to U.S. ISBM fisheries performance for 2020, annual ISBM obligations were met for 20 of the 22 stocks listed in Attachment $\mathrm{I} ; 13$ that met their management objectives and thus had no applicable CYER limits, and 7 that had CYERs that were below the applicable limits. Annual CYER obligations were not met for Nooksack Spring ${ }^{3}$ and South Umpqua.

For each escapement indicator stock identified in Attachment I, the CTC will begin reporting the running 3-year average CYER when data from catch years 2019-2021 are available from both Parties' ISBM fisheries (Footnote 17, 2019 PST Agreement). For Attachment I indicator stocks with a management objective, three years of CYERs that meet the criteria for inclusion specified in paragraph 7(c) will be used to calculate the running 3-year average CYER for the upcoming 2023 exploitation rate analysis report as agreed to by the PSC. The Chinook Interface Group (CIG) will return to the discussion of options and how to deal with years with missing data for future years and make a recommendation to the PSC.

[^2]Review of performance in the Pacific Salmon Treaty Individual Stock-Based Management (ISBM) fisheries, 2020. NA indicates the obligation does not exist for that stock and country combination.

| Attachment I Escapement Indicator Stock | Canadian Obligation Met? | U.S. Obligation Met? |
| :---: | :---: | :---: |
| Skeena | Yes | NA |
| Atnarko | Yes | NA |
| NWVI Natural Aggregate | Yes | NA |
| SWVI Natural Aggregate | Yes | NA |
| East Vancouver Island North | Yes | NA |
| Phillips | Yes | NA |
| Cowichan | Yes | Yes |
| Nicola | No | Yes |
| Chilcotin | NA | NA |
| Chilko | NA | NA |
| Lower Shuswap | Yes | NA |
| Harrison | No | Yes |
| Nooksack Spring | No | No |
| Skagit Spring | Yes | Yes |
| Skagit Summer/Fall | Yes | Yes |
| Stillaguamish | Yes | Yes |
| Snohomish | No | Yes |
| Hoko | NA | Yes |
| Grays Harbor Fall | NA | Yes |
| Queets Fall | NA | Yes |
| Quillayute Fall | NA | Yes |
| Hoh Fall | NA | Yes |
| Upriver Brights | NA | Yes |
| Lewis River Fall | NA | Yes |
| Coweeman | NA | Yes |
| Mid-Columbia Summers | NA | Yes |
| Nehalem | NA | Yes |
| Siletz | NA | Yes |
| Siuslaw | NA | Yes |
| South Umpqua | NA | No |
| Coquille | NA | Yes |

## Mark-Selective Fisheries

Section 5 of this report contains harvest information by region from MSFs. MSFs occurred along the Oregon Coast, Washington Coast, and in the Columbia River, Puget Sound, and Canadian Strait of Juan de Fuca in 2020. The magnitude of impact of a MSF relative to the total exploitation of a stock can be measured using the percentage of the total landed catch in net, sport, and troll fisheries of tagged and marked PSC indicator stocks that occurs in MSFs. Traditionally, the CTC has used PSC indicator stocks that have been double index tagged (DIT) to evaluate the impact of MSFs on the unmarked stocks represented by the unmarked tag group in a DIT pair ${ }^{4}$; however, many CWT indicator stocks do not have a DIT pair. Additionally, coastwide application of electronic tag detection (ETD) and the associated recovery of DIT releases is inconsistent. Accordingly, an approach was applied to estimate mortality distributions for natural stocks that have single index tag (SIT) indicator stocks under conditions where the MSF impacts mainly occur on mature SIT fish proximal to their terminal area. Under MSFs, marked CWT release groups experience different patterns of fishing mortality than unmarked fish. In the future, if MSFs for Chinook become more widely employed, estimation procedures and reporting for marked and unmarked fish for purposes of the ERA-including estimates of BYERs, CYERs, and fishery indices, models and analytical methods-will need to be changed substantially.

[^3]
## 1. Introduction

Chapter 3 of the 2019 Pacific Salmon Treaty (PST) Agreement (PST 2020) requires the Chinook Technical Committee (CTC) to report catch and escapement data and modeling results used to manage Chinook salmon fisheries and stocks harvested within the Treaty area annually. To fulfill this obligation, the CTC provides a series of annual reports to the Pacific Salmon Commission (PSC). This annual report provides an overview of the annual exploitation rate analysis (ERA), the ERA results, and includes calendar year exploitation rates (CYER) which are the metric used to evaluate performance of individual stock-based management (ISBM) fisheries under the 2019 PST Agreement. The results of the ERA are relevant to the PSC's fishery management framework for ISBM fisheries and used as inputs to the PSC Chinook Model calibration (see CTC 2021a for details).

Paragraph 3(b) of the 2019 PST Agreement defines ISBM fisheries as "a regime that constrains the annual impacts within the fisheries of a jurisdiction for a naturally spawning Chinook salmon stock or stock group." Per paragraph 5(a) "ISBM fisheries shall be managed to limit the total adult equivalent mortality for stocks listed in Attachment I that are not meeting agreed biologically-based management objectives, or that do not have agreed management objectives, to no more than the limits identified in Attachment I." The CTC is tasked with evaluating ISBM fishery performance relative to the obligations set forth in paragraphs 5 and 7 annually using the CYER metric to monitor total mortality.

Section 2 of this report describes the methods used to perform the ERA using coded-wire tag (CWT) data provided by management agencies throughout the PST area. Section 3 contains the annual results of the ERA. The results of the 2022 ERA are based on CWT data through catch year 2021 for Alaskan and Canadian stocks and 2020 for southern U.S. stocks. As data become available, Section 4 will contain a performance evaluation of ISBM fisheries relative to the 2019 PST Agreement. Section 5 is a summary of catch in mark-selective fisheries (MSFs) and methods used to evaluate their impacts.

Appendix A shows the relationship between the exploitation rate indicator stocks, escapement indicator stocks, model stocks, and PST Attachment I stocks. Appendix B provides a description of notations found throughout this report. Appendix C through Appendix H present additional output from the ERA beyond the summaries presented in the main body of the report. Appendix C shows the percent distribution of total mortality by catch year for exploitation rate indicator stocks. Appendix D presents methods for estimating brood year exploitation rate (BYER) accompanied by BYER plots by stock. For Appendix D, only complete brood years are shown. Appendix E presents methods for estimating smolt-to-youngest age survival and associated plots by stock. Appendix F displays the data used to adjust ERA results for stocks where a terminal area adjustment was applied (see Section 2.1.3.1 for details). Appendix G shows exploitation rates by stock and age for each aggregate abundance-based management (AABM) fishery. CYERs are provided in Appendix H. CWT data quality and ERA documentation are detailed in Appendix I. Appendix J describes the pseudo recovery inclusion assessment which was the process utilized to account for the untagged/unmarked Chinook released from seven Canadian indicator stocks in 2019.

## 2. Exploitation Rate Analysis Methods

The CTC currently monitors 45 CWT exploitation rate indicator stocks (Figure 2.1; Table 2.1). The ERA relies on cohort analysis, a procedure that reconstructs the cohort size and exploitation history of a given stock for each brood year (BY) using CWT release and recovery data (CTC 1988). The ERA provides stock-specific estimates of BY total, age-, and fishery-specific exploitation rates, maturation rates, smolt-to-age-2 or age-3 survival rates, annual distributions of fishery mortalities, and separate fishery indices for AABM and ISBM fisheries (Table 2.2). Then, in Stock Aggregate Cohort Evaluation (SACE), age-specific CWT indicator estimates of preterminal fishing mortality rates from the ERA are combined with age-specific estimates of stock aggregate terminal return to reconstruct stock aggregate cohorts and age-specific maturation rates for the PSC Chinook Model. Finally, estimates of age- and fishery-specific exploitation and maturation rates from these cohort analyses are combined with data on catches, escapements, and incidental mortalities to complete the annual calibration of the PSC Chinook Model (CTC 2022a).

Indicator stocks used for the ERA and the estimates derived for each stock are shown in Table 2.2. Relationships between the exploitation rate indicator stocks, model stocks, and escapement indicator stocks are provided in Appendix A.


Figure 2.1—Geographical locations of historic and current Chinook salmon coded-wire tag (CWT) exploitation rate indicator stocks. Note: See Table 2.1 for the full stock names associated with each number.
Note: The southern B.C. and Puget Sound area, where concentration of the CWT indicators is greatest, is shown in the expanded view.

Table 2.1-Summary of current and historic (last tagged brood year in brackets) coded-wire tag (CWT) exploitation rate indicator stocks, location, run type, and smolt age.

| Stock/Area | Exploitation Rate Indicator Stock | Hatchery | Run Type | $\begin{gathered} \text { Smolt } \\ \text { Age } \\ \hline \end{gathered}$ | Map No. | Status |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Southeast Alaska | Northern Southeast Alaska (NSA) | Crystal Lake (ACI), Macaulay (AMC) | Spring | Age 1 | 1 | Current |
|  | Southern Southeast Alaska (SSA) | Herring Cove (AHC), Little Port Walter (ALP), Deer Mountain (ADM), Neets Bay (ANB) | Spring | Age 1 | 2 | Current |
|  | Chickamin (CHM) | Wild | Spring | Age 1 | 3 | Historical (2005) |
|  | Chilkat (CHK) | Wild | Spring | Age 1 | 4 | Current |
|  | Unuk (UNU) | Wild | Spring | Age 1 | 5 | Current |
| Transboundary Rivers | Taku (TAK) | Wild | Spring | Age 1 | 6 | Current |
|  | Stikine (STI) | Wild | Spring | Age 1 | 7 | Current |
| North/Central B.C. | Kitsumkalum (KLM) | Deep Creek | Summer | Age 1 | 8 | Current |
|  | Atnarko (ATN) | Snootli | Summer | Age 0 | 9 | Current |
| WCVI | Robertson Creek (RBT) | Robertson Creek | Fall | Age 0 | 10 | Current |
| Strait of Georgia | Quinsam (QUI) | Quinsam | Fall | Age 0 | 11 | Current |
|  | Phillips (PHI) | Gillard Pass | Summer/Fall | Age 0 | 12 | Current |
|  | Puntledge (PPS) | Puntledge | Summer | Age 0 | 13 | Current |
|  | Big Qualicum (BQR) | Big Qualicum | Fall | Age 0 | 14 | Current |
|  | Nanaimo (NAN) | Nanaimo | Fall | Age 0 | 15 | Historical (2004) |
|  | Cowichan (COW) ${ }^{1}$ | Cowichan | Fall | Age 0 | 16 | Current |
| Fraser River | Harrison (HAR) | Chehalis | Fall | Age 0 | 17 | Current |
|  | Chilliwack (CHI) ${ }^{1}$ | Chilliwack | Fall | Age 0 | 18 | Current |
|  | Chilko (CKO) | Spius Creek, Chehalis | Summer | Age 1 | 19 | In development |
|  | Nicola (NIC) | Spius Creek | Spring | Age 1 | 20 | Current |
|  | Lower Shuswap (SHU) ${ }^{1}$ | Shuswap Falls | Summer | Age 0 | 21 | Current |
|  | Middle Shuswap (MSH) | Shuswap Falls | Summer | Age 0 | 22 | Current |
|  | Dome (DOM) | Penny Creek | Spring | Age 1 | 23 | Historical (2002) |
| North Puget Sound | Nooksack Spring Fingerling (NSF) | Kendall Creek | Spring | Age 0 | 24 | Current |
|  | Nooksack Spring Yearling (NKS) | Kendall Creek | Spring | Age 1 |  | Historical (1996) |
|  | Samish Fall Fingerling (SAM) ${ }^{2}$ | Samish | Summer/Fall | Age 0 | 25 | Current |
|  | Skagit Summer Fingerling (SSF) | Marblemount | Summer | Age 0 | 26 | Current |
|  | Skagit Spring Fingerling (SKF) | Marblemount | Spring | Age 0 | 27 | Current |
|  | Skagit Spring Yearling (SKS) ${ }^{2}$ | Marblemount | Spring | Age 1 |  | Historical (2010) |
| Central Puget <br> Sound | Stillaguamish Fall Fingerling (STL) ${ }^{3}$ | Stillaguamish Tribal | Summer/Fall | Age 0 | 28 | Current |
|  | Skykomish Summer Fingerling (SKY) 2,3 | Wallace | Summer/Fall | Age 0 | 29 | Current |
| South Puget Sound | Nisqually Fall Fingerling (NIS) ${ }^{2}$ | Clear Creek | Summer/Fall | Age 0 | 30 | Current |
|  | South Puget Sound Fall Fingerling $(S P S)^{2}$ | Soos/Grovers/Issaquah creeks | Summer/Fall | Age 0 | 31 | Current |
|  | South Puget Sound Fall Yearling (SPY) | Tumwater Falls | Summer/Fall | Age 1 | 32 | Historical (2013) |
|  | Squaxin Net Pens Fall (SQP) | Squaxin Net Pen |  |  | 33 | Historical (1997) |
|  | University of Washington Accelerated (UWA) | University of Washington |  |  | 34 | Historical (1988) |


| Stock/Area | Exploitation Rate Indicator Stock | Hatchery | Run Type | Smolt <br> Age | Map No. | Status |
| :--- | :--- | :--- | :--- | :--- | :--- | :---: |
|  | White River Spring Yearling (WRY) |  |  |  |  |  |

${ }^{1}$ Historical releases with double index tags (DIT); DIT component not currently maintained.
${ }^{2}$ DIT releases associated with this stock.
${ }^{3}$ Though stock is composed of both summer and fall-run components, references to both summer-run and fall-run stocks are used interchangeably throughout document.
${ }^{4}$ No longer adipose fin clipped.
${ }^{5}$ The name for the Sooes River and hatchery was changed to Tsoo-Yess in 2015.
${ }^{6}$ Subyearlings have been CWT-tagged since BY 1986, except for BYs 1993-1997.

Table 2.2-Coded-wire tag (CWT) exploitation rate indicator stocks used in the exploitation rate analysis (ERA) and data derived from them: fishery indices, individual stock-based management (ISBM) calendar year exploitation rates (CYER)—(ISBM CYER Limit), survival indices, brood year exploitation rates (BYER), and stock catch distribution (Dist) with escapement estimates (Esc) and base period (1979-1982) tag recoveries (Base Recoveries).

| Exploitation Rate Indicator Stock | Fishery Index | ISBM CYER Limit | Survival Index | BYER ${ }^{1}$ | Dist | Esc | Base Recoveries |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Northern Southeast Alaska (NSA) | Yes ${ }^{2}$ | - | Yes | Ocean | Yes | Yes | Yes |
| Southern Southeast Alaska (SSA) | Yes ${ }^{2}$ | - | Yes | Ocean | Yes | Yes | Yes |
| Chilkat (CHK) | - | - | Yes | Total | Yes | Yes | - |
| Taku (TAK) | - | - | Yes | Total | Yes | Yes | Yes |
| Stikine (STI) | - | - | Yes | Total | Yes | Yes | - |
| Unuk (UNU) | - | - | Yes | Total | Yes | Yes | - |
| Kitsumkalum (KLM/KLY) | - | Yes (KLm) | Yes | Total | Yes | Yes | - |
| Atnarko (ATN) | Yes | Yes | Yes | Total | Yes | Yes | Yes |
| Robertson Creek (RBT) | Yes | Yes ${ }^{5}$ | Yes | Ocean | Yes | Yes | Yes |
| Quinsam (QUI) | Yes | Yes ${ }^{5}$ | Yes | Total | Yes | Yes | Yes |
| Phillips River Fall (PHI) | - | Yes | - | - | Yes | - | - |
| Puntledge (PPS) | Yes | - | Yes | Total | Yes | Yes | Yes |
| Big Qualicum (BQR) | Yes | - | Yes | Total | Yes | Yes | Yes |
| Nanaimo (NAN) | - | - | Yes | Total | Yes | Yes | Yes |
| Cowichan (COW) | Yes | Yes | Yes | Total | Yes | Yes | - |
| Chilliwack (CHI) | Yes | - | Yes | Total | Yes | Yes | - |
| Chilko (CKO) | - | - | - | Total | Yes | Yes | Yes |
| Harrison (HAR) | - | Yes | Yes | Total | Yes | Yes | - |
| Lower Shuswap (SHU) | Yes | Yes | Yes | Total | Yes | Yes | Yes |
| Middle Shuswap (MSH) | - | - | Yes | Total | Yes | Yes | - |
| Nicola (NIC) | - | Yes | Yes | Total | Yes | Yes | - |
| Nooksack Spring Fingerling (NSF) | - | Yes | Yes | Ocean | Yes | Yes | Yes |
| Nooksack Spring Yearling (NKS) | - | - | Yes | Ocean | Yes | Yes ${ }^{3}$ | - |
| Samish Fall Fingerling (SAM) ${ }^{4}$ | Yes | - | Yes | Ocean | Yes | Yes ${ }^{3}$ | Yes |
| Skagit Spring Fingerling (SKF) | - | Yes | Yes | Ocean | Yes | Yes | - |
| Skagit Spring Yearling (SKS) | - | - | Yes | Ocean | Yes | Yes ${ }^{3}$ | - |
| Skagit Summer Fingerling (SSF) | - | Yes | Yes | Ocean | Yes | Yes | - |
| Skykomish Summer Fingerling (SKY) | - | Yes | Yes | Ocean | Yes | Yes | - |
| Stillaguamish Summer Fingerling (STL) | - | Yes | Yes | Ocean | Yes | Yes | - |
| Nisqually Fall Fingerling (NIS) | - | - | Yes | Ocean | Yes | Yes | Yes |
| South Puget Sound Fall Fingerling (SPS) | Yes | - | Yes | Ocean | Yes | Yes ${ }^{3}$ | Yes |
| South Puget Sound Fall Yearling (SPY) ${ }^{4}$ | Yes | - | Yes | Ocean | Yes | Yes ${ }^{3}$ | Yes |
| University of WA Accelerated (UWA) | - | - | - | - | Yes | - | Yes |
| White River Spring Yearling (WRY) | - | - | Yes | Ocean | Yes | Yes ${ }^{3}$ | Yes |
| George Adams Fall Fingerling (GAD) | Yes | - | Yes | Ocean | Yes | Yes ${ }^{3}$ | Yes |
| Elwha Fall Fingerling (ELW) | - | - | Yes | Ocean | Yes | - | - |
| Hoko Fall Fingerling (HOK) | - | Yes | Yes | Total | Yes | Yes | - |
| Queets Fall Fingerling (QUE) | - | Yes ${ }^{5}$ | Yes | Total | Yes | - | Yes |
| Tsoo-Yess Fall Fingerling (SOO) | - | - | Yes | Total | Yes | Yes | - |


| Exploitation Rate Indicator Stock | Fishery <br> Index | ISBM CYER <br> Limit | Survival <br> Index | BYER $^{\mathbf{1}}$ | Dist | Esc | Base <br> Recoveries |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Columbia Lower River Hatchery <br> (LRH) | Yes | - | Yes | Total | Yes | Yes | Yes |
| Cowlitz Tule (CWF) | Yes | Yes | Yes | Ocean | Yes | Yes | Yes |
| Lewis River Wild (LRW) | Yes | Yes | Yes | Total | Yes | Yes | Yes |
| Spring Creek Tule (SPR) | Yes | - | Yes | Total | Yes | Yes | Yes |
| Willamette Spring (WSH) | Yes | - | Yes | Ocean | Yes | Yes | Yes |
| Columbia Summers (SUM) | Yes | Yes | Yes | Total | Yes | Yes | Yes |
| Columbia Upriver Brights (URB) | Yes | Yes | Yes | Total | Yes | Yes | Yes |
| Hanford Wild (HAN) | - | - | Yes | Total | Yes | Yes | - |
| Similkameen Summer Yearling <br> (SMK) | - | - | Yes | Total | Yes | Yes | - |
| Lyons Ferry Fingerling (LYF) | - | - | Yes | Total | Yes | Yes | - |
| Lyons Ferry Yearling (LYY) | - | - | Yes | Total | Yes | Yes | - |
| Salmon River (SRH) | Yes | Yes $^{5}$ | Yes | Ocean | Yes | Yes | Yes |
| Elk River (ELK) | Yes | Yes $^{5}$ | Yes | Ocean | Yes | Yes | Yes |

${ }^{1}$ For stocks of hatchery origin and subject to terminal fisheries directed at harvesting surplus hatchery production, ocean fisheries do not include terminal net fisheries. Otherwise, total fishery includes terminal net fisheries.
${ }^{2}$ Northern Southeast Alaska (NSA) and Southern Southeast Alaska (SSA) were used in the stratified proportional fishery index for the Phase II
Pacific Salmon Commission Chinook Model.
${ }^{3}$ Only hatchery rack recoveries are included in escapement.
${ }^{4}$ Stock of hatchery origin not used to represent naturally spawning stock.
${ }^{5}$ The CYER limits includes terminal adjustments.

### 2.1 Overview of Coded-Wire Tag-Based Exploitation Rate Analyses

The ERA calculates several important metrics, listed in Table 2.2. The details for calculating each metric are outlined in Appendix C, Appendix D, Appendix E, and Appendix F. Described here are a few key details of the ERA; each have additional information which can be found in the referenced material.

### 2.1.1 Description of Incidental Mortality

Management strategies have changed considerably for fisheries of interest to the PSC since the PST was signed in 1985. Regulatory changes have included size limit changes, extended periods of Chinook Non-Retention (CNR) fisheries, mandatory release of Chinook salmon caught in some net fisheries, and MSFs under various retention restrictions. Fisheries indices can be reported as either total mortality, or its components: catch mortality and incidental mortality (IM). Here we report total mortality for ISBM fisheries, but the indices are split into components for AABM fisheries. Estimates of IM are essential for assessment of total fishery impacts, yet they cannot be determined directly from CWT recovery data. IM is estimated for both legal and sub-legal sized fish by accounting for each of the following: (1) drop-off mortality of legal-sized fish in retention fisheries (CTC 2022b), (2) mortality of legal-size fish in CNR fisheries, (3) mortality of sublegal-size fish in both retention and CNR fisheries.

Additional details about the methods used to estimate IM have been described by the CTC Analytical Work Group (AWG) (CTC AWG Unpublished), CTC (2004), and CTC (2022b).

### 2.1.2 Calendar Year Exploitation Rates

Beginning with fishing year 2019, the 2019 PST Agreement outlines a new metric for the evaluation of ISBM fisheries. The calendar year exploitation rate is now used to monitor total mortality in ISBM fisheries and for limiting total adult equivalent (AEQ) mortality (paragraph 5(e)) on Attachment I stocks. Performance analysis is dependent on the recovery of CWTs and, for some stocks, estimates of harvest rates in specific terminal fisheries (particularly in-river). The CTC provides evaluation for ISBM fisheries on a post-season basis, with a two-year lag for Southern U.S. stocks' CWT processing. See Appendix H and Section 4 for calculation and evaluation of the CYER metric, including a description of the three-year running CYER average.

### 2.1.3 Assumptions of the CWT Exploitation Rate Analyses

Assumptions for the procedures used in the ERA are summarized below and are discussed in more detail in a previous publication (CTC 1988); SACE, which provides maturation rates that replace the CWT-only maturation rates for use in the PSC Chinook Model, is described in the 2019 Base Period Calibration documentation (CTC 2021b; CTC 2021c; CTC in prep.):

1. CWT recovery data are obtained in a consistent manner from year to year or can be adjusted to be made comparable.
2. Use of ratios may reduce or eliminate the effect of data biases that are consistent from year to year. Many of the analyses rely upon indices that are computed as the ratio of a statistic in a particular year to the value associated with a base period.
3. For ocean age-2 and older fish, natural mortality varies by age but is constant across years. Natural mortality rates applied by age are: age $1 \rightarrow$ age $2,40 \%$; age $2 \rightarrow$ age 3, $30 \%$; age $3 \rightarrow$ age 4, 20\%; and age $4 \rightarrow$ age 5 and older $10 \%$ (i.e., after fishing mortality and maturation of the age 4 cohort, $10 \%$ of the remaining immature fish die due to natural causes before moving to the next age class and before the commencement of fishing the next year).
4. All stocks within a fishery have the same size distribution at age, and the distribution of any individual stock across fisheries is constant across years.
5. The spatial and temporal catch distribution of sublegal-size fish of a given stock and age is the same as that for legal-size fish of that stock and age.
6. IM rates per encounter are constant among years. The rates vary by fish size (legal or sublegal) and fishery, and rates for troll and sport fisheries were published by the CTC (1997), updated in 2004 (CTC 2004), and re-examined in 2022 (CTC 2022b).
7. The procedures for estimating the mortality of CWT fish of legal size during periods of CNR assume that for any year the stock distribution during CNR periods is the same as during legal catch retention periods. To account for this in Canadian fisheries, the number of legal encounters during the CNR fishery was adjusted by a selectivity factor (i.e., the proportion of fishing areas that remain open during CNR periods). A factor of 0.34 was used across years for the West Coast Vancouver Island (WCVI) and Strait of Georgia troll fisheries. This value was the average selectivity factor calculated from three years of observer data in the Alaska troll fishery; however, because Alaska provides an independent estimate of legal and sublegal encounters each year, this 3year average selectivity factor is not needed for the Southeast Alaska (SEAK) troll fishery. A factor of 0.20 was used in the North/Central British Columbia (BC) troll fishery.
8. Maturation rates for BYs in which all ages have not matured (incomplete broods) are equal to the most recent six-year average of completed BYs. Maturation rates are stockand age-specific.
9. Age 4 (age 5 for spring stocks) and older Chinook salmon recovered in ocean net fisheries are assumed to be mature fish.
10. When using the fishery indices as a measure of change in fishery harvest rates among years, the temporal and spatial distribution of stocks in and among fisheries and years is assumed to be stable.
11. CWT recoveries used in the ERA are from adipose-clipped fish. There is no adjustment to the estimate of mortality in the ERA on adipose-intact fish that must be released in fisheries under adipose-clipped mark-selective regulations.
12. The general assumption used for assessment, termed the "gorilla assumption" by the CWT Expert Panel (Expert Panel 2005), is that the vulnerability to—and distribution amongst fisheries of each CWT indicator stock-is the same as the associated model stock that it represents. Similarly, the maturation rate schedule implicit in age-specific terminal returns are assumed to be the best such estimates for stock aggregates in SACE.

The exploitation rate estimates for an indicator stock are not calculated in the following instances:

1. The number of CWT recoveries is limited (i.e., fewer than 10 estimated recoveries for a given brood stock-age combination).
2. There are no CWT recoveries in the spawning escapement.
3. There are fewer than four BYs with CWT recoveries.

### 2.1.3.1 Terminal Area Adjustments

Attachment I of Chapter 3 of the 2019 PST Agreement identifies 11 CWT exploitation rate indicator stocks that require adjustments to CWT recovery rates in terminal fisheries to accurately represent the fishery impacts on the associated escapement indicator stock. Terminal adjustment methods (TAM) rely on auxiliary information to address differing fishery harvest rates of CWT indicator stocks relative to associated wild stocks in order to adjust terminal harvest rates for escapement indicator stocks. This is accomplished by substituting terminal CWT recoveries with terminal harvest and escapement estimates for the escapement indicator stock (CYER WG 2021). Terminal area adjustments can substantially adjust/improve the estimated CYER in ISBM fisheries (CYER WG 2019), especially when differences in the return location, run timing, or other factors result in a different terminal harvest rate on the CWT indicator stock than on the associated escapement indicator stock (CTC 2019a): these terminal adjustments to CWT recoveries are a more accurate reflection of the harvest rate on the associated escapement indicator stock (Appendix F).

## 3. Exploitation Rate Analysis Results

In this section, key ERA results are reviewed on a region-by-region basis and discussed briefly in terms of general patterns and trends at the stock and stock group level. Results are presented for the following ERA metrics: brood year exploitation rate (total or ocean, depending on stock), early marine survival rate, and mortality distribution. Although some of this content is germane to assessments on the effectiveness of the PST, such evaluations necessitate that other information also be considered (e.g., performance of escapement indicator stocks, AABM and ISBM fisheries, etc.). Thus, the emphasis of this section is on pattern description only, not on drawing inferences about cause-effect relationships due to changing management regimes.

### 3.1 Southeast Alaska and Transboundary Stocks

There are four wild, one wild aggregate, and two hatchery aggregate CWT indicator stocks in SEAK. The four wild stocks are the Chilkat River (CHK), Stikine River (STI), Taku River (TAK), and Unuk River (UNU). The one wild aggregate stock is the Taku and Stikine Rivers (TST). The TST indicator stock is used to represent the Taku and Stikine River PSC Chinook Model stock. The CHK and UNU CWT indicator stocks are not currently used to represent SEAK stocks in the PSC Chinook Model; however, these data are used to evaluate the efficacy of the hatchery indicator stock assumption. The two SEAK hatchery indicator stocks are comprised of CWT data from multiple hatcheries. Southern Southeast Alaska Spring (SSA) is composed of CWT data from four SEAK hatcheries (Little Port Walter, Neets Bay, Deer Mountain, and Whitman Lake) and Northern Southeast Alaska Spring (NSA) is composed of CWT data from two SEAK hatcheries (Crystal Lake and Macaulay). The SSA and NSA CWT indicator stocks are used in the PSC Chinook Model. SEAK wild and hatchery stocks enter the ocean as yearlings; age 3 is the youngest age at which CWTs are recovered.

### 3.1.1 Brood Year Exploitation Rates

The BYERs computed for CHK, STI, TAK, TST, and UNU include recoveries from ocean and terminal fisheries. The BYERs computed for NSA and SSA do not include terminal recoveries because terminal exploitation rates on hatchery fish are not representative of SEAK wild stock exploitation rates. Overall, the SSA BYER estimates have usually exceeded $30 \%$; since 1976, only BYs 1996-1999, 2004-2007, and 2013-2015 were less than 30\% (Table 3.1; Appendix D1). NSA BYER estimates have also usually exceeded 30\%; since 1979, only BYs 1987, 1994-1997, and 2012-2014 were less than 30\% (Table 3.1; Appendix D1). The BYERs for SEAK wild stocks CHK and TAK are usually less than 20\% which includes recent BYs. After the brood years 1998-2006, BYERs for the STI wild stock have been less than 30\% for BYs 2007-2015. The BYERs for the UNU wild stock exceeded $30 \%$ for BYs 2009-2012 but have been less than $30 \%$ for the 3 most recent complete BYs (Table 3.1; Appendix D2).

In calendar year 2019, 4 year olds ( $\mathrm{BY}=2015$ ) of the NSA stock experienced higher than normal IM. The vast majority of this IM is from sublegal size Chinook in the purse seine fishery. This large IM was mainly due to a very large number of sublegal CNR encounters (the largest since 1994), which itself was due to a large number of sublegal size Chinook in the water and a long

CNR period for the purse seine fishery. In subsequent years for which the CTC currently has data (2020, 2021), sublegal CNR encounters decreased back to typical numbers and it is expected that the subsequent complete broods revert back to a more typical ratio of IM to Total Mortality.

### 3.1.2 Survival Rates

Survival rates for SEAK and transboundary (TBR) stocks (Table 3.1; Appendix E1; Appendix E2) were computed at age 3 because these stocks enter the ocean predominately as yearlings. The CHK survival rates ranged from $1 \%$ to $8 \%$ since BY 1999, including $7.3 \%$ for the most recent complete BY (2015). The STI survival rates ranged from $1 \%$ to $7 \%$ since BY 1998, including $2.6 \%$ for the most recent complete BY (2015). The TAK survival rates ranged from $2 \%$ to $29 \%$ since BY 1991, including $3.6 \%$ for the most recent BY (2015). The UNU survival rates ranged from 2-14\% since BY 1982, including $2.8 \%$ for the most recent BY (2015). The NSA survival rates ranged from $1-24 \%$ since BY 1979, including 1.6\% for the most recent BY (2015, Appendix E1). The SSA survival rates ranged from $2-26 \%$ since BY 1976 including $2.1 \%$ for the most recent BY (2015, Appendix E1).

### 3.1.3 Mortality Distributions

Distribution of mortalities for SEAK wild, TBR wild, and SEAK hatchery stock groups in the 20092018 and 2019-present Treaty annex periods are illustrated in Table 3.1 and, here, in Figure 3.1. Overall, beginning with the 1999 Agreement, a high percentage of mortality was in escapement for CHK (2004-2021 average 85\%; Appendix C4), STI (2003-2021 average 67\%; Appendix C51), TAK (1999-2021 average 82\%; Appendix C54), and UNU (1999-2020 average 70\%; Appendix C56), and otherwise mostly in SEAK AABM sport, troll, and net fisheries. Within the SEAK AABM fisheries in the 1999-2021 period, the SEAK troll fishery caught a higher percentage of STI fish (average 6\% of total mortalities), TAK fish (average 4\%), and UNU fish (average 14\%), whereas the SEAK net fishery caught a higher percentage of CHK fish (average $6 \%$ ). Outside of SEAK AABM fisheries, a few STI and UNU mortalities have occurred in the Canadian net and NBC troll and sport fisheries in some years. Approximately $53 \%$ and $51 \%$ of NSA and SSA mortalities, respectively, occurred within escapement in the 1999-2021 period, with remaining mortalities occurring in the SEAK AABM and terminal fisheries (Appendix C24; Appendix C49). For the 1999-2021 period, the SEAK AABM troll fishery accounted for an average of $19 \%$ of the SSA total mortalities, followed by SEAK AABM net fisheries averaging $7 \%$.; SEAK AABM troll averaged $19 \%$ of NSA mortality, and SEAK AABM net averaged 15\%; SEAK AABM sport fisheries accounted for $4 \%$ and $6 \%$ of the NSA and SSA stock groups mortality, respectively. For the same time period, SEAK terminal fisheries combined (troll, net, sport) accounted for $9 \%$ of total NSA mortality and $15 \%$ of SSA total mortality (Appendix C24; Appendix C49).


Figure 3.1—Distribution of total mortality for Southeast Alaska indicator stocks from the 2009 (2009-2018) and 2019 (2019-2028) Pacific Salmon Treaty Agreement periods.

### 3.1.4 Regional Summary for Southeast Alaska Stocks

Table 3.1—Summary of statistics generated by the 2022 coded-wire tag (CWT) cohort analysis for Southeast Alaska and transboundary river indicator stocks. Statistics include total mortality (catch plus incidental mortality), brood year exploitation rate (BYER), cohort survival rate to age 3 , and calendar year (CY) percent distribution of the total mortality in escapement.

| Indicator Stock Name | BYER (total mortality) |  | Survival rate |  | CY \% Escapement ${ }^{1}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | 2009-2018 <br> Mean <br> (range) | 2019-current |  |
|  | Mean (range) | Last complete BY |  | Mean (range) | Last complete BY | Mean (range) | Last CY (year) |
| Southern Southeast Alaska Spring ${ }^{2}$ (SSA) | $\begin{gathered} 39 \% \\ (22 \%-62 \%) \end{gathered}$ | $\begin{gathered} 27 \% \\ (2015) \\ \hline \end{gathered}$ | $\begin{array}{c\|} \hline 8.11 \% \\ (2.07-26.00 \%) \\ \hline \end{array}$ | $\begin{aligned} & 2.07 \% \\ & (2015) \\ & \hline \end{aligned}$ | $\begin{gathered} 51 \% \\ (35-65 \%) \end{gathered}$ | $\begin{gathered} 67 \% \\ (61-77 \%) \end{gathered}$ | $\begin{gathered} 61 \% \\ (2021) \\ \hline \end{gathered}$ |
| Northern Southeast Alaska Spring ${ }^{2}$ (NSA) | $\begin{gathered} 36 \% \\ (15 \%-65 \%) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 63 \% \\ (2015) \\ \hline \end{gathered}$ | $\begin{array}{\|c\|} \hline 5.50 \% \\ (0.67-23.98 \%) \\ \hline \end{array}$ | $\begin{aligned} & \hline 1.59 \% \\ & (2015) \\ & \hline \end{aligned}$ | $\begin{gathered} 54 \% \\ (40-75 \%) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 43 \% \\ (25-72 \%) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 25 \% \\ (2021) \\ \hline \end{gathered}$ |
| Chilkat River (CHK) | $\begin{array}{c\|} \hline 16 \% \\ (4 \%-30 \%) \\ \hline \end{array}$ | $\begin{gathered} \hline 4 \% \\ (2015) \\ \hline \end{gathered}$ | $\begin{array}{\|c\|} \hline 8.40 \% \\ (2.70-18.76 \%) \\ \hline \end{array}$ | $\begin{aligned} & \hline 7.27 \% \\ & (2015) \\ & \hline \end{aligned}$ | $\begin{gathered} 85 \% \\ (72-95 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 98 \% \\ (97-100 \%) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 100 \% \\ (2021) \\ \hline \end{gathered}$ |
| Stikine River (STI) | $\begin{array}{c\|} \hline 34 \% \\ (6 \%-81 \%) \\ \hline \end{array}$ | $\begin{gathered} \hline 6 \% \\ (2015) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 4.17 \% \\ (1.27-7.60 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & \hline 2.62 \% \\ & (2015) \\ & \hline \end{aligned}$ | $\begin{gathered} \hline 73 \% \\ (57-92 \%) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 89 \% \\ (86-91 \%) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 90 \% \\ (2021) \\ \hline \end{gathered}$ |
| Taku River (TAK) | $\begin{gathered} \hline 16 \% \\ (3 \%-37 \%) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 3 \% \\ (2015) \\ \hline \end{gathered}$ | $\begin{array}{\|c\|} \hline 7.93 \% \\ (1.47-28.80 \%) \\ \hline \end{array}$ | $\begin{aligned} & \hline 3.59 \% \\ & (2015) \\ & \hline \end{aligned}$ | $\begin{gathered} \hline 82 \% \\ (61-96 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 95 \% \\ (93-96 \%) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 93 \% \\ (2021) \\ \hline \end{gathered}$ |
| Taku and Stikine Rivers (TST) | $\begin{array}{c\|} \hline 20 \% \\ (4 \%-50 \%) \\ \hline \end{array}$ | $\begin{gathered} \hline 4 \% \\ (2015) \\ \hline \end{gathered}$ | $\begin{array}{\|c\|} \hline 7.26 \% \\ (1.37-28.80 \%) \\ \hline \end{array}$ | $\begin{aligned} & \hline 3.19 \% \\ & (2015) \\ & \hline \end{aligned}$ | $\begin{gathered} 76 \% \\ \text { (59-94\%) } \\ \hline \end{gathered}$ | $\begin{gathered} 93 \% \\ \text { (92-94\%) } \\ \hline \end{gathered}$ | $\begin{gathered} \hline 92 \% \\ (2021) \\ \hline \end{gathered}$ |
| Unuk River (UNU) | $\begin{gathered} 29 \% \\ (15 \%-54 \%) \end{gathered}$ | $\begin{gathered} \hline 16 \% \\ (2015) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 6.95 \% \\ (1.78-14.00 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & \hline 2.77 \% \\ & (2015) \\ & \hline \end{aligned}$ | $\begin{gathered} 65 \% \\ (41-85 \%) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 80 \% \\ (79-83 \%) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 79 \% \\ (2021) \\ \hline \end{gathered}$ |

[^4]
### 3.2 North and Central British Columbia Stocks

There are two hatchery CWT indicator stocks for North and Central B.C.: Kitsumkalum and Atnarko. The North/Central B.C. Model stock (NTH) was split into North (NBC) and Central (CBC) Model stocks in the Phase II PSC Chinook Model. NBC includes Nass and Skeena escapements and is represented by the Kitsumkalum hatchery indicator stock (KLM), which is composed of tagged fish from the Deep Creek Hatchery. The CBC Model stock includes the Atnarko, Wannock, and Chuckwalla-Kilbella escapements, and this stock is represented by the Atnarko stock (ATN), which is composed of tag recoveries from the Snootli Hatchery. Kitsumkalum Chinook enter the ocean as yearlings and age 3 is the youngest age at which CWTs are recovered, whereas Atnarko Chinook enter the ocean as subyearlings and age 2 is the youngest age recovered. The KLM time series begins in BY 1979, and the ATN time series begins in BY 1986. There were no KLM CWT releases in 1982 and 2019, and no ATN CWT releases in 2003, 2004 and 2019.

### 3.2.1 Brood Year Exploitation Rates

The BYERs computed for KLM and ATN include recoveries from both ocean and terminal fisheries. The total BYER for KLM has been generally decreasing from $69 \%$ in 1989 to approximately $28 \%$ for BY 2015, the last complete brood year, though there have been oscillations of varying length (Appendix D3). KLM BYER averaged 45\% (Table 3.2). The BYER for ATN was $60 \%$ for BY 2006 and has generally declined since. It was $28 \%$ in 2016, the last complete brood year (Appendix D3). ATN BYER averaged 39\% (Table 3.2). Incidental mortalities within the total KLM BYER range from 5 to $10 \%$ and average 7\%, and within the total ATN BYER range from 2 to 5\% and average 3\% (Appendix D3).

### 3.2.2 Survival Rates

The survival rate of KLM is survival to age 3 because the fish enter the ocean as yearlings, whereas the survival rate of ATN is survival to age 2 because the fish enter the ocean as subyearlings. Brood years included in the survival rate analyses of KLM were 1979 to 1981 and 1983 to 2017. Brood years included for the analyses of ATN were 1986 to 2002 and 2005 to 2018. The KLM survival rates have averaged $0.80 \%$ and ranged from $0.14-1.95 \%$ with a rate of $0.94 \%$ for the last complete BY, 2015 (Appendix E3; Table 3.2). The ATN survival rates have averaged $2.22 \%$ and ranged from $0.50-5.88 \%$ with a survival rate of $1.42 \%$ for the last complete BY, 2016 (Appendix E3; Table 3.2).

### 3.2.3 Mortality Distributions

Escapement accounted for an average of $56 \%$ of the KLM total mortality across the entire mortality distribution time series which began in catch year 1985. The percent attributable to escapement has increased through time overall. Average mortality in the escapement was $61 \%$ in KLM during 2009-2018 and 71\% during 2019-2021. Catch and IM in NBC ISBM sport has historically been a large mortality component for KLM (2009-2018 average: 10\%; 2019-2021 average: $7.4 \%$ ) but in 2021 was 0\%. SEAK AABM troll mortality has declined (2009-2018 average: 12\%; 2019-2021 average: 5\%) but SEAK AABM net (2009-2018 average: 1.9\%; 20192021 average: $7.8 \%$ ) and sport (2009-2018 average: 2.9\%; 2019-2021 average: 5.6\%) have
increased and SEAK AABM mortality component averages $17.5 \%$ under the current agreement ( $16.5 \%$ in 2009-18). NBC AABM troll and ISBM Canada net fisheries were large mortality components for KLM during 1985-1995, accounting for 10\% (AABM troll) and 14\% (ISBM terminal net) of the total mortality, but their magnitude has decreased in recent years (Appendix C15; Appendix C16). No terminal sport mortality (0\%) occurred for KLM from 20182021.

Escapement accounted for an average of $63 \%$ of the ATN total mortality across the entire mortality distribution time series which began in catch year 1990. Average mortality in the escapement was $62 \%$ for ATN during 2009-2018 and 70\% during 2019-21. Canadian ISBM (2019-2021 average: $18.2 \%$ made up of $14.4 \%$ net and $3.8 \%$ sport) and terminal fisheries (2019-2021 average: $7.4 \%$ made up of $5.3 \%$ net and $2.1 \%$ sport) were the largest mortality components for ATN, with SEAK AABM and Canadian AABM making up a lower percentage in 2019-2021 compared to 2009-2018 (Appendix C1; Figure 3.2).

There are essentially no strays for KLM and ATN.


Figure 3.2-Distribution of total mortality for North (KLM) and Central (ATN) British Columbia indicator stocks from the 2009 (2009-2018) and 2019 (2019-2028) Pacific Salmon Treaty Agreement periods.

### 3.3 West Coast Vancouver Island Stocks

There is one hatchery CWT indicator stock to represent wild and hatchery WCVI Chinook. The Robertson Creek Fall (RBT) indicator stock is composed of tag recoveries from the Robertson Creek hatchery, and it is used to represent the WCVI model stocks RBH (hatchery) and RBT (natural). WCVI Chinook enter the ocean as subyearlings and age 2 is the youngest age recovered. The RBT time series begins in BY 1973 and the latest complete BY is 2016 (Appendix D4).

### 3.3.1 Brood Year Exploitation Rates

The BYER computed for RBT only includes recoveries from ocean fisheries. The total BYER for RBT has decreased from approximately $67 \%$ for BY 1973 to $25 \%$ for BY 2016, with an average of $42 \%$ over the entire time series (Appendix D4). Most of the BYER is attributed to landed catch ( $17 \%-57 \%$ ), with IM estimates ranging from only $2 \%$ to $30 \%$. The exception was in BY 1991, when IM was higher than landed catch ( $30 \%$ versus $23 \%$, respectively). The most recent complete BY (2016) had the second lowest landed catch in the time series at $18 \%$ and a moderate IM of 7\%.

### 3.3.2 Survival Rates

The survival rate of RBT represents survival to age 2 because the juveniles enter the ocean as subyearlings and age 2 fish are the youngest recovered. RBT survival rates vary widely, but have generally declined over time, ranging from 20\% for BY 1974 to 0.03\% for BY 1992, averaging 5\% and ranging from $0.03 \%$ for BY 1992 to $20 \%$ for BY 1974. The last complete BY (2016) has a survival rate of 5\% (Appendix E4).

### 3.3.3 Mortality Distributions

Total mortality attributed to escapement for RBT declined from an average of 45\% during 2009-2018 to 27\% during 2019-2021; prior to 2009 escapement mortality averaged 37\% (1979 - 2008) (Appendix C34; Figure 3.3).

Most of the total mortality for RBT during the recent 2019-2021 period is attributed to catch and IM in Canadian terminal fisheries (43\%) which is a substantial increase from the previous period (19\% during 2009-2018). Of the Canadian terminal fisheries, net fisheries accounted for most of the recent period total mortality (average 36\% during 2019-2021), which increased from the previous period (average 10\% during 2009-2018). Canadian terminal sport fisheries contribute a small amount to the total mortality for RBT and have been relatively consistent over both periods (average 9\% during 2009-2018; average 8\% during 2019-2021).

Total mortality attributed to all AABM fisheries declined moderately from 26\% for 2009-2018 to $21 \%$ for 2019-2021. SEAK troll fisheries continue to make up the highest proportion of AABM mortality, though this proportion has declined on average from the previous period (11\%) to the current (6\%). SEAK net (averaging 3\% during 2009-2018 and 4\% during 2019-2021) and sport (averaging 3\% during 2009-2018 and 2\% during 2019-2021) fisheries account for a moderate amount of the RBT mortality. NBC AABM troll and sport fisheries accounted for similarly moderate portions of AABM mortalities, with sport (averaging 5\% during 2009-2018 and 3\% during 2019-2021) contributing slightly more than troll (averaging 2\% during 20092018 and $3 \%$ during 2019-2021). WCVI AABM troll (averaging 1\% during 2009-2018 and 20192021) and sport (averaging 3\% during 2009-2018 and 2\% during 2019-2021) fisheries account for a minimal portion of RBT total mortality.

The total mortality to RBT across all ISBM fisheries declined slightly the previous and current periods (averaging 10\% during 2009-2018 and 8\% during 2019-2021). Southern BC sport contributes the most mortality in the terminal area and the second highest among all fisheries, averaging 6\% during 2009-2018 and 2019-2021, while NBC/CBC sport contribute moderately
(averaging 3\% during 2009-2018 and 2019-2021) and all other ISBM fisheries are negligible (<1\%).

Observed strays make up a very small percentage of the total mortality for RBT (average 0.2\% during 2009-2018; average 0.5\% during 2019-2021). The largest percentage of the total mortality represented by strays in RBT was 1\% in 2017 and again in 2020.


Figure 3.3—Distribution of total mortality for West Coast Vancouver Island indicator stock from the 2009 (2009-2018) and 2019 (2019-2028) Pacific Salmon Treaty Agreement periods.

### 3.3.4 Terminal Area Adjustments

Unadjusted and adjusted mortality estimates are given for the RBT CWT indicator to bound the likely range of ISBM (and other) fishery impacts applicable to the escapement indicator stocks comprising the aggregate. The adjusted estimates were obtained by subtracting the terminal fishery CWT estimates specific to RBT from the ISBM fishery total and adding them to the escapement. Recalculation of the percentage distribution of mortality results in some adjustment to each category. Recent WCVI terminal fishery assessments provide estimates of the catch of natural-origin stocks for a number of terminal fisheries along the WCVI (Luedke et al. 2019), however the analysis was not conducted at the scale of the Southwest Vancouver Island (SWVI; Appendix C36) and Northwest Vancouver Island (NWVI; Appendix C35) escapement indicator stocks (Figure 3.4). Natural WCVI origin stocks are not targeted in the terminal areas.


Figure 3.4—Distribution of total mortality for the West Coast Vancouver Island hatchery indicator stock before applying the terminal area adjustment (Robertson Creek Fall [RBT]) and after the terminal area adjustments for the escapement indicator stocks (Northwest Vancouver Island [NWVI] and Southwest Vancouver Island [SWVI]) for the 2009 (2009-2018) and 2019 (2019-2028) Pacific Salmon Treaty Agreement periods.

### 3.4 Strait of Georgia Stocks

Strait of Georgia model stocks are segregated into Upper Strait of Georgia (UGS), Middle Strait of Georgia (MGS), Lower Strait of Georgia (LGS), and Puntledge Summers (PPS) in the Phase II PSC Chinook Model (Appendix A3).

There is one hatchery CWT indicator stock for UGS (Quinsam [QUI]), one for MGS (Big Qualicum [BQR]), and one for LGS (Cowichan [COW]), in addition to Puntledge (PPS) representing the PPS Model stock. QUI comprises tag recoveries from the Quinsam Hatchery. COW comprises tag recoveries from the Cowichan, whereas PPS and BQR comprise tag recoveries from the Puntledge and Big Qualicum hatcheries. Strait of Georgia Chinook enter the ocean as subyearlings and age 2 is the youngest age at which CWTs are recovered. The QUI time series begins in brood year 1974, COW in 1985, PPS in 1975, and BQR in 1973.

### 3.4.1 Brood Year Exploitation Rates

The BYERs computed for Strait of Georgia stocks include recoveries from ocean fisheries and terminal fisheries. Overall, QUI, BQR, COW, and PPS have all shown a general declining trend in BYERs across the entire time series. (Appendix D5).

The total BYER for QUI (representing UGS) has generally decreased overall, from 71.1\% in BY 1974 to $42.8 \%$ in BY 2016, averaging 54.1\% over the entire time series and ranging from 29.1\%
for BY 1997 to 84.5\% for BY 1977. After dropping to 29.1\% for BY 1997, BYER range lessened from $30.3 \%$ for BY 2004 to $51.1 \%$ for BY 2005, averaging $42.1 \%$ since 1998 . IM accounts for, on average, $11.0 \%$ of the exploitation rate (from $5.3 \%$ in BY 2012 to $43.0 \%$ in BY 1991); the last complete brood year IM was $12.4 \%$ (2016). IM was only higher than landed catch exploitation rate in BY 1991 (43.0\% versus 37.7\%, respectively).

The total BYER for BQR (representing MGS) has generally decreased overall, from $84.1 \%$ in BY 1974 to $45.9 \%$ in BY 2016. Over the time series it has averaged $57.3 \%$, ranging from 29.1\% in BY 2014 to $84.9 \%$ in BY 1978. IM accounts for, on average, $12.8 \%$ of the exploitation rate (from 7.7\% in BY 1974 to 27.7\% in BY 1990); the last complete brood year IM was 14.3\% (2016).

LGS has historically been represented by COW and Nanaimo (NAN). However, given that NAN has been discontinued as an exploitation rate indicator stock for LGS following the last complete BY of 2004, this section will primarily focus on COW. See the 2021 ERA (CTC 2022c) for NAN summary information. The total BYER for COW has generally decreased overall, from $89.0 \%$ in BY 1985 to $52.6 \%$ in BY 2016. Over the time series it has averaged $66.4 \%$, ranging from $36.5 \%$ in BY 1995 to $89.0 \%$ in BY 1985. IM accounts for, on average, $18.9 \%$ of the exploitation rate (ranging from $9.4 \%$ in BY 2003 to $33.0 \%$ in BY 1990); the last complete brood year IM was 19.6\% (2016).

Finally, the total BYER for PPS declined from 85.1\% in BY 1975 to $12.6 \%$ in BY 1998 but has increased moderately to $40.5 \%$ in BY 2016. Over the time series it has averaged $50.0 \%$, ranging from $12.6 \%$ in BY 1998 to $88.3 \%$ in BY 1985. IM accounts for, on average, $10.6 \%$ of the exploitation rate (from $2.5 \%$ in BY 1998 to $24.3 \%$ in BY 1992). The last complete brood year IM was 9.5\% (2016), and the exploitation rate for IM was higher than for landed catch in BY 2004 ( $9.2 \%$ versus $4.0 \%$, respectively).

### 3.4.2 Survival Rates

The survival rates of Strait of Georgia (GST) CWT indicator stocks represent survival to age 2 because fish enter the ocean as subyearlings. All of these stocks show a clear declining trend in survival rates (Appendix E5). The QUI survival rates (representing UGS) have averaged 1.97\% and ranged from $0.16 \%$ for BY 2006 to $9.11 \%$ for BY 1974. The survival rate for the last complete brood (2016) was $0.92 \%$. In the case of the MGS CWT indicator stock, BQR survival rates have averaged 2.13\% and ranged from 0.12\% in BY 1992 to 25.14\% for BY 1974 (the highest observed for GST stocks). The survival rate for the last complete brood year (2016) was $1.18 \%$. LGS survival rates represented by COW have averaged $1.77 \%$ and ranged from $0.33 \%$ (BY 2002) to $6.83 \%$ (BY 1990). The survival rate for the last complete brood (2016) was $1.13 \%$. NAN has been discontinued as an ER indicator stock for LGS following the last complete BY of 2004. See the 2021 ERA for NAN survival rate summary statistics (CTC 2022c). Finally, survival rates for the PPS indicator stock (representing the PPS Model stock) have averaged 1.15\% and ranged from $0.10 \%$ (BY 1992) to $12.76 \%$ (BY 1976). The survival rate for the last complete brood year (2016) was 0.76\%.

### 3.4.3 Mortality Distributions

Escapement contributes the majority of total mortality for all Strait of Georgia indicator stocks for the current period (2019-2021), ranging from 53\% for BQR and QUI to 71\% for PPS (Figure 3.5; Appendix C1; Appendix C32; Appendix C27). This is largely unchanged from the previous period with the exception of COW which has seen an increase in escapement mortalities from 37\% (2009-2018) to 62\% (2019-2021), mostly due to reductions in Canadian (5\% during 20092018, $0.1 \%$ during 2019-2021) and Southern U.S. (3\% during 2009-2018, $1 \%$ during 2019-2021) terminal fisheries mortalities and strays (3\% during 2008-2019, 0.5\% during 2019-2021).

Total mortality attributed to Canadian AABM fisheries has declined for most stocks except QUI where it has remained fairly constant (approximately $3 \%$ of total mortality in both periods) largely driven by the NBC AABM Sport fishery ( $2 \%$ of total mortality in both periods). SEAK AABM total mortalities have been constant for most indicator stocks except BQR where they have declined from $7 \%$ during 2009-2018 to $3 \%$ in 2019-2021, primarily due to a reduction in troll fishery mortalities (5\% during 2009-2018, 2\% in 2019-2021).

Total mortality attributed to Canadian ISBM fisheries has been variable between periods and among indicator stocks, but most notably increased for BQR from $28 \%$ in the previous period to $42 \%$ in the current period. This was primarily driven by increases in the Southern BC ( $26 \%$ in 2009-2018, 37\% in 2019-2021) and NBC \& CBC (2\% during 2009-2018, 5\% during 2019-2021) ISBM sport fishery mortalities. In contrast, Southern U.S. ISBM total mortalities generally declined between periods, most notably for COW from $6 \%$ in the previous period to $3 \%$ in the current period owing to a decline in the Puget Sound ISBM sport fishery mortality ( $4 \%$ during 2009-2018, 2\% during 2019-2021).


Figure 3.5—Distribution of total mortality for Strait of Georgia indicator stocks from the 2009 (2009-2018) and 2019 (2019-2028) Pacific Salmon Treaty Agreement (PST) periods.
Note: The Nanaimo (NAN) indicator stock does not have data for the two PST Agreement periods. For previous Agreement data, refer to CTC 2021d.

### 3.4.4 Terminal Area Adjustments

Terminal area adjustments for the Strait of Georgia stocks only occur on the Quinsam stock to adjust for the East Vancouver Island North (EVIN) escapement indicator stock (Figure 3.6, Appendix C33). Work is ongoing to identify the most suitable escapement indicator stock for the EVIN area.


Figure 3.6-Distribution of total mortality for the Upper Strait of Georgia hatchery indicator stock before applying the terminal area adjustment (Quinsam [QUI]) and after the terminal area adjustments for the escapement indicator stock (East Vancouver Island North [EVIN]) for the 2009 (2009-2018) and 2019 (2019-2028) Pacific Salmon Treaty Agreement periods.

### 3.5 Fraser River Stocks

Fraser River Chinook are represented by 6 model stocks, Fraser spring-run 1.2 (FS2), Fraser spring-run 1.3 (FS3), Fraser summer-run yearling 1.3 (FSS), Fraser summer-run subyearling 0.3 (FSO), Fraser Harrison fall (FHF) and Fraser Chilliwack fall (FCF). The CWT exploitation rate indicator stocks (ERIS) represent different combinations of run timing and life history, with the Nicola (NIC) representing FS2, the Lower Shuswap (SHU) representing FSO, Harrison (HAR) representing FHF, and Chilliwack (CHI) representing FCF. Currently, there is no CWT ERIS for FS3 and FSS, however the Chilko and Lower Chilcotin sites are being developed for these model stocks, respectively. The Middle Shuswap (MSH) is another ERIS in the FSO model stock, but the SHU is used to represent the entire FSO model stock. The FCF, FHF, and FSO enter the ocean as subyearlings and age 2 is the youngest age at which CWTs are recovered, whereas the FS2, FS3, and FSS enter the ocean as yearlings with age 3 as the youngest age at which CWTs are recovered. The time series of recoveries for the CHI and HAR starts with BY 1981, NIC with BY 1985, SHU with BY 1984 and MSH with BY 1985. Since the 2020 ERA report (CTC 2021d), historic CWT data were assembled, reviewed and standardized for MSH and 17 more brood years (1985-2001) were added to the ERA.

### 3.5.1 Brood Year Exploitation Rates

The BYERs computed for Fraser River stocks include recoveries from ocean fisheries and freshwater fisheries within the Fraser River and tributaries. BYERs for the fall-run stocks, FHF and FCF, have declined over their time series (Appendix D6). For the spring-run stocks, no clear trend is apparent for NIC (Appendix D7) and there is currently no indicator stock for the FS3 model stocks. The BYER has been decreasing for the subyearling summer-run stocks, since BY 2001 for SHU and since BY 2008 for MSH.

From BY 1981 to BY 2016, the BYERs decreased from approximately $72 \%$ to $31 \%$ for CHI and from approximately $76 \%$ to $30 \%$ for HAR. CHI BYER averaged $40 \%$ and ranged from $22 \%$ for BY 1995 to 83\% for BY 1982, whereas HAR BYERs averaged 45\% and ranged from 19\% for BY 1995 to $86 \%$ for BY 1982. Within BYERs, the percentage of the BYER represented by IM for CHI averaged $21 \%$ over the entire time series, and increased during the first 15 years, reaching $31 \%$ for BY 1995, and then decreased substantially to average levels for subsequent BYs; however, BY 2015 and 2016 are exceptions at $31 \%$ and $34 \%$ respectively. The BY 2016 IM rate is now the highest IM rate of the time series. Similarly, the percentage of the HAR BYER that results from IM averaged 21\% and also increased during the first 15 years of the time series, reaching 37\% for BY 1994, followed by fluctuations around the average level from $12 \%$ in 2001 and $32 \%$ in 1999.

Exploitation rate patterns differed for the three indicator stocks representing Fraser spring- and summer-runs. NIC BYERs are the lowest among Fraser River and all other Canadian ERIS. Estimated BYERs for NIC averaged approximately $25 \%$ and ranged from approximately $3 \%$ for BY 1992 to approximately $60 \%$ for BY 2003. The percentage of the NIC BYER that results from IM remained relatively stable, averaging approximately $14 \%$ for the entire time series, and ranging from 3\% for BYs 2003 and 2016 to 24\% for BY 1991.

Estimated BYERs for MSH averaged approximately 39\% and ranged from $15 \%$ to $74 \%$. The percentage of MSH BYER attributed to IM averaged $15 \%$ and ranged from $8 \%$ to $28 \%$, peaking in the early 1990s but declining since then. Lastly, BYER for SHU averaged 51\%, and ranged from 23\% for BY 2016 to 80\% for BY 1989. The proportion of the SHU BYER represented by IM has remained relatively stable, averaging $18 \%$ for the entire time series and ranging from $12 \%$ for BY 1998 to 34\% for BY 1992.

### 3.5.2 Survival Rates

Estimated survival rates for CHI, HAR, MSH and SHU represent survival to age 2 because juveniles from those stocks enter the ocean as subyearlings and age 2 is the youngest age recovered. Estimated survival rates for NIC represent survival to age 3 because smolts from this stock enter the ocean as yearlings and age 3 is the youngest age recovered.

For CHI, survival averaged 11.6\%, with a range of $1.7 \%$ for BY 1991 to $30.6 \%$ for BY 1981 (the highest observed for any Fraser River stock). Estimated survival rates for HAR averaged 3.3\% and ranged from $24.0 \%$ in BY 1981 to a low of $0.4 \%$ for BY 1991. NIC survival rates averaged $2.8 \%$ with a range of $0.1-12.5 \%$. MSH survival rates averaged $3 \%$ with a range of $0.4-12.2 \%$, and the SHU survival rates averaged $3.0 \%$ with a range of $0.7-8.1 \%$ (Appendix E7). The survival
rate for the last completed brood of the time series was $15.7 \%$ for $\mathrm{CHI}, 4.1 \%$ for HAR, $3.1 \%$ for NIC, 3.1\% for MSH and 4.0\% for SHU.

### 3.5.3 Mortality Distributions

For the fall-run ERIS, escapement represented an average of 60\% of the CHI total mortality (Figure 3.7; Appendix C3) and 58\% of the HAR mortality (Figure 3.7; Appendix C13) between 1985 and 2021 (mortality distribution time series for both stocks began in 1985). The CHI average mortality in the escapement remained approximately the same from the 1999-2008 period ( $70 \%$ ) and $2009-2018$ period ( $69 \%$ ) to the $2019-2021$ period ( $72 \%$ ). The HAR average mortality in the escapement increased from the 1999-2008 period (60\%) to the 2009-2018 period ( $74 \%$ ) and has remained similar in the 2019-2021 period (76\%). For CHI, fishing mortality was attributed to catch and IM in the Canadian terminal sport (1999-2008 and 2009-2018 averages: $6 \%$ and $6 \%$ respectively; 2019-2021 average: 9\%), the ISBM Southern BC sport (1999-2008 average: 5\%; 2009-2018 average: 11\%; 2019-2021 average: 12\%), the ISBM north of Falcon troll (1999-2008 average: 6\%; 2009-2018 average: 3\%; 2019-2021 average: 1\%), and the WCVI AABM troll (1999-2008 average: 6\%; 2009-2018: 2\%; 2019-2021 average: 0.5\%) fisheries. Between 1985 and 1995, the ISBM Southern BC (Strait of Georgia) troll fishery was a large component of the total mortality for CHI (average 6\%); however, that fishery for Chinook salmon ceased from 1996 onward. For HAR, most of the fishing mortality from 1999-2008 was associated with catch and IM in the WCVI AABM troll fishery (average: 13\%), which declined to 2\% during 2009-2018 period and to 1\% in the 2019-2021 period; other large components of the total mortality were the North Falcon troll ISBM fishery (1999-2008 average: 10\%; 20092018 average: 4\%; 2019-2021 average: 2\%) and the Southern BC sport ISBM fishery (19992008 average: 6\%; 2009-2018 average: 10\%; 2019-2021 average: 14\%). The ISBM Southern BC sport fishery is a large mortality component for HAR, ranging from $4 \%$ to $32 \%$ of the total mortality during 1985-1998 and from 12\% to 16\% from 2019-2021. There is only limited terminal recreational fishing opportunity on HAR.
Among the ERIS for the spring- and summer-runs, escapement represented a larger amount of the total mortality distribution during the 2019-2021 period than the 2009-2018 and the 1999-2008 period for NIC ( $87 \%$ vs $78 \%$ and $74 \%$, respectively; Figure 3.7; Appendix C22), MSH ( $75 \%$ vs $55 \%$ and $68 \%$ respectively; Figure 3.7; Appendix C21), and SHU total mortality ( $77 \%$ vs 56\% and 54\% respectively; Figure 3.7; Appendix C38). During 2019 to 2021, the largest components of the total fishing mortality for SHU occurred in the terminal net fishery (average: $6 \%$ ), followed by the terminal sport fishery (average: 4\%), the SEAK AABM troll fishery (average: $3 \%$ ) and the ISBM Southern BC sport fishery (average: 3\%). MSH is part of the same stock group as SHU, however for MSH the largest component of the total fishing mortality during 20192021 occurred in the terminal sport and net (average: 7\% and 6\% respectively), followed by the NBC and CBC ISBM sport fishery (average: 2\%), and the Southeastern Alaskan troll fishery (average: 1.4\%; Figure 3.7; Appendix C21). During 2019 to 2021, the largest components of the total fishing mortality for NIC occurred in the terminal net fishery (average: 10\%), followed by the ISBM Puget Sound sport (average: 1\%).

Strays to other escapement locations made an average $1.0 \%$ of the total mortality for CH during 1985-2021, with a high of $5.6 \%$ in 2003, whereas for HAR, strays made only $0.3 \%$ of the
total mortality during 1985-2021 with a high of $4.6 \%$ in 1995. Strays also represented a very small percentage of the total mortality in NIC (average 0\% during 1989-2021). The largest percentage of the total mortality represented by strays in NIC was $1.7 \%$ in 1990. Similarly, strays made up only a small percentage of the total mortality in SHU (1988-2021 average: $0.5 \%$ ) and MSH (2012-2021 average: $2.3 \%$ ). The largest percentage of the total mortality represented by strays in SHU was 2.5\% in 2021 and it was 5\% for MSH in 2016 and 2019.


Figure 3.7—Distribution of total mortality for Fraser River indicator stocks from the 2009 (20092018) and 2019 (2019-2028) Pacific Salmon Treaty Agreement periods.

Note: For previous Agreement data, refer to CTC 2021d.

### 3.6 Regional Summary for Canada

With exception of the RBT indicator stock, for which BYER represents ocean fishing mortality, BYERs in Canadian indicator stocks represent fishing mortality in both ocean and terminal fisheries. BYERs of most Canadian indicator stocks have been generally declining. Strait of Georgia stocks have experienced the largest BYERs among Canadian indicator stocks with Lower Strait of Georgia natural stock COW experiencing an average BYER greater than 60\%. BYERs for the last complete BY of all Canadian stocks were lower than their long-term averages except for NIC which had an increase from 3\% in 2015 to 34\% in 2016 (Table 3.2).

Average survival rates to age 2 (to age 3 for KLM) are lower than 5\% for all Canadian indicator stocks, except for CHI , which has the largest average survival rate at $11.63 \%$ (Table 3.2). CHI also experienced the largest estimated survival rate ( $30.6 \%$ in 1981) for any given BY among all Canadian stocks. Other stocks that have experienced BY survival rates greater than $20 \%$ earlier in the time series are RBT, BQR, and HAR. Survival rates for these stocks have clearly subsided relative to those high values. The lowest survival rate for the last complete BY (2015 or 2016) among all Canadian indicator stocks, was $0.76 \%$ for PPS. Survival rates for the last complete BY increased for 9 out of 14 Canadian stocks.

In terms of calendar year statistics for 2009-2018 and 2019-current, the average percentage of total mortality occurring in the escapement was greater than $50 \%$ for most Canadian indicator stocks. In 2009-2018, RBT and COW experienced average escapement percentages of the total mortality below 50\% ( $45 \%$ and $37 \%$, respectively), and RBT also had an average escapement percentage of total mortality of 27\% from 2019-current. Escapement percentages by calendar year lower than 20\% have previously occurred in COW (2009). The largest escapement percentages of the total mortality in 2021 occurred in NIC (94\%) and HAR (80\%). Differences in average escapement percentages of the total mortality between PST Agreement periods 20092018 and the current Agreement were small in most cases, although COW had a large increase from 37\% to 62\% (Table 3.2). Average escapement percentages increased for most stocks from the 2009-2018 to 2019-current except for RBT which decreased from $45 \%$ to $27 \%$, BQR which decreased from $58 \%$ to $53 \%$, and QUI which decreased from $58 \%$ to $53 \%$.

Table 3.2—Summary of statistics generated by the 2022 coded-wire tag (CWT) cohort analysis for Canadian indicator stocks by region. Statistics include total mortality (catch plus incidental mortality) brood year exploitation rate (BYER), cohort survival rate to age 2 (age 3 for Kitsumkalum), and calendar year (CY) percent distribution of the total mortality and the escapement.

| Region | Indicator Stock | BYER (total mortality) |  | Survival rate |  | CY \% Escapement |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | $2009-$ 2018 <br> Mean (range) | 2019-current |  |
|  |  | Mean (range) | Last complete BY |  | Mean (range) | Last complete BY | Mean (range) | $\begin{gathered} \hline \text { Last CY } \\ \% \\ \text { (year) } \\ \hline \end{gathered}$ |
| North/ Central B.C. | Kitsumkalum (KLM) | $\begin{gathered} 45 \% \\ (24 \%-69 \%) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 28 \% \\ (2015) \\ \hline \end{gathered}$ | $\begin{gathered} 0.80 \% \\ (0.14-1.95 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & \hline 0.94 \% \\ & (2015) \\ & \hline \end{aligned}$ | $\begin{gathered} 61 \% \\ (49-86 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 71 \% \\ (61-83 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 61 \% \\ (2021) \\ \hline \end{gathered}$ |
|  | Atnarko <br> (ATN) | $\begin{gathered} 39 \% \\ (27 \%-60 \%) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 28 \% \\ (2016) \\ \hline \end{gathered}$ | $\begin{gathered} 2.22 \% \\ (0.50-5.88 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & \hline 1.42 \% \\ & (2016) \\ & \hline \end{aligned}$ | $\begin{gathered} 59 \% \\ (37-75 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 69 \% \\ (62-77 \%) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 77 \% \\ (2021) \\ \hline \end{gathered}$ |
| WCVI | Robertson Creek (RBT) ${ }^{1}$ | $\begin{gathered} 42 \% \\ (23 \%-67 \%) \end{gathered}$ | $\begin{gathered} \hline 25 \% \\ (2016) \end{gathered}$ | $\begin{gathered} 4.57 \% \\ (0.03-20.10 \%) \end{gathered}$ | $\begin{aligned} & 5.23 \% \\ & (2016) \end{aligned}$ | $45 \%$ $(27-64 \%)$ | $\begin{gathered} 27 \% \\ (23-31 \%) \end{gathered}$ | $\begin{gathered} 31 \% \\ (2021) \end{gathered}$ |
| Strait of Georgia | Big Qualicum (BQR) | $\begin{gathered} 57 \% \\ (29 \%-85 \%) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 46 \% \\ (2016) \\ \hline \end{gathered}$ | $\begin{gathered} 2.13 \% \\ (0.12-25.14 \%) \end{gathered}$ | $\begin{aligned} & 1.18 \% \\ & (2016) \\ & \hline \end{aligned}$ | $\begin{gathered} 58 \% \\ (43-73 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 53 \% \\ (47-63 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 63 \% \\ (2021) \\ \hline \end{gathered}$ |
|  | Cowichan (COW) | $\begin{gathered} 66 \% \\ (36 \%-89 \%) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 53 \% \\ (2016) \\ \hline \end{gathered}$ | $\begin{gathered} 1.77 \% \\ (0.33-6.83 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & \hline 1.13 \% \\ & (2016) \\ & \hline \end{aligned}$ | $\begin{gathered} 37 \% \\ (18-51 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 62 \% \\ (37-82 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 68 \% \\ (2021) \\ \hline \end{gathered}$ |
|  | Puntledge (PPS) | $\begin{gathered} 50 \% \\ (13 \%-88 \%) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 41 \% \\ (2016) \\ \hline \end{gathered}$ | $\begin{gathered} 1.15 \% \\ (0.10-12.76 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & \hline 0.76 \% \\ & (2016) \\ & \hline \end{aligned}$ | $\begin{gathered} 62 \% \\ (40-76 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 71 \% \\ (50-83 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 79 \% \\ (2021) \\ \hline \end{gathered}$ |
|  | Quinsam (QUI) | $\begin{gathered} 54 \% \\ (29 \%-85 \%) \end{gathered}$ | $\begin{gathered} 43 \% \\ (2016) \\ \hline \end{gathered}$ | $\begin{gathered} 1.97 \% \\ (0.16-9.11 \%) \end{gathered}$ | $\begin{aligned} & \hline 0.92 \% \\ & (2016) \end{aligned}$ | $\begin{gathered} 58 \% \\ (50-70 \%) \end{gathered}$ | $\begin{gathered} 53 \% \\ (48-60 \%) \end{gathered}$ | $\begin{gathered} 52 \% \\ (2021) \end{gathered}$ |
|  | Phillips (PHI) | $\begin{gathered} 28 \% \\ (15 \%-36 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 22 \% \\ (2016) \\ \hline \end{gathered}$ | $\begin{gathered} 4.52 \% \\ (1.00-9.80 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & 7.34 \% \\ & (2016) \\ & \hline \end{aligned}$ | $\begin{gathered} 69 \% \\ (63-76 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 76 \% \\ (66-83 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 66 \% \\ (2021) \\ \hline \end{gathered}$ |
| Fraser River | Chilliwack (CHI) | $\begin{gathered} 40 \% \\ (22 \%-83 \%) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 23 \% \\ (2016) \\ \hline \end{gathered}$ | $\begin{gathered} 11.63 \% \\ (1.68-30.55 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & \hline 15.67 \% \\ & (2016) \\ & \hline \end{aligned}$ | $\begin{gathered} 69 \% \\ (58-80 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 72 \% \\ (64-78 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 75 \% \\ (2021) \\ \hline \end{gathered}$ |
|  | Harrison <br> (HAR) | $\begin{gathered} 45 \% \\ (19 \%-86 \%) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 22 \% \\ (2016) \\ \hline \end{gathered}$ | $\begin{gathered} 3.37 \% \\ (0.40-23.97 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & \hline 4.10 \% \\ & (2016) \\ & \hline \end{aligned}$ | $\begin{gathered} 74 \% \\ (56-84 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 76 \% \\ (70-80 \%) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 80 \% \\ (2021) \\ \hline \end{gathered}$ |
|  | Nicola <br> (NIC) | $\begin{gathered} 26 \% \\ (3 \%-60 \%) \end{gathered}$ | $\begin{gathered} \hline 34 \% \\ (2016) \end{gathered}$ | $\begin{gathered} 2.75 \% \\ (0.10-12.51 \%) \end{gathered}$ | $\begin{aligned} & \hline 3.12 \% \\ & (2015) \end{aligned}$ | $\begin{gathered} 78 \% \\ (45-90 \%) \end{gathered}$ | $\begin{gathered} 87 \% \\ (71-96 \%) \end{gathered}$ | $\begin{gathered} 94 \% \\ (2021) \end{gathered}$ |
|  | Lower Shuswap (SHU) | $\begin{gathered} 51 \% \\ (23 \%-80 \%) \end{gathered}$ | $\begin{gathered} 23 \% \\ (2016) \end{gathered}$ | $\begin{gathered} 2.94 \% \\ (0.73-8.13 \%) \end{gathered}$ | $\begin{aligned} & 3.98 \% \\ & (2016) \end{aligned}$ | $\begin{gathered} 56 \% \\ (50-65 \%) \end{gathered}$ | $\begin{gathered} 77 \% \\ (73-81 \%) \end{gathered}$ | $\begin{gathered} 77 \% \\ (2021) \end{gathered}$ |

[^5]
### 3.7 Washington Coast Stocks

Three facilities on the Washington Coast currently release coded-wire tagged Chinook salmon which are used by the CTC to represent natural fall Chinook salmon production in the rivers between the Columbia River in the south to the Strait of Juan de Fuca in the north. These indicator stocks include the Queets River (QUE, released from Quinault Division of Natural Resources Salmon River Hatchery) and Tsoo-Yess River (SOO, released from the U.S. Fish and Wildlife Service Makah National Fish Hatchery) on the coast, and the Hoko River at the western end of the Strait of Juan de Fuca (HOK, released from Makah's Hoko Falls Hatchery). Queets, Tsoo-Yess, and Hoko indicator stocks share a common life history-they are ocean type (subyearling fingerling releases), fall-timed fish with a maximum age at maturity of 6 . These 3 stocks also have extensive historical tagging and recovery coverage ( $20+$ completed BYs), with Queets records starting in 1977 and Hoko and Tsoo-Yess records starting in 1985.

### 3.7.1 Brood Year Exploitation Rates

Hoko, Queets, and Tsoo-Yess BYER patterns are considered in terms of total exploitation (ocean and terminal; Table 3.3; Appendix D8). BYERs for Hoko and Tsoo-Yess indicator stocks have tracked closely for the entirety of their time series (series mean: Hoko 34\%, Tsoo-Yess 37\%). Approximately $20 \%$ of all fishery-related mortality for Hoko and Tsoo-Yess is in the form of nonlanded, incidental impacts (Appendix D8). Across its 38 complete BYs, the total BYER for the Queets indicator stock has averaged $59 \%$, ranging between $37 \%$ and $82 \%$, but has not displayed any obvious or notable temporal trends. The BYER for the last complete Queets BY (2015) is $72 \%$, up from the most recent three years.

Table 3.3-Summary of statistics generated by the 2022 coded-wire tag (CWT) cohort analysis for Washington Coast indicator stocks. Statistics include total mortality (catch plus incidental mortality) brood year exploitation rate (BYER), cohort survival rate to age 2, and calendar year (CY) percent distribution of the total mortality in the escapement.

| Indicator Stock Name | BYER (total mortality) |  | Survival rate |  | CY \% Escapement ${ }^{1}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | 2009-2018 | 2019-current |  |
|  | Mean (range) | Last complete BY |  |  | Mean (range) | Last complete brood year | Mean (range) | Mean (range) | Last CY \% (year) |
| Hoko Fall Fingerling (HOK) | $\begin{gathered} 34 \% \\ (16 \%-64 \%) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 44 \% \\ (2015) \\ \hline \end{gathered}$ | $\begin{gathered} 1.36 \% \\ (0.11-3.14 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & \hline 1.99 \% \\ & (2015) \\ & \hline \end{aligned}$ | $\begin{gathered} 69 \% \\ (43-85 \%) \\ \hline \end{gathered}$ | $\begin{array}{\|c\|} \hline 45 \% \\ (21-69 \%) \\ \hline \end{array}$ | $\begin{gathered} 69 \% \\ (2020) \\ \hline \end{gathered}$ |
| Queets Fall <br> Fingerling (QUE) | $\begin{gathered} 59 \% \\ (37 \%-82 \%) \end{gathered}$ | $\begin{gathered} 72 \% \\ (2015) \end{gathered}$ | $2.55 \%$ $(0.59-5.65 \%)$ | $\begin{aligned} & 2.04 \% \\ & (2015) \end{aligned}$ | $\begin{gathered} 38 \% \\ (20-51 \%) \end{gathered}$ | $\begin{array}{\|c\|} \hline 28 \% \\ (27-30 \%) \\ \hline \end{array}$ | $\begin{gathered} 30 \% \\ (2020) \end{gathered}$ |
| Tsoo-Yess Fall Fingerling (SOO) | $\begin{gathered} 37 \% \\ (17 \%-61 \%) \end{gathered}$ | $\begin{gathered} 32 \% \\ (2015) \end{gathered}$ | $\begin{gathered} 0.63 \% \\ (0.01-1.92 \%) \end{gathered}$ | $\begin{aligned} & 1.24 \% \\ & (2015) \end{aligned}$ | $\begin{gathered} 72 \% \\ (63-84 \%) \end{gathered}$ | $\begin{array}{c\|} \hline 77 \% \\ (55-99 \%) \\ \hline \end{array}$ | $\begin{gathered} 99 \% \\ (2020) \end{gathered}$ |

${ }^{1} \%$ Escapement is not a measure of performance for the escapement indicator stock(s) associated with a given CWT indicator stock. See CTC (2013) for these details.

### 3.7.2 Survival Rates

CWT data indicate that release-to-age-2 survival for Chinook salmon on the Washington Coast indicator stocks is highly variable across stocks and years (Appendix E8; Table 3.3). Tsoo-Yess Chinook salmon, for instance, consistently experience some of the lowest survivals of any CWT indicator stock evaluated by the CTC. The series-wide mean survival from release to age 2 for this stock is $0.63 \%$, but it has ranged more than 2 orders of magnitude ( $0.01-1.92 \%$ ). The Queets Chinook salmon indicator stock exhibits the highest survival rates among the 3 Washington Coast indicator stocks, with a range of $0.59-5.65 \%$, and a mean of $2.55 \%$. Across their time series, there is little evidence of a long-term trend in early marine survival. In terms of more recent performance, the survival rates of the Hoko and Queets stocks have declined from the highs observed for the 1999 BY with lower-than-average early marine survival in the past few complete brood years. In contrast, the highest observed survival for the Tsoo-Yess was in BY 2011, with lower-than-average early marine survival in the most recent complete brood years comparable to the Hoko and Queets.

### 3.7.3 Mortality Distributions

Washington Coast indicator stocks exhibit a mortality distribution consistent with a far north migration pattern. Most fishery-related mortality results from fisheries occurring north of the southern border between the U.S. and Canada. The majority of these fishery-related mortalities occur in the SEAK and NBC AABM troll fisheries (Figure 3.8; Appendix C14; Appendix C28; Appendix C42). Escapement recoveries for the 3 stocks have averaged between approximately $28 \%$ (Queets) and 77\% (Tsoo-Yess) of the total distribution in recent years (Table 3.3). With only two years of ERA results for the current PST Agreement period (2019 and 2020), it is too early to make comparisons to the previous PST Agreement period (2009-2018).



Figure 3.8—Distribution of total mortality for Washington Coast indicator stocks from the 2009 (2009-2018) and 2019 (2019-2028) Pacific Salmon Treaty Agreement periods. The figure on the right only contains data for 2019 and 2020 due to reporting restrictions.

### 3.7.4 Terminal Area Adjustments

The terminal harvest rate for Queets River is adjusted to account for differential harvest rates that occur on the Grays Harbor, Hoh, and Quillayute fall Chinook escapement indicator stocks (Appendix F3). For Grays Harbor, the terminal harvest rates on naturally spawning fish are calculated using the co-manager run reconstruction and represent all net and sport fisheries in the Grays Harbor basin. For Hoh and Quillayute, terminal harvest rates are calculated for naturally spawning fish from data in Tables B-33 and B-36 in the Pacific Fishery Management Council's annual Review of Ocean Salmon Fisheries document (PFMC 2022). Between 20092018 the proportion of total mortality occurring in terminal fisheries was similar in the Queets, Grays Harbor, and Hoh basins, averaging around 15\% (Figure 3.9; Appendix C28; Appendix C30; Appendix C31) and slightly higher in the Quillayute basin, averaging around 25\% (Appendix C29). With only two years of ERA results for the current PST Agreement period (2019 and 2020), it is too early to make comparisons to the previous PST Agreement period (2009-2018).


Figure 3.9—Distribution of total mortality for the Washington Coastal hatchery indicator stock before applying the terminal area adjustment (Queets [QUE]) and after the terminal area adjustments for the escapement indicator stocks (Grays Harbor, Hoh, and Quillayute) for the 2009 (2009-2018) and 2019 (2019-2028) Pacific Salmon Treaty Agreement periods. The figure on the right only contains data for 2019 and 2020 due to reporting restrictions.

### 3.8 Salish Sea Stocks

There are currently 10 CWT indicator stocks within the Washington Salish Sea that are analyzed on an annual basis. The indicator stocks are a mixture of traditional hatchery production for harvest purposes and natural stock supplementation programs from brood stock collected on the spawning grounds. Current non-tribal sport fisheries for Chinook salmon within Puget Sound are almost exclusively under MSF regulations. Since these CWT indicator groups are adipose-clipped (marked) and therefore available for retention in MSFs, estimates of fishing mortality from these adipose-clipped CWT recoveries may overestimate the fishing mortality and, in turn, the BYER estimates of unmarked natural-origin fish that must be released. MSFs or directed fisheries on hatchery surplus may create a differential terminal fishery structure for these indicator groups; hence, BYERs are expressed in terms of ocean fisheries for all of these indicators. Details on the CWT indicator stock groups and influence of mark-selective and terminal fisheries on the estimates are presented in the regional subsections below.

Four other Salish Sea CWT indicator stocks that have previously been discontinued are no longer included in this report: Nooksack River spring yearling (NKS), Skagit River spring yearling (SKS), South Puget Sound fall yearling (SPY), and White River Spring Yearling (WRY).
Information on these stocks and final analysis results are included in the CTC's 2021 ERA Report (CTC 2022c).

### 3.8.1 North Puget Sound

Indicator stocks in Northern Puget Sound include spring fingerling tag groups from the Nooksack (NSF) and Skagit (SKF) rivers and summer/fall fingerling tag groups from the Samish (SAM) and Skagit (SSF) rivers. The Nooksack Spring (NSF), Skagit Spring (SKF), and Skagit Summer/Fall (SSF) stocks are included in Chapter 3 Attachment I of the 2019 PST Agreement, each of which have associated ISBM fishery limits. The primary purpose of the Nooksack Spring hatchery program is natural supplementation and supporting a small tribal subsistence fishery in the river. The SAM indicator does not represent an associated natural production but is important for evaluating the large hatchery production program from the Samish Hatchery. The primary purpose of the Skagit spring program is harvest augmentation; the returning fish are subjected to terminal net fisheries and a mark-selective sport fishery in the area near the hatchery. The goal of the SSF group is evaluation of fishery impacts to the natural stock in the system. Spawning ground recoveries are the source of brood stock for the SSF program. Releases of Nooksack and Skagit River spring yearling stocks were discontinued following the 1996 and 2010 BY, respectively.

Note that Southern U.S. staff are investigating two modeling issues for Nooksack Springs. First, it appears that spawning ground escapement tags were missing from the 2022 ERA for calendar years 2017 to 2020. Second, there was a regulatory shift in the terminal net fishery during the evaluation period, where a portion of the fishery shifted from non-selective to mark-selective beginning in 2013. Because mark-selective fishery algorithms are not yet accounted for in the ERA, exploitation rate shifts may not accurately reflect impacts on wild stocks.

### 3.8.1.1 Brood Year Exploitation Rates

Brood year exploitation rate figures for North Puget Sound stocks are presented in Appendix D9. While not all North Puget Sound stocks have CWT releases that extend back to the late 1970s and early 1980s, those that do indicate that BYERs in ocean fisheries were high, exceeding 50\% (additionally see NKS and SKS in Appendix D9 of CTC 2022c). Between the mid1980s and mid-1990s, ocean BYERs declined and have generally been in the $25 \%$ to $50 \%$ range since. The most recent ocean BYERs are for BY 2015 and ranged from 25\% (SKF) to 40\% (SAM; Table 3.4).

### 3.8.1.2 Survival Rates

Plots depicting survival to age 2 for North Puget Sound stocks are presented in Appendix E9. For the four North Puget Sound stocks there are no discernable trends in survival during the time series of available data, which is similar to the pattern seen for Central and South Puget Sound stocks. Over the most recent decade, mean survival of these stocks has ranged between $1 \%$ and $2 \%$, with poor years around $0.5 \%$ and the highest rates around $3.5 \%$.

### 3.8.1.3 Mortality Distributions

For North Puget Sound stocks, the proportion of total AEQ mortality occurring in fisheries can vary notably from year to year but averaged between $40 \%$ and $50 \%$ since 2009 for NSF, SKF, and SSF, and was closer to 70\% for SAM (Figure 3.10). On average, between 2009 and 2018 nearly half of the total fishery mortalities occurred in AABM fisheries for NSF and SSF, with
more occurring in SEAK for SSF compared to NSF. Slightly more than half of the fishery mortalities for these two stocks occurred in ISBM fisheries, with more typically occurring in Canadian fisheries for NSF and more in U.S. fisheries for SSF. For the other North Puget Sound stocks (SAM, SKF), since 2009 the majority of fishery mortality, approximately 60-70\% of the total, has occurred in U.S. ISBM fisheries, with only 10-15\% occurring in AABM fisheries.

### 3.8.2 Central Puget Sound

Indicator stocks in Central Puget Sound, from north to south, include fingerling tag groups from the Stillaguamish River (STL) and the Skykomish River (SKY), a tributary in the Snohomish Basin. The Stillaguamish and Snohomish stocks are listed as indicator stocks with ISBM fishery limits in Chapter 3 Attachment I of the 2019 PST Agreement. The primary purposes of the Stillaguamish fall CWT program are the evaluation of fishery impacts, and natural supplementation. Brood stock for this program is captured on the spawning grounds. The primary purpose of the Skykomish program, which uses returns of summer-run fish to the Wallace Salmon Hatchery for brood stock, is for fishery evaluation, and it also provides limited harvest in the in-river markselective sport fishery when abundance is favorable.

### 3.8.2.1 Brood Year Exploitation Rates

Brood year exploitation rate figures for Central Puget Sound stocks are presented in Appendix D10. Ocean BYERs declined dramatically for STL between the late 1970s and mid-1990s, ranging from highs greater than $90 \%$ to lows of approximately $20 \%$. Since the lows of the mid-1990s, the ocean BYERs for STL have increased with an estimate of $29 \%$ for the most recent complete BY (2015). Beginning with BY 2000, ocean BYERs for SKY have generally ranged between 20\% and $40 \%$, with a most recent complete BY (2015) estimate at a series low of $19 \%$.

### 3.8.2.2 Survival Rates

Plots depicting survival to age 2 for Central Puget Sound stocks are presented in Appendix E10. Similar to the North and the South Puget Sound fingerling stocks, there do not appear to be any trends in survival rates for Central Puget Sound stocks during the years for which data are available. Over the past decade of releases, survival rates have averaged just over $1 \%$ and ranged from $0.5 \%$ to $3 \%$.

### 3.8.2.3 Mortality Distributions

For Central Puget Sound stocks, the proportion of total AEQ mortality occurring in fisheries has averaged $42 \%$ for STL and $32 \%$ for SKY since 2009 (Figure 3.10). Of those fishery mortalities, since 2009 roughly $30 \%$ (STL) and $20 \%$ (SKY) were in AABM fisheries, most of which occurred in WCVI. Of the remaining fishery mortalities, roughly $30 \%$ occurred in Canadian ISBM fisheries and $40 \%$ (STL) and $50 \%$ (SKY) occurred in U.S. ISBM fisheries. Terminal fisheries are limited on both stocks, and the majority of U.S. ISBM fishery mortality occurs in Puget Sound marine sport fisheries, which operate predominantly under mark-selective regulations.

### 3.8.3 South Puget Sound

The indicator stocks in Southern Puget Sound are South Puget Sound fall fingerling (SPS) and Nisqually fall fingerling (NIS). The SPS indicator group is an aggregate of several CWT indicator
programs, currently composed of tag releases from Soos Creek Hatchery in the Green River Basin and Grovers Creek Hatchery on the western shore of Puget Sound across from Seattle. The SPS indicator is intended to represent mixed stock fishery impacts that occur on the Green River and Lake Washington stocks. However, it should not be used to represent terminal fisheries due to the varying intensity with which they occur on stocks within the SPS aggregate and on those the aggregate is intended to represent. In addition, because stocks originating in South Puget Sound are exposed to a number of MSFs, exploitation rates measured from marked tag recoveries may overestimate the impacts on unmarked natural stocks. The NIS stock is the southernmost indicator tag group in Puget Sound. Releases of South Puget Sound fall yearlings and White River spring yearlings were discontinued following the 2013 and 2015 BY, respectively.

### 3.8.3.1 Brood Year Exploitation Rates

Brood year exploitation rate figures for South Puget Sound stocks are presented in Appendix D11. Similar to trends observed for North and Central Puget Sound stocks, South Puget Sound stocks exhibited a pattern of high ocean BYERs in the late 1970s and early 1980s, often in the range of $60 \%$ to $80 \%$, followed by a decline through the mid- to late-1990s. For SPS, ocean BYERs reached a low of approximately $20 \%$ with BY 1996, and have increased slightly since, generally ranging between $30 \%$ and $50 \%$. The ocean BYER for the most recent complete BY (2015) was 34\%. Ocean BYERs for NIS continued to decline into the mid-2000s and have since stabilized in the range of $20 \%$ to $30 \%$. The ocean BYER for the most recent complete BY (2015) was $33 \%$. It is important to note that these values reflect ocean fisheries only and a total BYER for SPS and NIS would include additional mortalities from freshwater fisheries, which can be substantial.

### 3.8.3.2 Survival Rates

Plots depicting survival to age 2 for South Puget Sound stocks are presented in Appendix E11. As with other Puget Sound stocks there do not appear to be any significant temporal trends in survival rates for the South Puget Sound stocks across the time series of available data. Survival rates to age 2 track closely for SPS and NIS, which in the most recent decade have averaged around $2 \%$ and generally ranged between $1 \%$ and $3.5 \%$.

### 3.8.3.3 Mortality Distributions

For South Puget Sound stocks, the proportion of total AEQ mortalities occurring in fisheries since 2009 has averaged $41 \%$ for SPS and $53 \%$ for NIS (Figure 3.10). A higher proportion of the total fishery mortality occurs in U.S. ISBM fisheries for these stocks compared to some of the other Central and North Puget Sound stocks, averaging approximately 65\% for SPS and 85\% for NIS. The majority of U.S. ISBM fishery impacts on these stocks occur in Puget Sound markselective sport fisheries and/or in terminal net fisheries, both of which are designed to target large-scale hatchery production.

### 3.8.4 Juan de Fuca and Hood Canal

Chinook salmon releases from the Washington Department of Fish and Wildlife (WDFW) Elwha Hatchery (ELW) are used in the annual ERA, but releases of adipose-clipped and CWT Chinook
salmon were insufficient for analysis between BYs 1994 and 2011. Tagging of adipose-clipped Elwha River (ELW) fall fingerling stock in Juan de Fuca was discontinued with the 1994 BY. Between 1994 and 2011, a hatchery program continued using brood stock collected from the spawning grounds and to the hatchery rack. The Elwha Hatchery program has now shifted to a stock restoration and recovery program with the removal of the Elwha River dams that began in September 2011. Marking and tagging of this stock resumed with the 2012 BY as part of monitoring and evaluation of the restoration project. The George Adams (GAD) indicator stock is used to represent fishery and escapement distribution of natural fall fingerlings in Hood Canal tributaries, primarily the Skokomish River at the southern end of the Hood Canal.

### 3.8.4.1 Brood Year Exploitation Rates

Brood year exploitation rate figures for Juan de Fuca and Hood Canal stocks are presented in Appendix D12. These stocks show exploitation trends similar to Puget Sound stocks, with high ocean BYERs in the 1970s and 1980s, frequently greater than $60 \%$, followed by declines into the mid-1990s. For GAD, the ocean BYERs reached a low of approximately $22 \%$ with BY 1994 and have generally ranged between $25 \%$ and $40 \%$ since. The ocean BYER for the most recent complete BY (2015) was $26 \%$. Ocean BYERs for ELW were also high in earlier years, however, there were no ad-clipped CWT releases for BY 1995 through 2011. Since 2012 the ocean BYERs have been between $25 \%$ and $40 \%$, with the most recent complete BY (2015) estimated at $25 \%$.

### 3.8.4.2 Survival Rates

Plots depicting survival to age 2 for Juan de Fuca and Hood Canal stocks are presented in Appendix E12. Since marking and tagging resumed for ELW with BY 2012, survival to age 2 has been poor, averaging around $0.5 \%$. Survival for GAD was particularly poor for eight consecutive BYs between 1988 and 1995 but has since rebounded, averaging over $2.5 \%$ over the most recent decade and ranging from $1 \%$ to $5 \%$.

### 3.8.4.3 Mortality Distributions

For Hood Canal and Juan de Fuca stocks, the proportion of total AEQ mortalities occurring in fisheries since 2009 has averaged $56 \%$ for GAD and $40 \%$ for ELW, although since the ELW program only resumed with BY 2012, CY estimates of mortality distribution are only available beginning in 2015 (Figure 3.10). Similar to some of the South Puget Sound stocks, a lower proportion of the total fishery mortality has occurred in Alaska and Canada for GAD (approximately $20 \%$ since 2009), with the majority of fishery mortality occurring in U.S. ISBM fisheries, particularly marine sport and terminal net fisheries. For ELW, recent mortality distribution appears to be more similar to some of the North and Central Puget Sound stocks, with a larger portion ( $\sim 30 \%$ ) of the fishery mortality occurring in AABM fisheries, split almost evenly between SEAK and Canadian fisheries. The remaining fishery mortality occurs in ISBM fisheries, with nearly twice as much occurring in U.S. ISBM fisheries compared to Canadian ISBM fisheries. The majority of Southern U.S. fishery impacts on ELW occur in mark-selective marine sport fisheries, as the terminal fishery impact on this stock is minimal.

### 3.8.5 Regional Summary for Washington Salish Sea Stocks

For Washington Salish Sea stocks, BYER is measured in terms of ocean mortality only because terminal fisheries may not properly reflect the impacts on the natural stock represented by the CWT indicator. Some terminal fisheries are designed as hatchery fish target zones which would exceed the impacts on any natural stocks in the basin. Additionally, some river sport fisheries are now managed under MSF regulations that may overestimate impacts on natural stocks. The ocean fishery BYERs contain estimates of exploitation in the Puget Sound marine area markselective sport fisheries which have grown significantly since 2003. Consequently, these BYERs for Puget Sound stocks, especially those from Central and Southern Puget Sound, may overestimate the exploitation relative to that of the natural stocks they are intended to represent. Therefore, because of the exclusion of terminal fisheries and the inclusion of Puget Sound marine area MSFs, the ocean fishery BYERs for Washington Salish Sea stocks will not reflect total fishery impacts on natural stocks.

Summaries of Washington Salish Sea stock-specific BYERs are presented in Table 3.4, with more detail available in Appendix D. The BYERs for Washington Salish Sea Stocks have averaged 43\% (per stock average range of 33-56\%) for the fall stocks (SAM, SSF, STL, SKY, SPS, NIS, ELW, and GAD) and $34 \%$ (range 28-40\%) for the spring stocks (NSF, SKF; Figure 3.10) over the long term. Relative to the long term, BYERs over the most recent decade are lower, averaging $35 \%$ for the fall stocks and $30 \%$ for the spring stocks.

Summaries of Washington Salish Sea stock-specific survival rates are presented in Table 3.4, with more detail available in Appendix E, all of which depict survival to age 2. Survival rates for Washington Salish Sea fall and spring fingerling stocks averaged between $0.7-2.5 \%$, which is similar to the rates commonly observed for fingerling type stocks. The trend in survival rates for those stocks with a long continuous time series of analysis (e.g., SAM, SPS, GAD) shows the lowest survival rates occurring for the late 1980s to early 1990s broods, with somewhat improved survivals beginning in the early 2000s.

The distribution of total AEQ mortality across fisheries and escapement for Washington Salish Sea stocks is presented in Figure 3.10, with more detailed information available in Appendix C. The distribution across fisheries varies by stock, with stocks from Central and North Puget Sound tending to have higher interception rates in Alaskan and Canadian fisheries. The proportion of total mortality that has occurred in fisheries since 2009 differs by stock, averaging $55 \%$ for stocks exposed to notable terminal fisheries (SAM, SKF, NIS, GAD) and $41 \%$ for stocks where terminal fishery impacts are lower (NSF, SSF, STL, SKY, SPS, ELW).


Figure 3.10—Distribution of total mortality for Puget Sound indicator stocks from the 2009 (2009-2018) and 2019 (2019-2028) Pacific Salmon Treaty Agreement periods. The figure on the bottom only contains data through 2020 due to reporting restrictions.

Table 3.4—Summary of statistics generated by the 2022 coded-wire tag (CWT) cohort analysis for Washington Salish Sea indicator stocks by region. Statistics include brood year exploitation rate (BYER), cohort survival rate to age 2 (age 3 for yearling stocks), and calendar year (CY) percent of total mortality in escapement.

| Subregion | Indicator Stock Name | BYER <br> Ocean ER only (total mortality) |  | Survival rate |  | CY \% Escapement ${ }^{1}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | $\begin{aligned} & 2009- \\ & 2018 \end{aligned}$ | 2019 | rrent |
|  |  | Mean (range) | Last complete BY |  |  | Mean (range) | Last complete BY | Mean (range) | Mean (range) | Last CY \% (year) |
| North Puget <br> Sound | Nooksack Spring Fingerling (NSF) | $\begin{gathered} 40 \% \\ (24 \%-61 \%) \end{gathered}$ | $\begin{gathered} \hline 26 \% \\ (2015) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 1.50 \% \\ (0.27-4.60 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & \hline 1.92 \% \\ & (2015) \\ & \hline \end{aligned}$ | $\begin{gathered} 56 \% \\ (37-72 \%) \end{gathered}$ | $\begin{gathered} 59 \% \\ (54-63 \%) \end{gathered}$ | $\begin{gathered} 54 \% \\ (2020) \\ \hline \end{gathered}$ |
|  | Samish Fall Fingerling (SAM) | $\begin{gathered} 43 \% \\ (27 \%-68 \%) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 40 \% \\ (2015) \\ \hline \end{gathered}$ | $\begin{gathered} 2.45 \% \\ (0.31-14.47 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & 1.39 \% \\ & (2015) \\ & \hline \end{aligned}$ | $\begin{gathered} 29 \% \\ (18-39 \%) \\ \hline \end{gathered}$ | $\begin{array}{\|c\|} \hline 30 \% \\ (28-32 \%) \\ \hline \end{array}$ | $\begin{gathered} 28 \% \\ (2020) \\ \hline \end{gathered}$ |
|  | Skagit Spring Fingerling (SKF) | $\begin{gathered} 28 \% \\ (13 \%-49 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 25 \% \\ (2015) \\ \hline \end{gathered}$ | $\begin{gathered} 1.57 \% \\ (0.67-4.11 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & 1.53 \% \\ & (2015) \\ & \hline \end{aligned}$ | $\begin{gathered} 58 \% \\ (46-70 \%) \\ \hline \end{gathered}$ | $\begin{array}{c\|} \hline 56 \% \\ (47-65 \%) \\ \hline \end{array}$ | $\begin{gathered} 65 \% \\ (2020) \\ \hline \end{gathered}$ |
|  | Skagit Summer <br> Fingerling (SSF) | $\begin{gathered} 35 \% \\ (21 \%-56 \%) \end{gathered}$ | $\begin{gathered} 31 \% \\ (2015) \end{gathered}$ | $\begin{gathered} 1.24 \% \\ (0.22-3.35 \%) \end{gathered}$ | $\begin{aligned} & 1.98 \% \\ & (2015) \end{aligned}$ | $\begin{gathered} 47 \% \\ (30-72 \%) \end{gathered}$ | $\begin{array}{\|c\|} \hline 74 \% \\ (70-78 \%) \\ \hline \end{array}$ | $\begin{gathered} 78 \% \\ (2020) \end{gathered}$ |
| Central <br> Puget <br> Sound | Stillaguamish Fall <br> Fingerling (STL) | $\begin{gathered} 47 \% \\ (21 \%-91 \%) \end{gathered}$ | $\begin{gathered} \hline 29 \% \\ (2015) \end{gathered}$ | $\begin{gathered} \hline 1.73 \% \\ (0.28-6.97 \%) \end{gathered}$ | $\begin{aligned} & \hline 1.38 \% \\ & (2015) \end{aligned}$ | $\begin{gathered} 52 \% \\ (29-68 \%) \end{gathered}$ | $\begin{gathered} 63 \% \\ \text { (52-73\%) } \end{gathered}$ | $\begin{gathered} \hline 73 \% \\ (2020) \end{gathered}$ |
|  | Skykomish Fall <br> Fingerling (SKY) | $\begin{gathered} 33 \% \\ (19 \%-43 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 19 \% \\ (2015) \\ \hline \end{gathered}$ | $\begin{gathered} 1.05 \% \\ (0.43-3.01 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & 1.05 \% \\ & (2015) \\ & \hline \end{aligned}$ | $\begin{gathered} 66 \% \\ (56-77 \%) \\ \hline \end{gathered}$ | $\begin{array}{\|c\|} \hline 75 \% \\ (75-75 \%) \\ \hline \end{array}$ | $\begin{gathered} 75 \% \\ (2020) \\ \hline \end{gathered}$ |
| South Puget <br> Sound | South Puget Sound Fall Fingerling (SPS) | $\begin{gathered} 47 \% \\ (23 \%-75 \%) \end{gathered}$ | $\begin{gathered} 34 \% \\ (2015) \end{gathered}$ | $\begin{gathered} 2.32 \% \\ (0.41-9.51 \%) \end{gathered}$ | $\begin{aligned} & 2.65 \% \\ & (2015) \end{aligned}$ | $\begin{gathered} 59 \% \\ (46-70 \%) \end{gathered}$ | $\begin{array}{c\|} \hline 60 \% \\ (58-62 \%) \\ \hline \end{array}$ | $\begin{gathered} 62 \% \\ (2020) \end{gathered}$ |
|  | Nisqually Fall <br> Fingerling (NIS) | $\begin{gathered} 42 \% \\ (23 \%-84 \%) \end{gathered}$ | $\begin{gathered} 33 \% \\ (2015) \\ \hline \end{gathered}$ | $\begin{gathered} 1.75 \% \\ (0.11-4.29 \%) \end{gathered}$ | $\begin{gathered} 2.54 \% \\ (2015) \\ \hline \end{gathered}$ | $\begin{gathered} 47 \% \\ (38-72 \%) \\ \hline \end{gathered}$ | $\begin{array}{\|c\|} \hline 48 \% \\ (29-67 \%) \\ \hline \end{array}$ | $\begin{gathered} 67 \% \\ (2020) \\ \hline \end{gathered}$ |
| Juan de Fuca/ Hood Canal | Elwha (ELW) | $\begin{array}{c\|} \hline 56 \% \\ (25 \%-100 \%) \\ \hline \end{array}$ | $\begin{gathered} 25 \% \\ (2015) \\ \hline \end{gathered}$ | $\begin{gathered} 0.69 \% \\ (0.01-2.32 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & 1.35 \% \\ & (2015) \\ & \hline \end{aligned}$ | $\begin{gathered} 64 \% \\ (54-70 \%) \\ \hline \end{gathered}$ | $\begin{array}{\|c\|} \hline 76 \% \\ (70-82 \%) \\ \hline \end{array}$ | $\begin{gathered} 82 \% \\ (2020) \\ \hline \end{gathered}$ |
|  | George Adams Fall Fingerling (GAD) | $46 \%$ $(22 \%-83 \%)$ | $\begin{gathered} 26 \% \\ (2015) \end{gathered}$ | $\begin{gathered} 1.78 \% \\ (0.04-5.87 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & 4.82 \% \\ & (2015) \end{aligned}$ | $\begin{gathered} 46 \% \\ (24-55 \%) \end{gathered}$ | $\begin{gathered} 31 \% \\ (30-31 \%) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 31 \% \\ (2020) \end{gathered}$ |

${ }^{1}$ \% Escapement is not a measure of performance for the escapement indicator stock(s) associated with a given CWT indicator stock. See CTC
(2013) for these details.

### 3.9 Columbia River Stocks

The Columbia River CWT ERA indicator stocks come from the Willamette River tributary, the Lower Columbia, the Upper Columbia, and the Snake River tributary. Long term averages and ranges, as well as the most recent brood year data for BYERs, survival rates, and the percent of total mortality accruing to escapement, are in Table 3.5 below.

The Willamette River spring Chinook CWT indicator (WSH) is an aggregation of yearling releases from several Willamette basin hatcheries. Lower Columbia CWT stocks include three tule fall Chinook CWT indicator stocks from hatcheries, and one wild bright stock below Bonneville Dam. The three tule indicator stocks are Lower River Hatchery (LRH, now released from Big Creek/Bonneville Hatchery), Cowlitz Hatchery (CWF), and Spring Creek Hatchery (SPR). The Lewis River Wild (LRW) indicator stock is a bright stock and is one of few wild stock tagging programs. Tule Chinook are distinguished by their dark coloration and advanced stage of maturation. Bright Chinook typically have a later freshwater entry and are bright in color like ocean caught fish.

Upper Columbia CWT indicator stocks include two bright fall and two summer Chinook stocks: Columbia Upriver Brights (URB, from Priest Rapids Hatchery), Hanford Wild (HAN, from Hanford Reach), Mid-Columbia Summers (SUM, from Wells Hatchery, including sub-yearling and yearling releases), and Similkameen (SMK, from the Okanogan watershed). For the Snake River, Lyons Ferry Hatchery releases both sub-yearling (LYF) and yearling (LYY) CWT indicators, but only the subyearlings are representative of the natural production.

### 3.9.1 Brood Year Exploitation Rates

Brood year exploitation rates have been calculated for each of the CWT indicator stocks. In two stocks, WSH and CWF, only ocean exploitation rate is reported, since the wild components that these stocks represent experience high MSF exploitation in terminal fisheries targeting hatchery production. Over the last 10 years, ocean BYERs have averaged about $8 \%$ for WSH with $2 \%$ IM, and $17 \%$ for CWF with $4 \%$ IM.

Three hatchery stocks in the lower Columbia River (CWF, LRH, and SPR) showed a decline in BYERs from high levels during the late 1970s (over 65\%) to lower levels during the early to mid1990s (Appendix D13). Over the last 10 years, ocean BYERs for LRH and SPR averaged 55-65\%, and IM averaged 6-8\%.

The LRW and SUM stock BYERs reached highs in the early 1980s (70\%, 81\%), lows in the 1990s (17-18\%), and returned to higher rates in the 2000s. URB BYERs also reached a high in the 1980s (80\%), hit a low in 1991 (16\%), and were then also higher in the 2000s. Coded-wire tagging of wild bright fall Chinook in the Hanford Reach (HAN) and of LYF both began in 1984. BYERs for HAN are typically higher than for URB, while BYERs for LYY are similar and BYERs for LYF are lower. Over the last 10 years, BYERs for LRW, URB, HAN, SUM, and LYY have averaged 40-50\%, LYF and SMK BYERs averaged 30-40\%, and IM for all stocks has averaged 4-6\%.

### 3.9.2 Survival Rates

Survival rates for WSH have been somewhat cyclical, with 13 of 15 broods from 1975-1989 above 3\% (averaging 4\%), 1-2\% for the next seven broods, 3-7\% (averaging 4\%) for the next four broods, and back down to 1-2\% for most broods since 2000 (Appendix E13).

Lower Columbia River stocks, specifically both CWF and LRH, have suffered from persistently low survival throughout the time series available for CWT survival analysis (1977-1978 through 2018). Recent survival rates remain well below $1 \%$. Survival rates for SPR were 0-1\% for 17 of 18 broods before 1998. Since 1998, nine of the next 14 broods had improved survivals, including six broods (1998-2001, 2007 and 2011) with rates of $3-4 \%$, however recent survival rates have declined to under $2 \%$. Survival rates for LRW declined from an average of $2.8 \%$ for the 1982-1992 broods, to under 2\% for all but one of the next 23 broods.

In the Upper Columbia River, SUM had survival rates less than 1.3\% until 1997, except for 1985 (2.2\%), averaging only $0.7 \%$. Since then, survival rates improved to $1.0-5.4 \%$. A $5.4 \%$ survival for 2011 is the highest value for SUM, while it was the 2010 brood that excelled for URB (7.9\%), HAN (5.8\%) and LYY (5.9\%). URB survival rates were 2-7\% for 1975-1985 broods (averaging 4\%), below 3\% from 1986-2008 (averaging 1\%), improving to 3-8\% from 2009-2012 (averaging $5 \%$ ), before again dropping to less than $2 \%$. HAN survival rates were $0-2 \%$ for 20 of 21 broods
from 1986-2006, (averaging 1\%), and then averaged 3\% for 6 broods, before declining to well under $1 \%$ for recent broods. LYF and SMK have data gaps through the 2002 brood, and highly variable survival rates bouncing back and forth between $2-4 \%$ and up to $8-11 \%$ since 2003. Recent broods for LYF are all under 2\% survival, while SMK survivals are around 3-5\%. LYY, which are yearlings, had $4-5 \%$ survival rates for 12 of 16 broods (averaging $5 \%$ ), before decreasing to about 2-3\%.

### 3.9.3 Mortality Distributions

The distribution of mortality for each stock can be found in Appendix C. For Columbia River stocks, sport data take two years to complete, thus the most recent numbers are for 2020. For most stocks, about 20-30\% of mortality occurs in AABM fisheries; primarily in SEAK for WSH, LRW, URB, HAN, SUM, and SMK, and in WCVI for SPR and LRH tules. For CWF, which is widely distributed, and SPR, which is only in fisheries from WCVI south, AABM fishery mortality is under $10 \%$.

Figure 3.11 demonstrates changes in the proportion of CY total mortality in fisheries and escapement. Impacts in Southern U.S. ISBM fisheries in 2020 were lower than usual for most Columbia River stocks, and correspondingly, the 2020 proportion to escapement for most Columbia River stocks increased from the 2009-2018 average.


Figure 3.11-Distribution of total mortality for Columbia River and tributaries indicator stocks from the 2009 (2009-2018) and 2019 (2019-2028) Pacific Salmon Treaty Agreement periods. The figure on the bottom only contains data for 2019 and 2020 due to reporting restrictions.

### 3.9.4 Regional Summary for Columbia River Stocks

Columbia River stocks typically have survival rates from 0-3\%, with the most successful broods surviving at 6-8\% (Appendix E13). Currently, recent survival rates are showing substantial declines to well under $2 \%$ for all stocks.

Except for WSH, averaging a BYER of 12\%, and LRH and SPR, with higher rates of around 60$70 \%$, Columbia River stocks had BYERs of about 35-50\%. BYERs for WSH and CWF are ocean
exploitation rates that do not include terminal harvest impacts (Table 3.5). Therefore, WSH and CWF typically show a higher percentage of escapement (over 75\%), compared to escapement proportions of about 50-70\% for other stocks, except SPR, which was lower at $41 \%$ and SUM and SMK, which were higher at $77 \%$ and $79 \%$, respectively. Except for LYY and SMK, which are yearlings, most Columbia River stocks are showing survival rates less than $2 \%$ for recent broods.

Table 3.5—Summary of statistics generated by the 2022 coded-wire tag (CWT) cohort analysis for Columbia River indicator stocks. Statistics include total mortality (catch plus incidental mortality), brood year exploitation rate (BYER), cohort survival rate to age 2, and calendar year (CY) percent distribution of the total mortality in the escapement.

| Indicator Stock Name | BYER (total mortality) |  | Survival rate |  | CY \% Escapement ${ }^{1}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | $\begin{aligned} & 2009- \\ & 2018 \end{aligned}$ | 2019-current |  |
|  | Mean (range) | Last complete BY |  |  | Mean (range) | Last complete BY | Mean (range) | Mean (range) | Last CY \% (year) |
| Cowlitz Fall Tule (CWF) ${ }^{2}$ | $\begin{gathered} \hline 36 \% \\ (11 \%-68 \%) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 17 \% \\ (2015) \\ \hline \end{gathered}$ | $\begin{gathered} 0.65 \% \\ (0.06-3.54 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & \hline 0.11 \% \\ & (2015) \\ & \hline \end{aligned}$ | $\begin{array}{\|c\|} \hline 67 \% \\ (48-90 \%) \\ \hline \end{array}$ | $\begin{gathered} 82 \% \\ (81-83 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 83 \% \\ (2020) \\ \hline \end{gathered}$ |
| Hanford Wild Brights (HAN) | $\begin{gathered} 50 \% \\ (35 \%-72 \%) \end{gathered}$ | $\begin{gathered} 41 \% \\ (2015) \\ \hline \end{gathered}$ | $\begin{gathered} 1.40 \% \\ (0.14-5.81 \%) \end{gathered}$ | $\begin{aligned} & 0.24 \% \\ & (2015) \\ & \hline \end{aligned}$ | $\begin{array}{\|c\|} \hline 44 \% \\ (11-67 \%) \\ \hline \end{array}$ | $\begin{gathered} 67 \% \\ (66-68 \%) \end{gathered}$ | $\begin{gathered} 66 \% \\ (2020) \\ \hline \end{gathered}$ |
| Lower River Hatchery Tule (LRH) | $\begin{gathered} 59 \% \\ (20 \%-82 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 62 \% \\ (2015) \\ \hline \end{gathered}$ | $\begin{gathered} 1.08 \% \\ (0.02-9.59 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & 0.81 \% \\ & (2015) \end{aligned}$ | $\begin{array}{c\|} \hline 36 \% \\ (27-44 \%) \\ \hline \end{array}$ | $\begin{gathered} 49 \% \\ (44-54 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 54 \% \\ (2020) \\ \hline \end{gathered}$ |
| Lewis River Wild (LRW) | $\begin{gathered} 44 \% \\ (17 \%-70 \%) \end{gathered}$ | $\begin{gathered} 58 \% \\ (2015) \\ \hline \end{gathered}$ | $\begin{gathered} 1.95 \% \\ (0.23-6.91 \%) \end{gathered}$ | $\begin{aligned} & 1.69 \% \\ & (2015) \end{aligned}$ | $\begin{array}{\|c\|} \hline 48 \% \\ \text { (31-67\%) } \\ \hline \end{array}$ | $\begin{gathered} 56 \% \\ (43-68 \%) \end{gathered}$ | $\begin{gathered} 68 \% \\ (2020) \\ \hline \end{gathered}$ |
| Lyons Ferry Fingerling (LYF) | $\begin{gathered} 35 \% \\ (8 \%-67 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 41 \% \\ (2015) \\ \hline \end{gathered}$ | $\begin{gathered} 2.15 \% \\ (0.08-7.88 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & 0.61 \% \\ & (2015) \\ & \hline \end{aligned}$ | $\begin{array}{\|c\|} \hline 64 \% \\ (41-89 \%) \\ \hline \end{array}$ | $\begin{gathered} 73 \% \\ (64-81 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 81 \% \\ (2020) \\ \hline \end{gathered}$ |
| Lyons Ferry Yearling (LYY) | $\begin{gathered} 47 \% \\ (24 \%-75 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 54 \% \\ (2014) \\ \hline \end{gathered}$ | $\begin{gathered} 4.41 \% \\ (0.96-14.69 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & 3.79 \% \\ & (2014) \\ & \hline \end{aligned}$ | $\begin{array}{c\|} \hline 48 \% \\ \text { (33-72\%) } \\ \hline \end{array}$ | $\begin{gathered} 49 \% \\ (41-57 \%) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 41 \% \\ (2020) \\ \hline \end{gathered}$ |
| Similkameen Summer Yearling (SMK) | $\begin{gathered} 34 \% \\ (11 \%-53 \%) \end{gathered}$ | $\begin{gathered} 25 \% \\ (2015) \end{gathered}$ | $\begin{gathered} 4.88 \% \\ (0.18-11.65 \%) \end{gathered}$ | $\begin{aligned} & 5.65 \% \\ & (2014) \end{aligned}$ | $\begin{gathered} 55 \% \\ (47-60 \%) \end{gathered}$ | $\begin{gathered} 79 \% \\ (78-80 \%) \end{gathered}$ | $\begin{gathered} 80 \% \\ (2020) \end{gathered}$ |
| Spring Creek Tule (SPR) | $\begin{gathered} 72 \% \\ (46 \%-94 \%) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 66 \% \\ (2015) \\ \hline \end{gathered}$ | $\begin{gathered} 1.95 \% \\ (0.12-8.26 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & \hline 1.14 \% \\ & (2015) \\ & \hline \end{aligned}$ | $\begin{array}{\|c\|} \hline 29 \% \\ (22-46 \%) \\ \hline \end{array}$ | $\begin{gathered} 41 \% \\ (39-42 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 42 \% \\ (2020) \\ \hline \end{gathered}$ |
| Columbia Summer (SUM) | $\begin{gathered} 50 \% \\ (14 \%-78 \%) \end{gathered}$ | $\begin{gathered} 14 \% \\ (2015) \\ \hline \end{gathered}$ | $\begin{gathered} 1.77 \% \\ (0.01-5.60 \%) \end{gathered}$ | $\begin{aligned} & 1.93 \% \\ & (2015) \\ & \hline \end{aligned}$ | $\begin{array}{\|c\|} \hline 49 \% \\ (44-56 \%) \\ \hline \end{array}$ | $\begin{gathered} 77 \% \\ (70-83 \%) \end{gathered}$ | $\begin{gathered} 70 \% \\ (2020) \\ \hline \end{gathered}$ |
| Columbia River Upriver Brights (URB) | $\begin{gathered} 51 \% \\ (24 \%-80 \%) \end{gathered}$ | $\begin{gathered} 37 \% \\ (2015) \end{gathered}$ | $\begin{gathered} 2.15 \% \\ (0.08-8.03 \%) \end{gathered}$ | $\begin{aligned} & 0.82 \% \\ & (2015) \end{aligned}$ | $\begin{gathered} 53 \% \\ (34-66 \%) \end{gathered}$ | $\begin{gathered} 67 \% \\ (62-71 \%) \end{gathered}$ | $\begin{gathered} 71 \% \\ (2020) \end{gathered}$ |
| Willamette Spring Hatchery (WSH) ${ }^{2}$ | $\begin{gathered} 12 \% \\ (3 \%-29 \%) \end{gathered}$ | $\begin{gathered} 7 \% \\ (2014) \\ \hline \end{gathered}$ | $\begin{gathered} 2.77 \% \\ (0.67-6.34 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & 1.86 \% \\ & (2014) \\ & \hline \end{aligned}$ | $\begin{gathered} 56 \% \\ (43-67 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 76 \% \\ (74-78 \%) \end{gathered}$ | $\begin{gathered} \hline 78 \% \\ (2020) \\ \hline \end{gathered}$ |

${ }^{1} \%$ Escapement is not a measure of performance for the escapement indicator stock(s) associated with a given CWT indicator stock. See CTC (2013) for these details.
${ }^{2}$ BYER is ocean exploitation rate only.

### 3.10 Oregon Coast Stocks

There are two hatchery-origin CWT indicator stocks representing the production of Chinook salmon on the Oregon coast, the Salmon River Hatchery (SRH) release group and the Elk River Hatchery (ELK) release group. Both groups are fall ocean type subyearling stocks with earliest recoveries at the total age of 2. The SRH release group represents the Northern Oregon Coast
(NOC) aggregate, and the ELK release group represents the Mid-Oregon Coast (MOC) aggregate. The SRH has consistently released CWT groups every year since 1976, with the exception of 1981. Releases from SRH have averaged 197,000 over the past 10 years and 196,000 over the past 20 years. There have been consistent, although sometimes small (prior to 1989), releases from the ELK since 1977. Release group size for the ELK was somewhat normalized to higher levels after 1990. Average CWT release group size for ELK between 1977 and 1989 was approximately 37,000 , and between 1990 and 2007 this increased to an average of approximately 184,000. Since 2007, after a two-year decline of coded-wire tagged ELK releases in 2008-2009 (average 40,000), the release size increased to an average of 284,000 in 2010-2016. ELK CWT release totals benefitted from the Coded-Wire Tag Improvement Program's (CWTIP) implementation initiatives between 2010 through 2015. Since the sunset of this bilateral program, additional implementation funding has been sought and secured to support adequate CWT release group sizes. Consistent support into the future is needed to maintain this CWT group and model stock representation.

### 3.10.1 Brood Year Exploitation Rates

BYERs for both the SRH and ELK exploitation rate indicator stocks include only those mortalities attributable to ocean fisheries (Appendix D14; Table 3.6). The BYER has averaged 37\% (range $24-63 \%$ ) for the SRH releases. BYER for the ELK has averaged $22 \%$ (range $10-31 \%$ ) for the time series, excluding BYs 1977 and 1978. There is no discernible trend through time regarding the percentage of IM occurring in ocean fisheries for either SRH or ELK hatchery releases. For the last complete brood year, SRH (39\%) has displayed greater ocean BYER compared to the ELK stock (29\%). In general, the SRH stock has displayed higher ocean ER than the ELK throughout the observed time series.

### 3.10.2 Survival Rates

Survival rates for both SRH and ELK hatchery stocks are to age 2. Generally, survival rates for ELK have been variable, yet robust, and averaged 8\% (range of 1-33\%; Appendix E14; Table 3.6) From 2013-2015 (the last year with complete broods from which survival can be calculated), survival has been below average. Brood years 2016 and 2017 are represented by incomplete brood data but continue to exhibit lower than average survival. Survival rates for SRH generally increased through 2012 with a long-term average of $6 \%$. Recently, the survival of the SRH stock has declined from a historic high of 19\% in 2012 to a historic low of 1\% during the 2013-2015 brood years. Available (yet incomplete) information on the 2016 and 2017 brood years indicate there has been an increase in survival following the prior 3-year precipitous decline (Appendix E14).

### 3.10.3 Mortality Distributions

An average of 52\% of SRH (Appendix C45) mortality, and 56\% of the ELK (Appendix C7) mortality, is attributed to escapement for the 2009-present time series (Table 3.6). Both stocks exhibit variation in the proportion which escapes to spawn through the time series; SRH has trended to higher proportion in escapement since 1979, but ELK has shown no trend over the full time period. According to the 2009-2018 CY data, the largest impacts on the SRH stock
occur in terminal sport (22\%), SEAK troll fisheries (14\%), NBC troll (11\%), and NBC sport (3\%). During the same time period, the largest impacts on the ELK stock occur in terminal sport (15\%), terminal troll fisheries (11\%), SEAK troll (6\%), and NBC troll (5\%). In the early years, WCVI troll was responsible for a larger component of the impacts on SRH (6\%:1979-1984), as well as the largest impact (6\%: 1979-1984) outside of the terminal river sport fishery on ELK, but WCVI troll impact has been greatly reduced over the years to low levels currently for both SRH (1\% 2009-2018) and ELK (2\%: 2009-2018). These impact distributions are displayed in Figure 3.12.


Figure 3.12-Distribution of total mortality for Oregon Coast indicator stocks from the 2009 (2009-2018) and 2019 (2019-2028) Pacific Salmon Treaty Agreement periods. The figure on the right only contains data for 2019-2020 due to reporting restrictions.

### 3.10.4 Terminal Area Adjustments

Given expectations for sufficient terminal area returns within a return year, sport fisheries generally occur in Nehalem (Appendix C48), Siletz (Appendix C46), and Siuslaw (Appendix C47) rivers, and the catch in the sport fishery is included in the harvest rate used by the CTC (2019) (Figure 3.13). As seen in Figure 3.13, the intensity of the terminal fishery in these stocks during the 2009-2018 period was generally similar, but lower than that experienced by SRH, their exploitation rate indicator stock. More recently ( 2019 to present), intensity was more variable among the escapement indicator stocks (EISs). Consequently, terminal area adjustments are needed to adequately depict the harvest in these areas. Whereas terminal impacts were slightly lower in the EISs than their attendant ERIS for the MOC during the 2009-2018 period, that pattern flipped to show a slightly more intensive terminal fishery in both the Coquille and South Umpqua stocks than in ELK for the 2019-2020 reporting period (Figure 3.14). Estimates of the terminal run and spawners for the Coquille River are reported by the CTC in the annual catch and escapement report (e.g., CTC (2022d), Table B-11) (Figure 3.14).


Figure 3.13—Distribution of total mortality for the North Oregon Coast hatchery indicator stock before applying the terminal area adjustment (Salmon River [SRH]) and after the terminal area adjustments for the escapement indicator stocks (Siletz, Siuslaw, and Nehalem) for the 2009 (2009-2018) and 2019 (2019-2028) Pacific Salmon Treaty Agreement periods. The figure on the right only contains data for 2019-2020 due to reporting restrictions.


Figure 3.14—Distribution of total mortality for the Mid-Oregon Coast hatchery indicator stock before applying the terminal area adjustment (EIk River [ELK]) and after the terminal area adjustments for the escapement indicator stocks (Coquille and South Umpqua) for the 2009 (2009-2018) and 2019 (2019-2028) Pacific Salmon Treaty Agreement periods. The figure on the right only contains data for 2019-2020 due to reporting restrictions.

### 3.10.5 Regional Summary for Oregon Coast Stocks

There are dynamic changes that have occurred to both NOC and MOC stocks, and those fisheries which capitalize upon them, through the period of observation and reporting for this document (2009 to present). Both aggregates have experienced survival declines recently (Appendix E14). Survival has fluctuated more for SRH than for ELK, varying from the highest survival to the worst survival observed in recent years (Appendix E14). Not surprisingly, NOC stocks have experienced a patchwork of escapement goal attainment and failure over the same period; MOC stocks do not have CTC-approved escapement goals but have exhibited similar variability. Escapement performance most likely cannot be attributed to one fishery's exploitation over another, although terminal fisheries are playing an increasingly large part in the performance of these stocks, and terminal fisheries management has become crucial in meeting escapement goals in recent years.

Table 3.6-Summary of statistics generated by the 2022 coded-wire tag (CWT) cohort analysis for Oregon Coast indicator stocks. Statistics include total mortality (catch plus incidental mortality) brood year exploitation rate (BYER), cohort survival rate to age 2, and calendar year (CY) percent distribution of the total mortality.

| Indicator Stock Name | BYER <br> Ocean BY only (total mortality) |  | Survival rate |  | CY \% Escapement ${ }^{1}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | 1999-2008 | 2009-present |  |
|  | Mean <br> (range) | Last complete BY |  |  | Mean (range) | Last complete BY | Mean <br> (range) | Mean (range) | $\begin{gathered} \hline \text { Last } \mathrm{CY} \\ \% \\ \text { (year) } \\ \hline \end{gathered}$ |
| Elk River (ELK) | $\begin{gathered} 22 \% \\ (10 \%-31 \%) \end{gathered}$ | $\begin{gathered} 29 \% \\ (2015) \\ \hline \end{gathered}$ | $\begin{gathered} 7.71 \% \\ (1.04-32.90 \%) \\ \hline \end{gathered}$ | $\begin{array}{r} 3.20 \% \\ (2015) \\ \hline \end{array}$ | $\begin{gathered} 52 \% \\ (42-65 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 56 \% \\ (55-56 \%) \end{gathered}$ | $\begin{gathered} 55 \% \\ (2020) \end{gathered}$ |
| Salmon River (SRH) | $\begin{gathered} 37 \% \\ (24 \%-63 \%) \end{gathered}$ | $\begin{gathered} 39 \% \\ (2015) \end{gathered}$ | $\begin{gathered} 6.41 \% \\ (0.53-18.67 \%) \end{gathered}$ | $\begin{aligned} & 0.53 \% \\ & (2015) \end{aligned}$ | $\begin{gathered} 44 \% \\ (22-57 \%) \end{gathered}$ | $\begin{gathered} 52 \% \\ (43-60 \%) \end{gathered}$ | $\begin{gathered} 60 \% \\ (2020) \end{gathered}$ |

$1 \%$ Escapement is not a measure of performance for the escapement indicator stock(s) associated with a given CWT indicator stock. See CTC (2013) for these details.

## 4. ISBM Fishery Performance

### 4.1 ISBM Fishery Performance under 2019 PST Agreement

Under the 2019 PST Agreement Chapter 3, paragraph 5(a), "U.S. and Canadian ISBM fisheries shall be managed to limit the total adult equivalent mortality for stocks listed in Attachment I that are not meeting agreed biologically-based management objectives, or that do not have agreed management objectives, to no more than the limits identified in Attachment I." The CYER is the metric the PSC uses to monitor total mortality in ISBM fisheries and for limiting total AEQ mortality (paragraph 5(e)). The CTC is tasked with evaluating ISBM fishery performance relative to the obligations set forth in paragraphs 5 and 7 annually.

### 4.1.1 ISBM Management Framework

Paragraph 5(d) of Chapter 3 of the 2019 PST Agreement requires that "actual ISBM fishery performance relative to the obligations set out in this paragraph shall be evaluated by the CTC and reported annually to the Commission. Because the performance analysis is dependent on recovery of CWT, the CTC shall provide the evaluation for ISBM fisheries on a post-season basis." Thus, the CTC is required to annually compute and report the CYERs for ISBM fisheries and using "the best available post-season data and analysis, report performance to the Commission of those metrics and the obligations set out in this Chapter."

The CTC interprets "best available post-season data and analysis" to mean that escapement, annual CYER, and base period CYER values used to evaluate ISBM obligations are updated annually based on results from the most current ERA and reported in Appendix H. A retrospective evaluation of CYER values from the 2017-2022 ERA (CTC 2018, CTC 2019a, CTC 2021d, CTC 2021e, CTC 2022c) showed that annual and base period CYER values change over time. Future changes to some of these values are anticipated by the CTC, particularly as MSF algorithms are incorporated into the ERA. Major changes to CYER data will be documented in Appendix H. For ISBM fishery evaluation, Attachment I ISBM indicator stocks, management objectives, and CYER limits are shown in Table 4.1. SEAK stocks are excluded because they are not subject to ISBM fishery provisions. ISBM fisheries subject to the Treaty are listed in Table 4.2. The steps to evaluate the ISBM management framework are diagrammed in Figure 4.1.

Table 4.1-Attachment I individual stock-based management (ISBM) indicator stocks, management objectives, and calendar year exploitation rate (CYER) limits as percentages of the 2009-2015 average CYER. To represent naturally spawning stocks, some exploitation rate indicators require adjustment for impacts of terminal fisheries targeting hatchery-origin fish.

| Escapement Indicator | Management Objective ${ }^{1}$ | Exploitation Rate Indicator | ISBM CYER Limits (\%) |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  | Canadian | US |
| Skeena | TBD | KLM | 100\% |  |
| Atnarko | 5,009 3,4 | ATN | 100\% |  |
| NWVI Natural Aggregate ${ }^{7}$ | TBD | RBT adjusted ${ }^{5}$ | 95\% |  |
| SWVI Natural Aggregate ${ }^{8}$ | TBD | RBT adjusted ${ }^{5}$ | 95\% |  |
| E. Vancouver Island North | TBD | QUI adjusted ${ }^{5}$ (TBD) ${ }^{2}$ | 95\% |  |
| Phillips | TBD | PHI | 100\% |  |
| Cowichan | 6,500 | COW | 95\% | 95\% |
| Nicola | TBD | NIC | 95\% | 95\% |
| Chilcotin | TBD | TBD ${ }^{\text {a }}$ | 95\% |  |
| Chilko | TBD | CKO ${ }^{\text {a }}$ | 95\% |  |
| Lower Shuswap | $12,300^{3}$ | SHU | 100\% |  |
| Harrison | 75,100 | HAR | 95\% | 95\% |
| Nooksack Spring | TBD | NSF | 87.5\% | 100\% |
| Skagit Spring | $690^{3}$ | SKF | 87.5\% | 95\% |
| Skagit Summer/Fall | 9,202 ${ }^{3}$ | SSF | 87.5\% | 95\% |
| Stillaguamish | TBD | STL | 87.5\% | 100\% |
| Snohomish | TBD | SKY | 87.5\% | 100\% |
| Hoko | TBD | HOK |  | 10\% CYER ${ }^{6}$ |
| Grays Harbor Fall | 13,326 | QUE adjusted ${ }^{5}$ |  | 85\% |
| Queets Fall | 2,500 | QUE |  | 85\% |
| Quillayute Fall | 3,000 | QUE adjusted ${ }^{5}$ |  | 85\% |
| Hoh Fall | 1,200 | QUE adjusted ${ }^{5}$ |  | 85\% |
| Upriver Brights | 40,000 | HAN/URB |  | 85\% |
| Lewis River Fall | 5,700 | LRW |  | 85\% |
| Coweeman | TBD | CWF |  | 100\% |
| Mid-Columbia Summers | 12,143 | SUM |  | 85\% |
| Nehalem | 6,989 | SRH adjusted ${ }^{5}$ |  | 85\% |
| Siletz | 2,944 | SRH adjusted ${ }^{5}$ |  | 85\% |
| Siuslaw | 12,925 | SRH adjusted ${ }^{5}$ |  | 85\% |
| South Umpqua | TBD | ELK adjusted ${ }^{5}$ |  | 85\% |
| Coquille | TBD | ELK adjusted ${ }^{5}$ |  | 85\% |

[^6]Table 4.2-Chinook Technical Committee (CTC) exploitation rate analysis fisheries included in individual stock-based management (ISBM) metrics by country.

| Canada | United States |
| :---: | :---: |
| Troll |  |
| Central B.C. Troll Georgia Strait Troll | North of Falcon Troll <br> South of Falcon Troll <br> Oregon Coast (Port Orford) Terminal Troll |
| Net |  |
| North B.C. Net <br> North B.C. Terminal Net <br> Central B.C. Net <br> Central BC Terminal Net <br> West Coast Vancouver Island Terminal Net <br> West Coast Vancouver Island Net <br> Strait of Georgia Net <br> North B.C. Terminal Freshwater net <br> Central B.C. Freshwater Net <br> Georgia Strait Freshwater Net <br> Fraser Freshwater Net <br> Johnstone Strait Net <br> B.C. Juan de Fuca Net <br> Fraser Net <br> Fraser Terminal Net | Puget Sound North Net <br> Puget Sound North Terminal Net <br> U.S. Juan de Fuca Net <br> Puget Sound Other Net <br> Puget Sound Other Terminal Net <br> Washington Coast Net <br> Columbia River Net <br> Puget Sound Freshwater Net <br> Washington Coast Freshwater Net |
| Sport |  |
| Central B.C. Sport <br> Central B.C. Terminal Sport <br> North B.C. ISBM Sport <br> North B.C. Terminal Sport <br> West Coast Vancouver Island ISBM Sport <br> West Coast Vancouver Island Terminal Sport <br> Johnstone Strait Sport <br> Johnstone Strait Terminal Sport <br> Georgia Strait Sport <br> Georgia Strait Terminal Sport <br> B.C. Juan de Fuca Sport <br> B.C. Juan de Fuca Terminal Sport <br> North B.C. Freshwater Sport <br> Central B.C. Freshwater Sport <br> West Coast Vancouver Island Freshwater <br> Sport Fraser River Freshwater Sport <br> Georgia Strait Freshwater Sport | North of Falcon Sport <br> North of Falcon Terminal Sport <br> South of Falcon Sport <br> South of Falcon Terminal Sport <br> Puget Sound North Sport <br> Puget Sound North Terminal Sport <br> Puget Sound Other Sport <br> Puget Sound Other Terminal Sport <br> Columbia River Sport <br> Puget Sound Freshwater Sport <br> South of Falcon Freshwater Sport |



Figure 4.1-Flow diagram depicting the sequence of steps for individual stock-based management (ISBM) fisheries management framework under the 2019 Pacific Salmon Treaty Agreement.

The CTC will calculate annual CYERs for Attachment I ISBM stocks (Chapter 3, paragraph 5, 2019 PST Agreement) and will begin reporting the running 3 -year average CYER (3YA) when data from catch years 2019-2021 are available from both Parties' ISBM fisheries (Footnote 17, 2019 PST Agreement). Three years of CYERs that meet the criteria for inclusion specified in paragraph 7(c) will be used to calculate the running 3-year average CYER for the upcoming 2023 Exploitation Rate Analysis report as agreed to by the PSC. For stocks in Attachment I without agreed management objectives, paragraph 7(c) specifies that all years shall be used to calculate the running 3YA. For stocks in Attachment I with an agreed management objective, the 3YA will include "all years in which the management objective is not achieved, and the years in which the management objective is achieved with a CYER that is less than or equal to the ISBM obligation identified in paragraph 5." At their October 2022 meeting, the Commission provided guidance that the 3YA must include three years of CYERs that meet the criteria for inclusion specified in paragraph 7(c). Thus, in cases where there are years that do not meet the criteria for inclusion in the 3YA, the running 3YA will span a time frame greater than three years.

For stocks that have a running 3YA of CYERs that exceeds $110 \%$ of the CYER limit, the Commission "shall request that the management entities responsible for the management of the ISBM fishery take necessary actions to minimize the deviation between the three-year CYER average and the CYER limits in Attachment l" (Chapter 3, subparagraph 7(c)(i)). The Commission will discuss proposals from the management entities regarding actions that will be taken and expected outcomes prior to implementation. Meanwhile, the CTC "shall provide to the Commission a plan to improve the performance of pre-season, in-season and other management tools so that the deviations between the CYERs and the CYER limits are narrowed to a maximum level of $10 \%$ when limits apply (Attachment I)" (Chapter 3, subparagraph 7(c)(ii)).

The PSC will review the CYER metric per paragraph 5(e) "to make a decision on its continued application or the use of an alternative metric. In the absence of a Commission decision to use an alternative metric, the use of the CYER metric continues."

### 4.2 ISBM Performance Evaluation for 2020

Implementation of the newly revised PST Agreement began with fishing year 2019. Attachment I identifies CYER limits applicable to ISBM obligations for 31 stocks. Of those, 15 do not have management objectives so the CYER limit automatically applies as per paragraph 5(d). The remaining 16 stocks have management objectives ${ }^{5}$ and for these stocks, the annual CYER limit only applies when the management objective is not met (Table 4.1).

The CTC conducted its evaluation of status towards achieving PSC-agreed management objectives for the 16 stocks in Attachment I with identified management objectives (CTC 2021f, Table 2.1). In 2020, only one of those stocks did not achieve its management objective (Harrison River), so CYER limits apply to the Harrison for both Canadian and U.S. ISBM fisheries.

[^7]
### 4.2.1 Canadian ISBM Fisheries Performance

There are 17 Attachment I indicator stocks subject to Canadian ISBM fisheries performance evaluation. Of those, 11 stocks do not have management objectives listed in Attachment I and two of those are currently under development and cannot be evaluated (Chilcotin and Chilko); therefore, CYER limits apply to nine of the 11 stocks without management objectives. There are six stocks that have management objectives listed in Attachment I and CYER limits only apply when these management objectives are not met. In 2020, the Harrison had escapement below its management objective. Thus for 2020, CYER limits apply to 10 stocks -the Harrison and the nine stocks without management objectives for which CYERs can be evaluated (Table 4.3).
Relative to Canadian ISBM fisheries performance for 2020, annual ISBM obligations were met for 11 of the 15 stocks that could be evaluated; five that met their management objectives and thus had no applicable CYER limits, and six that had CYERs that were below the limits specified in Attachment I. Annual CYER obligations were not met for four stocks-Nicola, Harrison, Nooksack Spring, and Snohomish.

Table 4.3-Review of performance in the Canadian individual stock-based management (ISBM) fisheries, 2020.
Notes: Escapement indicator stocks correspond to Annex IV, Chapter 3, Attachment I of the 2019 Pacific Salmon Treaty (PST) Agreement. Grey shaded cells indicate that the calendar year exploitation rate (CYER) qualifies for inclusion in the running 3-year average per paragraph 7(c). Green/red shaded cells indicate whether annual CYER obligations were met for a particular stock. NA = No or insufficient data available.

| Escapement Indicator | Mgmt. <br> Obj. | 2020 <br> Escape- <br> ment | Mgmt. <br> Obj. <br> Met? | CYER <br> Limit | 2020 <br> CYER | Annual <br> ISBM <br> Obligation <br> Met? |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| Skeena | TBD | 16,243 |  | 0.146 | 0.145 | Yes |
| Atnarko | 5,009 | 9,835 | Yes | 0.273 | 0.277 | Yes |
| NWVI Natural Aggregate | TBD | 1,416 |  | 0.085 | 0.064 | Yes |
| SWVI Natural Aggregate | TBD | 442 |  | 0.085 | 0.064 | Yes |
| East Coast Vancouver Island North | TBD | NA |  | 0.150 | 0.115 | Yes |
| Phillips | TBD | 3,330 |  | 0.101 | 0.070 | Yes |
| Cowichan | 6,500 | 8,737 | Yes | 0.380 | 0.143 | Yes |
| Nicola | TBD | 3,955 |  | 0.164 | 0.274 | No |
| Chilcotin |  |  |  | NA | NA | NA |
| Chilko |  |  |  | NA | NA | NA |
| Lower Shuswap | 12,300 | 25,528 | Yes | 0.199 | 0.187 | Yes |
| Harrison | 75,100 | 43,087 | No | 0.100 | 0.151 | No |
| Nooksack Spring | TBD | NA |  | 0.130 | 0.169 | No |
| Skagit Spring | 690 | 1,449 | Yes | 0.069 | 0.129 | Yes |
| Skagit Summer/Fall | 9,202 | 10,809 | Yes | 0.082 | 0.098 | Yes |
| Stillaguamish | TBD | 702 |  | 0.108 | 0.063 | Yes |
| Snohomish | TBD | 3,932 |  | 0.077 | 0.100 | No |

### 4.2.2 U.S. ISBM Fishery Performance

There are 22 Attachment I indicator stocks, including three of Canadian origin, that are subject to U.S. ISBM fisheries performance evaluation. Of these, eight stocks do not have management objectives listed in Attachment I, and therefore, CYER limits apply to them. The remaining 14 stocks have PSC agreed management objectives and thus, annual CYER limits only apply when these management objectives are not met. In 2020, only the Harrison had escapement below its management objective. Thus, for 2020, CYER limits apply to nine stocks-Harrison and the eight stocks without management objectives (Table 4.4).

Relative to U.S. ISBM fisheries performance for 2020, annual ISBM obligations were met for 20 of the 22 stocks listed in Attachment $\mathrm{l} ; 13$ that met their management objectives and thus had no applicable annual CYER limits, and seven that had CYERs that were below the Attachment I limits. Treaty obligations were not met for two stocks—Nooksack Spring and South Umpqua.

Table 4.4—Review of performance in the United States individual stock-based management (ISBM) fisheries, 2020.

Notes: Escapement indicator stocks correspond to Annex IV, Chapter 3, Attachment I of the 2019 Pacific Salmon Treaty (PST) Agreement. Grey shaded cells indicate that the calendar year exploitation rate (CYER) qualifies for inclusion in the running 3-year average per paragraph 7(c). Green/red shaded cells indicate whether annual CYER obligations were met for a particular stock.

| Escapement Indicator | Mgmt. Obj. | 2020 <br> Escapement | Mgmt. <br> Obj. <br> Met? | CYER Limit | $\begin{aligned} & 2020 \\ & \text { CYER } \end{aligned}$ | Annual ISBM Obligation Met? |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Cowichan | 6,500 | 8,737 | Yes | 0.103 | 0.028 | Yes |
| Nicola | TBD | 3,955 |  | 0.039 | 0.017 | Yes |
| Harrison | 75,100 | 43,087 | No | 0.073 | 0.046 | Yes |
| Nooksack Spring | TBD | NA |  | 0.103 | 0.181 | No |
| Skagit Spring | 690 | 1,449 | Yes | 0.251 | 0.214 | Yes |
| Skagit Summer/Fall | 9,202 | 10,809 | Yes | 0.164 | 0.060 | Yes |
| Stillaguamish | TBD | 702 |  | 0.168 | 0.104 | Yes |
| Snohomish | TBD | 3,932 |  | 0.185 | 0.098 | Yes |
| Hoko | TBD | 1,060 |  | 0.100 | 0.010 | Yes |
| Grays Harbor Fall | 13,326 | 20,879 | Yes | 0.160 | 0.113 | Yes |
| Queets Fall | 2,500 | 3,459 | Yes | 0.140 | 0.280 | Yes |
| Quillayute Fall | 3,000 | 8,672 | Yes | 0.215 | 0.125 | Yes |
| Hoh Fall | 1,200 | 2,273 | Yes | 0.154 | 0.214 | Yes |
| Upriver Brights (URB) ${ }^{1}$ | 40,000 | 125,097 | Yes | 0.228 | 0.164 | Yes |
| Upriver Brights (HAN) ${ }^{1}$ |  |  |  | 0.249 | 0.138 | Yes |
| Lewis River Fall | 5,700 | 26,792 | Yes | 0.195 | 0.081 | Yes |
| Coweeman | TBD | 807 |  | 0.207 | 0.087 | Yes |
| Mid-Columbia Summers | 12,143 | 70,654 | Yes | 0.263 | 0.149 | Yes |
| Nehalem | 6,989 | 20,046 | Yes | 0.131 | 0.073 | Yes |
| Siletz | 2,944 | 6,543 | Yes | 0.173 | 0.126 | Yes |
| Siuslaw | 12,925 | 14,384 | Yes | 0.204 | 0.206 | Yes |
| South Umpqua | TBD | 2,443 |  | 0.270 | 0.277 | No |
| Coquille | TBD | 879 |  | 0.226 | 0.102 | Yes |

${ }^{1}$ Attachment I to Chapter 3 of the 2019 PST Agreement identifies two exploitation rate indicator stocks to represent the Upriver Bright escapement indicator stock (URB, HAN). In the event the Upriver Bright management objective is not met in a given year, the URB CYER will be used to assess U.S. ISBM fishery performance.

## 5. Coded-Wire Tag Analysis and Mark-Selective Fisheries

Chinook salmon released from Puget Sound hatcheries and spring-run hatchery Chinook salmon in the Columbia River have been mass marked since BY 1998. Mass marking of Columbia River fall Chinook salmon started with BY 2005, and for BY 2009 onwards most of the Chinook salmon production intended for harvest released in Washington and Oregon has been mass marked (SFEC 2009). Mark-selective fisheries have been in place on the Columbia River since 2001, in Puget Sound (including U.S. Strait of Juan de Fuca) since 2003, in some terminal fishing areas along the Oregon coast between 2002 and 2018 and Washington coast since 2006, and in BC Strait of Juan de Fuca since 2008. Additionally, small mark-selective Chinook salmon fisheries occurred in the ocean sport fishery off the Washington Coast (Areas 1-4) between 2010 and 2015 and in the Alaska troll fishery (during periods that would have otherwise been nonretention) during 2016 and 2017.

### 5.1 Catch in Mark-Selective Fisheries

Regulations for MSFs allow for the retention of salmon missing a fin (i.e., fish that are marked; usually the adipose fin is clipped to identify marked hatchery fish) and require the release of fish with an intact adipose fin (i.e., fish that are unmarked). As a consequence, exploitation rates from MSFs are different between marked and unmarked Chinook salmon. The benefits of MSF regulations to reduce impacts on unmarked (e.g., natural) stocks relative to a non-selective fishery of equivalent effort depend on the proportion of the total number of fish available to the fishery that are marked (though not necessarily tagged).

Coded-wire tag analysis based on recoveries of marked and tagged Chinook salmon will only reflect the exploitation on the marked fish in an MSF. Because unmarked fish are not retained, and their CWTs not recovered, the exploitation rate of this group must be inferred using other analytical techniques. One method of estimating exploitation rates on unmarked fish is to express it as a function of the release mortality (RM) rate and encounter events of adipose fin clipped CWT fish in an MSF. As a stock is exposed to more MSFs, the difference in exploitation rate between marked and unmarked fish increases, and CWT analysis of marked Chinook salmon recoveries will likely overestimate the exploitation rate on the unmarked fish. Subsequently, the assumption that marked and tagged hatchery fish can properly represent the exploitation rate on associated natural stocks has an increasing amount of error as the MSF exploitation rate increases on marked fish. Differences in return-to-escapement proportions between marked and unmarked components of a double index tag (DIT) release group can be tested for significance for stocks susceptible to all MSFs in aggregate.

As mass marking of hatchery production increased in Washington and Oregon, so did the gradual implementation of MSFs. Implementation of MSF regulations began in 2001 on the Columbia River. Landed catch in sport fisheries during the spring run migration period are now almost entirely under MSF regulations, with a lower proportion during the summer and fall run migrations (Figure 5.1). In 2012, the first fall period MSF occurred in the mainstem Columbia River sport fishery, although MSFs occurred in the tributaries prior to 2012. MSFs have gradually increased during the summer/fall fisheries on the Columbia River, though the majority of the catches still occur under non-selective regulations.

Puget Sound sport fisheries (including U.S. Strait of Juan de Fuca) began implementing MSF regulations in 2003. Since then, the landed catch under MSF regulations has increased to equal nearly all the total landed catch of Chinook salmon in Puget Sound marine sport fisheries and a majority in freshwater fisheries (Figure 5.2).

In Oregon, a Chinook salmon MSF restriction occurred within the 15-fathom curve off of Tillamook Bay from March through July. There were concurrent non-selective Chinook salmon seasons open in adjacent ocean waters that allowed vessels to fish both areas on the same trip as long as no unmarked Chinook were retained or in possession while gear was deployed within the restricted area. The sport MSF in this area began in 2002 and the commercial MSF began in 2011. These limitations ended after 2018. At time of landing, catch from both the markselective "Tillamook bubble" fishery and the nonselective fishery outside of the bubble is combined. Therefore, although numbers of landed catch and released Chinook are recorded, they cannot be assigned specifically to the individual MSFs occurring within the bubble.

In Canada, the Strait of Juan de Fuca MSF has occurred from about the beginning of March to mid-June since 2008. Waters included in this fishery are those near Victoria, including Pacific Fishery Management Area (PFMA) Subareas 19-1 to 19-4 and 20-4 to 20-7. Typically, the regulations in this MSF allow retention of both marked and unmarked Chinook between 45 and 67 cm in length, but only marked fish over 67 cm (with a minimum size limit of 45 cm ). In 2020 and 2021, the Strait of Juan de Fuca MSF regulations were extended until July and August, respectively. Retained catches (2008-2021) in this fishery have ranged from 98 to 3,769 marked fish and 8 to 3,612 unmarked. Strait of Georgia, Queen Charlotte and Johnston Straits had MSFs allowing the retention of both marked and unmarked Chinook, with a maximum 80 cm size limit for unmarked Chinook in both 2020 (July) and 2021 (May-July). These management measures were implemented for the protection of spring and summer run Fraser Chinook.

Beginning in 2010 and continuing through 2015, small-scale MSF fisheries for Chinook salmon on the Washington and Oregon coast (north of Cape Falcon, Oregon) occurred prior to the traditional summer period sport fishery. These 2-week sport MSFs north of Cape Falcon have started as early as May 30 and as late as June 18. From 2010-2015, landed catch was highest in 2012, with 7,382 hatchery Chinook salmon landed in Washington, and 290 landed in Oregon. Catch was lowest in 2015, with 1,135 hatchery Chinook salmon landed in Washington, and 36 landed in Oregon. In Washington, the number of released Chinook ranged from a low of 1,361 in 2015 to a high of 7,852 in 2012. In Oregon, the number of released Chinook ranged from a low of 11 in 2015 to a high of 1,039 in 2011. No Washington or Oregon mark-selective Chinook fisheries have occurred north of Cape Falcon since 2015.

Alaska held its first experimental Chinook MSF in a coho-directed troll fishery from September 4-30, 2016. During this fishery, 457 marked Chinook salmon were retained. In 2017, Alaska conducted a second experimental MSF from July 5-21, also occurring during a coho-directed troll fishery. In 2017, 2,680 marked Chinook salmon were retained. No MSFs have occurred in Alaska since 2017.


Columbia River Summer/Fall Chinook Salmon Annual Sport Catch

Columbia River Chinook Salmon Annual Sport Catch

Figure 5.1-Estimated total Chinook catch in Columbia River mark-selective and non-selective sport fisheries during spring (May-Jun) and summer-fall (Jul-Dec) seasons (left y-axis) and percent of catch in mark-selective fisheries (MSFs) (right y-axis) for catch years 2003-2020.


Figure 5.2-Estimated total Chinook catch in mark-selective and non-selective Puget Sound sport fisheries (left y-axis) and percent of catch in mark-selective fisheries (MSFs) (right y-axis) for catch years 2003-2020.

As an alternative to pure MSFs, some agencies have implemented "mixed" bag limit regulations whereby different proportions of marked to unmarked fish are allowed in the landed catch. In the most common configuration, mixed bag limits allow no more than 1 unmarked fish to be retained as part of the total bag limit. Since 2006, mixed bag MSFs have occurred in some terminal fishing areas along the Oregon and Washington coasts and in the B.C. portion of the Strait of Juan de Fuca. In 2011 and 2013, sport fisheries in the upper Columbia River for summer Chinook salmon were implemented under mixed-bag limit regulations. In recent years, Canada has implemented a variation of mixed bag limits in the marine areas around the southern tip of Vancouver Island by allowing only hatchery-marked fish to be retained above a certain fork length measurement. The benefits of reduced exploitation on unmarked (e.g., natural) stocks is usually minor (e.g., Figure 5.3) for mixed bag limit fisheries but mixed bag limits do allow for additional retention of hatchery origin fish (R. Houtman, personal communication, August 16, 2021).


Figure 5.3-Average number of wild fish killed under alternative mark-selective fishery (MSF) regulations, with release mortality rate equal to 0.25 .
Regulation notations show total Chinook daily bag limits / total daily limit of wild Chinook (i.e., unmarked). For example, a notation of 2/1 means fishers can retain up to 2 Chinook of which a maximum of 1 can be unmarked. Lines described as "limit out" are for cases when fishers keep fishing until their bag limit is reached. Lines described as "max 4 fish" are for cases where fishers encounter four fish maximum and end their fishing trip, regardless of meeting bag limits.

### 5.2 Methods to Estimate the Impact of Mark-Selective Fisheries on Unmarked Chinook Salmon Stocks

The magnitude of impact of an MSF relative to the total exploitation of a stock can be measured using the percentage of the total landed catch in net, sport, and troll fisheries of tagged and marked PSC indicator stocks that occurs in MSFs. Percentages were calculated for the PSC indicator stocks (Table 5.1) by summarizing CWT recovery records obtained through a query of the Regional Mark Information System (RMIS) database according to three code values present in the 'adclip_selective_fishery' data field - " $N$ " for recoveries caught under non-selective fishery regulations, "S" for recoveries caught under MSF regulations, and "M" for recoveries caught under mixed-bag regulations. Use of the 'adclip_selective_fishery' recovery field was the only feasible means of calculating the percentages, however, the accuracy of this field likely varies regionally. For example, CWT recoveries from the BC Juan de Fuca sport fishery have all been assigned the code " N " (for non-selective) regardless of whether MSF or mixed-bag regulations were in effect when and where individual recoveries were obtained. Thus, for stocks intercepted in the BC Juan de Fuca sport fishery, the percentages presented in Table 5.1 and Figure 5.4 are likely biased low.

### 5.2.1 Double Index Tag Methods

PSC indicator stocks that have been double index tagged may be used to evaluate the impact of MSFs on the unmarked stocks represented by the unmarked tag group in a DIT pair. A DIT group consists of at least two tag groups, one with the mass mark (or adipose fin clip) and one without the mark. These two tag groups are treated identically except for the mark, and differences in mortality should be due to the MSFs-assuming there is no mark mortality occurring prior to recruitment to the fisheries. A comparison of the unmarked-to-marked ratio, referred to as lambda ( $\lambda$ ), at release and at escapement can be used in a test of the null hypothesis that there is no difference in proportional return of marked and unmarked groups. A positive test statistic occurs when a statistically higher proportion of unmarked fish return to hatchery escapement; this is consistent with the larger harvest of marked fish compared to unmarked fish through MSFs. A negative test statistic occurs when an equal or higher proportion of marked fish return, which could be indicative of sampling problems in the hatchery (i.e., the sampling procedure fails to detect all CWTs from unmarked fish present in the sample), or incorrect assumptions about release mortality rates, multiple encounters, or mark recognition errors. This is a concern when patterns occur over many BYs for a stock or hatchery. If stock-specific MSF impacts are small, then random variation in the CWT sampling procedures or simply random variability in processes, like survival, could result in both positive and negative test statistics in a random pattern across broods.

Table 5.1—Estimated landed catch of tagged and marked Pacific Salmon Commission (PSC) Chinook indicator stocks in British Columbia, Washington, and Oregon, in all net, troll, and sport fisheries for catch years 2019-2020, along with averages for 2009-2018, and the percent of the total tagged and marked catch landed in mark-selective fisheries (MSFs).
Note: Data for catch years 2009-2018 can be found in CTC 2021d.

| REGION | STOCK | 2009-2018 Avg |  | 2019 |  | 2020 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| SOUTHEAST <br> ALASKA | AK Hatcheries | 2,529 | 0\% | 1,445 | 0\% | 1,682 | 0\% |
|  | Chilkat | 34 | 0\% | 8 | 0\% | 11 | 0\% |
|  | Stikine | 51 | 0\% | 13 | 0\% | 38 | 0\% |
|  | Taku | 30 | 0\% | 9 | 0\% | 19 | 0\% |
|  | Unuk | 68 | 0\% | 48 | 0\% | 61 | 0\% |
| SOUTHEAST ALASKA Total |  | 2,709 | 0\% | 1,522 | 0\% | 1,810 | 0\% |
| BRITISH COLUMBIA | Atnarko Summer | 758 | 0\% | 793 | 0\% | 800 | 0\% |
|  | Big Qualicum | 309 | 1\% | 142 | 0\% | 180 | 0\% |
|  | Chilliwack Fall | 1,695 | 5\% | 1,805 | 5\% | 2,325 | 9\% |
|  | Cowichan Fall | 1,006 | 3\% | 670 | 4\% | 413 | 8\% |
|  | Nicola River Spring | 160 | 1\% | 66 | 13\% | 446 | 3\% |
|  | Puntledge Summer | 114 | 1\% | 37 | 0\% | 129 | 0\% |
|  | Quinsam Fall | 431 | 0\% | 949 | 0\% | 592 | 0\% |
|  | Robertson Creek | 1,891 | 0\% | 9,159 | 0\% | 7,367 | 0\% |
|  | Lower Shuswap River Summers | 1,211 | 1\% | 989 | 4\% | 1,525 | 1\% |
|  | Chehalis (Harrison Fall Stock) | 484 | 6\% | 454 | 6\% | 296 | 13\% |
|  | Kitsumkalum Summer | 142 | 0\% | 119 | 0\% | 33 | 0\% |
| BRITISH COLUMBIA Total |  | 8,200 | 2\% | 15,182 | 1\% | 14,106 | 2\% |
| NORTH PUGET SOUND | Nooksack Spring Fingerling | 471 | 5\% | 350 | 9\% | 477 | 5\% |
|  | Samish Fall Fingerling | 903 | 7\% | 471 | 11\% | 448 | 23\% |
|  | Skagit Spring Fingerling | 626 | 17\% | 646 | 15\% | 435 | 8\% |
|  | Skagit Summer Fingerling | 329 | 6\% | 290 | 13\% | 85 | 0\% |
|  | Skykomish Fall Fingerling | 224 | 27\% | 135 | 36\% | 117 | 23\% |
|  | Stillaguamish Fall Fingerling | 333 | 14\% | 459 | 20\% | 174 | 15\% |
| NORTH PUGET SOUND Total |  | 2,886 | 11\% | 2,351 | 15\% | 1,737 | 13\% |
| SOUTH PUGET SOUND | George Adams Fall Fingerling | 1,104 | 23\% | 1,393 | 18\% | 439 | 54\% |
|  | Green River Fall Fingerling | 436 | 20\% | 366 | 51\% | 87 | 45\% |
|  | Grovers Creek Fall Fingerling | 565 | 30\% | 482 | 41\% | 234 | 62\% |
|  | Nisqually Fall Fingerling | 808 | 22\% | 790 | 25\% | 125 | 37\% |
| SOUTH PUGET SOUND Total |  | 2,912 | 24\% | 3,030 | 27\% | 886 | 53\% |
| WASHINGTON COAST | Hoko Fall Fingerling | 212 | 8\% | 308 | 23\% | 302 | 4\% |
|  | Queets Fall Fingerling | 1,116 | 1\% | 836 | 1\% | 668 | 0\% |
|  | Tsoo-Yess Fall Fingerling | 168 | 4\% | 104 | 11\% | 3 | 0\% |
| WASHINGTON COAST Total |  | 1,497 | 2\% | 1,248 | 7\% | 972 | 1\% |
| COLUMBIA RIVER | Columbia Lower River Hatchery | 616 | 5\% | 299 | 10\% | 380 | 16\% |
|  | Columbia Summers | 3,961 | 13\% | 1,969 | 43\% | 2,665 | 25\% |
|  | Cowlitz Fall Tule | 156 | 16\% | 111 | 10\% | 190 | 9\% |
|  | Hanford Wild | 566 | 3\% | 76 | 0\% | 209 | 0\% |
|  | Lewis River Wild | 98 | 7\% | 63 | 0\% | 105 | 0\% |
|  | Lyons Ferry | 813 | 7\% | 116 | 0\% | 219 | 2\% |
|  | Spring Creek Tule | 2,229 | 3\% | 963 | 5\% | 1,155 | 4\% |


| REGION | STOCK | $\mathbf{2 0 0 9 - 2 0 1 8 ~ A v g}$ |  | $\mathbf{2 0 1 9}$ |  | $\mathbf{2 0 2 0}$ |  |
| :--- | :--- | ---: | ---: | ---: | ---: | ---: | ---: |
|  | Upriver Brights | 3,376 | $3 \%$ | 1,158 | $1 \%$ | 2,853 | $2 \%$ |
|  | Willamette Spring | 3,606 | $70 \%$ | 525 | $64 \%$ | 809 | $66 \%$ |
|  | 15,422 | $22 \%$ | 5,280 | $24 \%$ | 8,587 | $16 \%$ |  |
|  | Elk River | 1,614 | $1 \%$ | 1,292 | $0 \%$ | 1,924 | $22 \%$ |
|  | Salmon River | 2,913 | $5 \%$ | 771 | $0 \%$ | 1,144 | $0 \%$ |
|  | 4,527 | $3 \%$ | 2,062 | $0 \%$ | 3,069 | $14 \%$ |  |



Figure 5.4-Percent of total fishery coded-wire tag (CWT) recoveries in mark-selective fisheries (MSFs) for regional groupings of Chinook indicator stocks, 2003-2020.
Note: Percentages are based off the regional mark information system (RMIS) 'adclip_selective_fishery' field and do not include recoveries in mixed-bag fisheries. The Columbia River group does not include the Willamette River Spring stock (WSH).

### 5.2.2 Single Index Tag Methods

Techniques to estimate reduced fishing impacts of MSFs have largely involved DIT programs. However, this is a substantial issue for many of the stocks in BC or Alaska that do not currently have DIT programs, and for locations where DIT programs proved impractical (i.e., Chilliwack, Lower Shuswap, and Cowichan). Given these circumstances, an approach was developed in 2018 (CTC 2018) to estimate mortality distributions for natural stocks that have single index tag (SIT) indicator stocks under conditions where the MSF impacts mainly occur on mature SIT fish
proximal to their terminal area. The method was applied to three SIT stocks from the Fraser River (Nicola [NIC], Lower Shuswap [SHU], and Middle Shuswap [MSH]).

The approach uses SIT CWT recoveries in MSFs to represent the number of unmarked pseudoCWT fish encountered and released in the fishery and these pseudo-CWTs are multiplied by the survival rate (Surv$s_{s, f}=1-R M_{s, f}$ ), where $R M$ is the release mortality rate for legal-sized fish released in the fishery (e.g., 12.3\% for ocean sport fisheries, Appendix F). The pseudo-CWT MSF survivors are subtracted from fishery-specific Total Mortality AEQ CWTs in the mortality distribution tables (MDT) and then added to the terminal run fisheries and escapement, since these are assumed to be mature fish that are encountered on their return migration:

MSF Survivorss $, f, C Y=\left(\right.$ CWT Recoveriess $, f, C Y^{*}$ Survf $\left._{f}\right)$
Equation 5.1
The estimated incidental CWT mortalities in these fisheries were not adjusted because those values represent the sum of release mortalities based on the minimum size limit and drop-off mortalities, and these impacts would be the same for marked and unmarked fish. After passage through the MSFs, the pseudo-CWT survivors were assumed to not be encountered in subsequent ocean fisheries and they were assumed to survive to the river mouth. Further analysis would be needed to represent additional mortalities due to multiple encounters in ocean fisheries. The pseudo-CWT survivors were then distributed to the terminal fisheries and escapement by using the proportions from the original MDTs, thus some of the pseudo-CWT survivors were harvested in terminal fisheries. Additional adjustments would be needed for any terminal MSFs; however, all the Fraser River terminal fisheries were NSF from 2008-2021, and for the 2002 MSF at the mouth of the Nicola River, the pseudo-CWT survivors were added to the escapement.

The MSFs in marine waters of Southern BC and Washington have occurred mainly during the period when Fraser spring and summer stocks return to the Fraser River and there have been very few CWT recoveries outside of this timeframe (CTC 2018). In comparison, the Fraser fall stocks have been encountered throughout the year in these areas and there are more frequent CWT recoveries of age 2 and 3 fish (CTC 2018; Table 5.2-Table 5.7). The differences in the CWT recovery patterns by age indicate the MSFs in these areas encounter both immature and mature fish from the Fraser fall stocks, but mainly mature fish from the Fraser spring and summer stocks. Accordingly, this approach for SIT stocks was not appropriate for or applied to the fall stocks.

The MSF CWT recoveries were identified using a different approach for U.S. fisheries than Canadian fisheries because each country identifies MSF CWT recoveries differently in the RMIS and Mark Recovery Program (MRP) databases. For U.S. fisheries, the RMIS adclip_selective field identified MSF CWT recoveries; however, the Canadian MSF CWT recoveries cannot be identified correctly using this field. Thus, for Canadian MSFs, the Fisheries and Oceans Canada (DFO) annual fishing plans and DFO Fishery Notices were reviewed to identify when and where MSF regulations were used. All Canadian ocean MSFs occurred in the Juan de Fuca (JDF) sport fishery (2008-2021), or in the Nicola River mouth sport MSF in 2002. For the Fraser spring and summer stocks, all U.S. MSF CWT recoveries occurred in sport fisheries either in Puget Sound or the North of Falcon areas.

For the Canadian JDF sport fishery, both MSF and non-selective fishery regulations were used for specific dates, fishery management subareas, and fish length categories; this necessitated the review of date, area, and fish length data for every JDF sport CWT recovery with respect to the regulations described in the DFO Fishery Notices. Some JDF sport recoveries had incomplete date, location, or fish length data. One recovery was within the time period and size range of the MSF, but the area recorded (PFMA 20) omitted the subarea, and the MSF regulations occurred only in some subareas of PFMA 20. Two CWT recoveries were recorded in PFMA 20-7 (near Sooke, an area located west of Victoria, southern Vancouver Island), which was assumed to be part of the MSF area as described by points of land identifying the MSF regulation area in the Fishery Notice although 20-7 was not one of the subareas listed in the Fishery Notice. Length was not recorded for 12 recoveries that were identifiable to the times and locations of the MSF regulations. Due to the incomplete data, these recoveries could not be accurately identified as caught in the MSF or non-selective fishery. To account for this, the data analysis proceeded with two assumptions resulting in two MDTs. First, all the incomplete data recoveries were assumed to have been caught in the MSF. Second, all these recoveries were assumed to be caught in the non-selective fishery. Reporting both sets of data provides a range of the MSF impacts and captures some of the uncertainty due to incomplete data recording. Among the CWT recoveries with dates during the MSF periods, 3 Nicola CWTs, 4 Middle Shuswap CWTs and 5 Lower Shuswap CWTs had incomplete data.

The percentages between the original MDTs (representing the marked fish) and new MDTs (representing unmarked fish) were used to estimate the reduction in fisheries impacts and increased escapement for unmarked fish (Table 5.2-Table 5.5). Mortality Distribution Table exploitation rates did not change for other ocean non-selective fisheries. The average adjustments were minor, $0.5 \%$ or less, to the MDTs for these stocks in the MSFs, terminal fisheries, and escapement (Table 5.8). These minor adjustments reflect the relatively small proportion of the total mortality that was measured in MSFs, similar to the findings for the analysis of several of the DIT stocks in section 5.2.1 (Table 5.3). The largest adjustments occurred when the CWT recoveries with incomplete data were assumed to have been caught in MSFs (Table 5.8).

Table 5.2-Percent distribution of Nicola River adult equivalent (AEQ) total fishing mortalities and escapement to represent unmarked fish when recoveries with incomplete data were assumed to have been caught in non-selective fisheries.
Note: Troll, Net, and Sport (T,N,S) were combined for Southeast Alaska (SEAK), Northern British Columbia (NBC), and West Cost Vancouver Island (WCVI) aggregate abundance-based management (AABM) fisheries; S Falcon individual stock-based management (ISBM) fishery; and SEAK and Southern U.S. Terminal. The green shading identifies the calendar year exploitation rate (CYER) values where mark-selective fisheries (MSFs) did not change from the original mortality distribution tables (MDTs) for the marked stock and the yellow shading identifies revised CYERs.

| Catch Year | Est \# of CWT | Ages | AABM Fishery |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | $\begin{aligned} & \mathrm{SEAK} \\ & \mathrm{~T}, \mathrm{~N}, \mathrm{~S} \\ & \hline \end{aligned}$ | $\begin{gathered} \mathrm{NBC} \\ \mathrm{~T}, \mathrm{~S} \\ \hline \end{gathered}$ | $\begin{gathered} \text { WCVI } \\ \mathrm{T}, \mathrm{~S} \\ \hline \end{gathered}$ | NBC \& CBC <br> T,N,S | $\mathrm{T}^{\text {S }}$ | N |  | N Fa T | con | $\begin{gathered} \text { S Falcon } \\ \text { T \& S } \\ \hline \end{gathered}$ | WAC N |  |  | $\begin{aligned} & \text { SEAK } \\ & \mathrm{T}, \mathrm{~N}, \mathrm{~S} \end{aligned}$ | Nan |  | US South T,N,S | Stray | Esc. |
| 2002 | 2319 | 3,4,5,6 | 0.0 | 1.8 | 0.6 | 0.2 | 0.0 | 0.0 | 1.1 | 0.7 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 | 0.7 | 0.0 | 0.0 | 90.6 |
| 2008 | 624 | 3,4,5,6 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 | 2.2 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.4 | 3.5 | 0.5 | 0.0 | 76.0 |
| 2009 | 293 | 3,4,5,6 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 8.2 | 3.4 | 0.0 | 0.0 | 0.0 | 0.0 | 2.8 | 0.0 | 19.0 | 20.3 | 0.0 | 0.0 | 45.9 |
| 2010 | 2328 | 3,4,5,6 | 0.4 | 1.7 | 0.1 | 0.0 | 0.0 | 0.0 | 1.8 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 4.6 | 0.0 | 0.0 | 0.0 | 90.5 |
| 2011 | 683 | 3,4,5,6 | 0.0 | 0.9 | 0.4 | 0.0 | 0.0 | 0.4 | 4.4 | 2.0 | 0.3 | 0.0 | 0.0 | 0.0 | 1.5 | 0.0 | 3.8 | 2.5 | 0.0 | 0.0 | 83.7 |
| 2012 | 722 | 3,4,5,6 | 0.0 | 1.4 | 0.0 | 0.0 | 0.0 | 0.6 | 4.0 | 8.2 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 17.2 | 0.8 | 0.0 | 0.0 | 67.3 |
| 2013 | 1466 | 3,4,5,6 | 0.0 | 1.2 | 0.2 | 0.2 | 0.0 | 0.5 | 4.6 | 3.3 | 0.3 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 1.6 | 0.0 | 0.0 | 0.0 | 87.0 |
| 2014 | 436 | 3,4,5,6 | 0.0 | 0.0 | 2.1 | 0.0 | 0.0 | 1.6 | 0.9 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.2 | 0.9 | 0.0 | 0.0 | 83.7 |
| 2015 | 1549 | 3,4,5,6 | 0.0 | 0.5 | 0.3 | 0.0 | 0.0 | 0.9 | 3.1 | 0.9 | 0.2 | 0.0 | 0.0 | 0.2 | 0.6 | 0.0 | 10.0 | 0.0 | 0.0 | 0.0 | 83.4 |
| 2016 | 975 | 3,4,5,6 | 0.2 | 1.7 | 1.0 | 0.0 | 0.0 | 0.7 | 10.3 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.1 | 0.0 | 0.0 | 0.0 | 75.0 |
| 2017 | 1085 | 3,4,5,6 | 0.0 | 0.9 | 1.2 | 0.0 | 0.0 | 0.2 | 2.5 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.7 | 0.0 | 0.0 | 0.0 | 85.6 |
| 2018 | 1371 | 3,4,5,6 | 0.0 | 0.2 | 0.7 | 0.0 | 0.0 | 0.8 | 2.1 | 1.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.2 | 0.0 | 11.7 | 0.0 | 0.0 | 0.0 | 83.2 |
| 2019 | 2057 | 3,4,5,6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.6 | 0.7 | 0.5 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 1.2 | 0.0 | 0.0 | 0.0 | 96.4 |
| 2020 | 2015 | 3,4,5,6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 0.8 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 | 0.9 | 0.0 | 25.8 | 0.0 | 0.0 | 0.0 | 71.3 |
| 2021 | 3134 | 3,4,5,6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 0.4 | 0.1 | 0.2 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 4.1 | 0.0 | 0.0 | 0.0 | 94.1 |
| 09-18 | 1091 |  | 0.1 | 0.9 | 0.6 | 0.0 | 0.0 | 0.6 | 4.2 | 2.4 | 0.1 | 0.1 | 0.0 | 0.0 | 0.6 | 0.0 | 9.5 | 2.5 | 0.0 | 0.0 | 78.5 |
| 19-28 | 2402 |  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.5 | 0.3 | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 13.5 | 0.0 | 0.0 | 0.0 | 83.8 |

Table 5.3—Percent distribution of Nicola River adult equivalent (AEQ) total fishing mortalities and escapement to represent unmarked fish when recoveries with incomplete data were assumed to have been caught in mark-selective fisheries (MSFs).
Note: Troll, Net, and Sport (T,N,S) were combined for Southeast Alaska (SEAK), Northern British Columbia (NBC), and West Cost Vancouver Island (WCVI) aggregate abundance-based management (AABM) fisheries; S Falcon individual stock-based management (ISBM) fishery; and SEAK and Southern U.S. Terminal. The green shading identifies the calendar year exploitation rate (CYER) values where mark-selective fisheries (MSFs) did not change from the original mortality distribution tables (MDTs) for the marked stock and the yellow shading identifies revised CYERs.

| Catch Year | Est \# of CWT | Ages | AABM Fishery |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | $\begin{aligned} & \text { SEAK } \\ & \mathrm{T}, \mathrm{~N}, \mathrm{~S} \end{aligned}$ | $\begin{gathered} \mathrm{NBC} \\ \mathrm{~T}, \mathrm{~S} \end{gathered}$ | $\begin{gathered} \text { WCVI } \\ \mathrm{T}, \mathrm{~S} \end{gathered}$ | NBC \& CBC <br> T,N,S | $\mathrm{T}^{\text {S }}$ | N |  | N Fa T | con | $\begin{gathered} \text { S Falcon } \\ \text { T\&S } \end{gathered}$ | WAC $\mathrm{N}$ |  |  | $\begin{aligned} & \text { SEAK } \\ & \mathrm{T}, \mathrm{~N}, \mathrm{~S} \end{aligned}$ |  |  | US South T,N,S | Stray | Esc. |
| 2002 | 2319 | 3,4,5,6 | 0.0 | 1.8 | 0.6 | 0.2 | 0.0 | 0.0 | 1.1 | 0.7 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 | 0.7 | 0.0 | 0.0 | 90.6 |
| 2008 | 624 | 3,4,5,6 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 | 2.2 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.4 | 3.5 | 0.5 | 0.0 | 76.0 |
| 2009 | 293 | 3,4,5,6 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 8.2 | 3.4 | 0.0 | 0.0 | 0.0 | 0.0 | 2.8 | 0.0 | 19.0 | 20.3 | 0.0 | 0.0 | 45.9 |
| 2010 | 2328 | 3,4,5,6 | 0.4 | 1.7 | 0.1 | 0.0 | 0.0 | 0.0 | 1.5 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 4.6 | 0.0 | 0.0 | 0.0 | 90.8 |
| 2011 | 683 | 3,4,5,6 | 0.0 | 0.9 | 0.4 | 0.0 | 0.0 | 0.4 | 4.4 | 2.0 | 0.3 | 0.0 | 0.0 | 0.0 | 1.5 | 0.0 | 3.8 | 2.5 | 0.0 | 0.0 | 83.7 |
| 2012 | 722 | 3,4,5,6 | 0.0 | 1.4 | 0.0 | 0.0 | 0.0 | 0.6 | 4.0 | 8.2 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 17.2 | 0.8 | 0.0 | 0.0 | 67.3 |
| 2013 | 1466 | 3,4,5,6 | 0.0 | 1.2 | 0.2 | 0.2 | 0.0 | 0.5 | 3.9 | 3.3 | 0.3 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 1.6 | 0.0 | 0.0 | 0.0 | 87.7 |
| 2014 | 436 | 3,4,5,6 | 0.0 | 0.0 | 2.1 | 0.0 | 0.0 | 1.6 | 0.9 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.2 | 0.9 | 0.0 | 0.0 | 83.7 |
| 2015 | 1549 | 3,4,5,6 | 0.0 | 0.5 | 0.3 | 0.0 | 0.0 | 0.9 | 3.1 | 0.9 | 0.2 | 0.0 | 0.0 | 0.2 | 0.6 | 0.0 | 10.0 | 0.0 | 0.0 | 0.0 | 83.4 |
| 2016 | 975 | 3,4,5,6 | 0.2 | 1.7 | 1.0 | 0.0 | 0.0 | 0.7 | 9.2 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.2 | 0.0 | 0.0 | 0.0 | 76.0 |
| 2017 | 1085 | 3,4,5,6 | 0.0 | 0.9 | 1.2 | 0.0 | 0.0 | 0.2 | 2.5 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.7 | 0.0 | 0.0 | 0.0 | 85.6 |
| 2018 | 1371 | 3,4,5,6 | 0.0 | 0.2 | 0.7 | 0.0 | 0.0 | 0.8 | 2.1 | 1.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.2 | 0.0 | 11.7 | 0.0 | 0.0 | 0.0 | 83.2 |
| 2019 | 2057 | 3,4,5,6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.6 | 0.7 | 0.5 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 1.2 | 0.0 | 0.0 | 0.0 | 96.4 |
| 2020 | 2015 | 3,4,5,6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 0.8 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 | 0.9 | 0.0 | 25.8 | 0.0 | 0.0 | 0.0 | 71.3 |
| 2021 | 3134 | 3,4,5,6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 0.4 | 0.1 | 0.2 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 4.1 | 0.0 | 0.0 | 0.0 | 94.1 |
| 09-18 | 1091 | 0 | 0.1 | 0.9 | 0.6 | 0.0 | 0.0 | 0.6 | 4.0 | 2.4 | 0.1 | 0.1 | 0.0 | 0.0 | 0.6 | 0.0 | 9.5 | 2.5 | 0.0 | 0.0 | 78.7 |
| 19-28 | 2402 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.5 | 0.3 | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 13.5 | 0.0 | 0.0 | 0.0 | 83.8 |

Table 5.4-Percent distribution of Lower Shuswap River adult equivalent (AEQ) total fishing mortalities and escapement to represent unmarked fish when recoveries with incomplete data were assumed to have been caught in non-selective fisheries.
Note: Troll, Net, and Sport (T,N,S) were combined for Southeast Alaska (SEAK), Northern British Columbia (NBC), and West Cost Vancouver Island (WCVI) aggregate abundance-based management (AABM) fisheries; S Falcon individual stock-based management (ISBM) fishery; and SEAK and Southern U.S. Terminal. The green shading identifies the calendar year exploitation rate (CYER) values where mark-selective fisheries (MSFs) did not change from the original mortality distribution tables (MDTs) for the marked stock and the yellow shading identifies revised CYERs.

|  | Est \# of <br> CWT | Ages | AABM Fishery |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Catch Year |  |  | $\begin{aligned} & \text { SEAK } \\ & \mathrm{T}, \mathrm{~N}, \mathrm{~S} \\ & \hline \end{aligned}$ | $\begin{gathered} \mathrm{NBC} \\ \mathrm{~T}, \mathrm{~S} \\ \hline \end{gathered}$ | $\begin{gathered} \text { WCVI } \\ \mathrm{T}, \mathrm{~S} \\ \hline \end{gathered}$ | NBC \& CBC <br> T,N,S |  | N |  |  | con | $\begin{gathered} \text { S Falcon } \\ \mathrm{T} \& \mathrm{~S} \\ \hline \end{gathered}$ | $\begin{gathered} \text { WAC } \\ \mathrm{N} \\ \hline \end{gathered}$ |  |  | $\begin{aligned} & \text { SEAK } \\ & \mathrm{T}, \mathrm{~N}, \mathrm{~S} \\ & \hline \end{aligned}$ |  |  | US South T,N,S | Stray | Esc. |
| 2008 | 1771 | 2,3,4,5 | 9.4 | 15.8 | 1.6 | 0.0 | 0.0 | 0.0 | 7.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.9 | 3.0 | 0.0 | 0.0 | 60.1 |
| 2009 | 1691 | 2,3,4,5 | 10.5 | 9.8 | 3.1 | 0.6 | 0.0 | 0.0 | 8.9 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 10.0 | 6.2 | 0.0 | 0.2 | 50.5 |
| 2010 | 2026 | 2,3,4,5 | 11.3 | 13.6 | 0.5 | 0.3 | 0.0 | 0.0 | 9.1 | 0.2 | 0.1 | 0.1 | 0.0 | 1.2 | 0.0 | 0.0 | 9.5 | 1.9 | 0.3 | 1.2 | 50.7 |
| 2011 | 1852 | 2,3,4,5 | 10.1 | 12.1 | 2.0 | 0.0 | 0.0 | 1.2 | 8.2 | 0.5 | 0.0 | 0.0 | 0.0 | 0.3 | 0.2 | 0.0 | 9.3 | 2.9 | 0.0 | 0.1 | 53.2 |
| 2012 | 1945 | 2,3,4,5 | 9.4 | 11.9 | 2.3 | 0.8 | 0.0 | 0.4 | 9.9 | 0.2 | 0.1 | 0.2 | 0.0 | 0.1 | 1.9 | 0.0 | 4.6 | 5.0 | 0.0 | 0.0 | 53.4 |
| 2013 | 8225 | 2,3,4,5 | 8.0 | 11.0 | 1.2 | 0.3 | 0.0 | 1.6 | 10.2 | 0.6 | 0.0 | 0.0 | 0.0 | 0.3 | 0.5 | 0.0 | 2.5 | 2.0 | 0.0 | 0.9 | 60.9 |
| 2014 | 4670 | 2,3,4,5 | 12.1 | 9.8 | 4.9 | 0.2 | 0.0 | 3.0 | 4.9 | 1.9 | 0.4 | 0.1 | 0.0 | 0.5 | 0.6 | 0.0 | 8.1 | 1.8 | 0.0 | 0.9 | 50.8 |
| 2015 | 5012 | 2,3,4,5 | 7.2 | 5.2 | 1.8 | 0.7 | 0.0 | 0.5 | 8.0 | 2.4 | 0.5 | 0.0 | 0.0 | 0.8 | 0.8 | 0.0 | 2.9 | 3.1 | 0.1 | 1.4 | 64.8 |
| 2016 | 2153 | 2,3,4,5 | 12.1 | 11.7 | 2.8 | 0.6 | 0.0 | 0.4 | 5.8 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 2.6 | 1.9 | 0.3 | 0.0 | 61.5 |
| 2017 | 3047 | 2,3,4,5 | 14.0 | 11.1 | 3.6 | 0.0 | 0.0 | 0.2 | 10.7 | 0.2 | 0.3 | 0.0 | 0.0 | 0.0 | 0.8 | 0.0 | 2.5 | 1.7 | 0.1 | 0.5 | 54.1 |
| 2018 | 5092 | 2,3,4,5 | 5.1 | 5.9 | 2.8 | 0.1 | 0.0 | 1.4 | 8.9 | 0.2 | 0.2 | 0.0 | 0.0 | 0.5 | 0.6 | 0.0 | 5.0 | 2.6 | 0.0 | 0.2 | 66.5 |
| 2019 | 6933 | 2,3,4,5 | 3.3 | 1.5 | 0.7 | 1.0 | 0.0 | 0.5 | 3.9 | 0.3 | 0.1 | 0.0 | 0.0 | 0.2 | 0.3 | 0.0 | 3.4 | 2.9 | 0.0 | 0.9 | 81.1 |
| 2020 | 6866 | 2,3,4,5 | 5.4 | 0.5 | 1.1 | 0.3 | 0.0 | 0.9 | 2.9 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 9.1 | 5.3 | 0.0 | 1.1 | 72.9 |
| 2021 | 6796 | 2,3,4,5 | 5.2 | 1.1 | 1.2 | 1.0 | 0.0 | 0.7 | 2.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 4.9 | 3.2 | 0.1 | 2.5 | 77.5 |
| 09-18 | 3571 | 0 | 10.0 | 10.2 | 2.5 | 0.4 | 0.0 | 0.9 | 8.5 | 0.7 | 0.2 | 0.0 | 0.0 | 0.4 | 0.6 | 0.0 | 5.7 | 2.9 | 0.1 | 0.5 | 56.6 |
| 19-28 | 6865 | 0 | 4.6 | 1.0 | 1.0 | 0.8 | 0.0 | 0.7 | 3.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.1 | 0.2 | 0.0 | 5.8 | 3.8 | 0.0 | 1.5 | 77.1 |

Table 5.5—Percent distribution of Lower Shuswap River adult equivalent (AEQ) total fishing mortalities and escapement to represent unmarked fish when recoveries with incomplete data were assumed to have been caught in mark-selective fisheries (MSFs).
Note: Troll, Net, and Sport (T,N,S) were combined for Southeast Alaska (SEAK), Northern British Columbia (NBC), and West Cost Vancouver Island (WCVI) aggregate abundance-based management (AABM) fisheries; S Falcon individual stock-based management (ISBM) fishery; and SEAK and Southern U.S. Terminal. The green shading identifies the calendar year exploitation rate (CYER) values where mark-selective fisheries (MSFs) did not change from the original mortality distribution tables (MDTs) for the marked stock and the yellow shading identifies revised CYERs.

| Catch Year | Est <br> \# of <br> CWT | Ages | AABM Fishery |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | $\begin{aligned} & \text { SEAK } \\ & \mathrm{T}, \mathrm{~N}, \mathrm{~S} \\ & \hline \end{aligned}$ | $\begin{gathered} \mathrm{NBC} \\ \mathrm{~T}, \mathrm{~S} \\ \hline \end{gathered}$ | $\begin{gathered} \text { WCVI } \\ \mathrm{T}, \mathrm{~S} \\ \hline \end{gathered}$ | NBC \& CBC <br> T,N,S |  | N |  |  | con S | $\begin{gathered} \text { S Falcon } \\ \mathrm{T} \& \mathrm{~S} \\ \hline \end{gathered}$ | WAC $\mathrm{N}$ |  |  | $\begin{aligned} & \text { SEAK } \\ & \mathrm{T}, \mathrm{~N}, \mathrm{~S} \\ & \hline \end{aligned}$ |  |  | US South T,N,S | Stray | Esc. |
| 2008 | 1771 | 2,3,4,5 | 9.4 | 15.8 | 1.6 | 0.0 | 0.0 | 0.0 | 7.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.9 | 3.0 | 0.0 | 0.0 | 60.1 |
| 2009 | 1691 | 2,3,4,5 | 10.5 | 9.8 | 3.1 | 0.6 | 0.0 | 0.0 | 8.9 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 10.0 | 6.2 | 0.0 | 0.2 | 50.5 |
| 2010 | 2026 | 2,3,4,5 | 11.3 | 13.6 | 0.5 | 0.3 | 0.0 | 0.0 | 8.7 | 0.2 | 0.1 | 0.1 | 0.0 | 1.2 | 0.0 | 0.0 | 9.5 | 1.9 | 0.3 | 1.2 | 51.0 |
| 2011 | 1852 | 2,3,4,5 | 10.1 | 12.1 | 2.0 | 0.0 | 0.0 | 1.2 | 8.2 | 0.5 | 0.0 | 0.0 | 0.0 | 0.3 | 0.2 | 0.0 | 9.3 | 2.9 | 0.0 | 0.1 | 53.2 |
| 2012 | 1945 | 2,3,4,5 | 9.4 | 11.9 | 2.3 | 0.8 | 0.0 | 0.4 | 9.9 | 0.2 | 0.1 | 0.2 | 0.0 | 0.1 | 1.9 | 0.0 | 4.6 | 5.0 | 0.0 | 0.0 | 53.4 |
| 2013 | 8225 | 2,3,4,5 | 8.0 | 11.0 | 1.2 | 0.3 | 0.0 | 1.6 | 10.2 | 0.6 | 0.0 | 0.0 | 0.0 | 0.3 | 0.5 | 0.0 | 2.5 | 2.0 | 0.0 | 0.9 | 60.9 |
| 2014 | 4670 | 2,3,4,5 | 12.1 | 9.8 | 4.9 | 0.2 | 0.0 | 3.0 | 4.9 | 1.9 | 0.4 | 0.1 | 0.0 | 0.5 | 0.6 | 0.0 | 8.1 | 1.8 | 0.0 | 0.9 | 50.8 |
| 2015 | 5012 | 2,3,4,5 | 7.2 | 5.2 | 1.8 | 0.7 | 0.0 | 0.5 | 8.0 | 2.4 | 0.5 | 0.0 | 0.0 | 0.8 | 0.8 | 0.0 | 2.9 | 3.1 | 0.1 | 1.4 | 64.8 |
| 2016 | 2153 | 2,3,4,5 | 12.1 | 11.7 | 2.8 | 0.6 | 0.0 | 0.4 | 5.8 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.6 | 1.9 | 0.3 | 0.0 | 61.7 |
| 2017 | 3047 | 2,3,4,5 | 14.0 | 11.1 | 3.6 | 0.0 | 0.0 | 0.2 | 10.5 | 0.2 | 0.3 | 0.0 | 0.0 | 0.0 | 0.8 | 0.0 | 2.5 | 1.7 | 0.1 | 0.5 | 54.4 |
| 2018 | 5092 | 2,3,4,5 | 5.1 | 5.9 | 2.8 | 0.1 | 0.0 | 1.4 | 8.6 | 0.2 | 0.2 | 0.0 | 0.0 | 0.5 | 0.6 | 0.0 | 5.0 | 2.7 | 0.0 | 0.2 | 66.8 |
| 2019 | 6933 | 2,3,4,5 | 3.3 | 1.5 | 0.7 | 1.0 | 0.0 | 0.5 | 3.9 | 0.3 | 0.1 | 0.0 | 0.0 | 0.2 | 0.3 | 0.0 | 3.4 | 2.9 | 0.0 | 0.9 | 81.1 |
| 2020 | 6866 | 2,3,4,5 | 5.4 | 0.5 | 1.1 | 0.3 | 0.0 | 0.9 | 2.9 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 9.1 | 5.3 | 0.0 | 1.1 | 72.9 |
| 2021 | 6796 | 2,3,4,5 | 5.2 | 1.1 | 1.2 | 1.0 | 0.0 | 0.7 | 2.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 4.9 | 3.2 | 0.1 | 2.5 | 77.5 |
| 09-18 | 3571 | 0 | 10.0 | 10.2 | 2.5 | 0.4 | 0.0 | 0.9 | 8.4 | 0.7 | 0.2 | 0.0 | 0.0 | 0.4 | 0.5 | 0.0 | 5.7 | 2.9 | 0.1 | 0.5 | 56.7 |
| 19-28 | 6865 | 0 | 4.6 | 1.0 | 1.0 | 0.8 | 0.0 | 0.7 | 3.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.1 | 0.2 | 0.0 | 5.8 | 3.8 | 0.0 | 1.5 | 77.1 |

Table 5.6-Percent distribution of Middle Shuswap River adult equivalent (AEQ) total fishing mortalities and escapement to represent unmarked fish when recoveries with incomplete data were assumed to have been caught in non-selective fisheries.
Note: Troll, Net, and Sport (T,N,S) were combined for Southeast Alaska (SEAK), Northern British Columbia (NBC), and West Cost Vancouver Island (WCVI) aggregate abundance-based management (AABM) fisheries; S Falcon individual stock-based management (ISBM) fishery; and SEAK and Southern U.S. Terminal. The green shading identifies the calendar year exploitation rate (CYER) values where mark-selective fisheries (MSFs) did not change from the original mortality distribution tables (MDTs) for the marked stock and the yellow shading identifies revised CYERs.

|  | Est <br> \# of <br> CWT | Ages | AABM Fishery |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Catch <br> Year |  |  | SEAK <br> T,N,S | $\begin{gathered} \mathrm{NBC} \\ \mathrm{~T}, \mathrm{~S} \end{gathered}$ | $\begin{gathered} \text { WCVI } \\ \text { T,S } \\ \hline \end{gathered}$ | $\begin{gathered} \hline \text { NBC \& } \\ \text { CBC } \\ \mathrm{T}, \mathrm{~N}, \mathrm{~S} \\ \hline \end{gathered}$ | T | N | S |  | con | S Falcon T,S | WAC $\mathrm{N}$ |  |  | SEAK <br> T,N,S |  | S | US South T,N,S | Stray | Esc. |
| 2011 | 58 | 2,3 | 8.6 | 10.3 | 0.0 | 0.0 | 0.0 | 1.7 | 5.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 25.9 | 1.7 | 0.0 | 0.0 | 46.6 |
| 2012 | 288 | 2,3,4 | 10.0 | 19.4 | 2.4 | 0.3 | 0.0 | 0.7 | 13.9 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.8 | 2.8 | 0.0 | 1.4 | 37.1 |
| 2013 | 1700 | 2,3,4,5 | 2.9 | 11.5 | 0.9 | 0.1 | 0.0 | 1.1 | 14.7 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.1 | 3.6 | 0.0 | 1.3 | 60.6 |
| 2014 | 1218 | 2,3,4,5 | 10.2 | 12.4 | 5.2 | 0.5 | 0.0 | 1.5 | 7.7 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.1 | 4.8 | 0.0 | 0.5 | 53.1 |
| 2015 | 2078 | 2,3,4,5 | 4.7 | 3.8 | 2.7 | 0.3 | 0.0 | 0.7 | 13.5 | 1.7 | 0.1 | 0.0 | 0.0 | 0.2 | 0.6 | 0.0 | 1.7 | 3.4 | 0.0 | 4.9 | 61.7 |
| 2016 | 403 | 2,3,4,5 | 4.2 | 11.9 | 0.7 | 2.5 | 0.0 | 0.5 | 13.9 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.2 | 0.0 | 0.0 | 5.0 | 51.4 |
| 2017 | 471 | 2,3,4,5 | 9.7 | 8.1 | 1.5 | 0.8 | 0.0 | 0.0 | 15.5 | 0.4 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 3.8 | 3.8 | 0.0 | 0.8 | 55.0 |
| 2018 | 1325 | 2,3,4,5 | 1.2 | 3.0 | 3.0 | 0.0 | 0.0 | 1.2 | 15.8 | 0.3 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 6.7 | 1.8 | 0.0 | 0.8 | 66.1 |
| 2019 | 1058 | 2,3,4,5 | 0.5 | 0.9 | 0.7 | 0.7 | 0.0 | 0.5 | 1.9 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 2.4 | 3.8 | 0.0 | 5.0 | 83.4 |
| 2020 | 1861 | 2,3,4,5 | 2.6 | 0.0 | 0.0 | 4.2 | 0.0 | 1.2 | 1.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.0 | 9.3 | 0.0 | 1.8 | 67.9 |
| 2021 | 766 | 2,3,4,5 | 3.8 | 0.0 | 1.0 | 2.0 | 0.0 | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 5.5 | 8.1 | 0.0 | 1.3 | 74.9 |
| 09-18 | 1069 |  | 6.1 | 10.0 | 2.3 | 0.6 | 0.0 | 0.8 | 13.6 | 0.9 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 | 5.3 | 2.9 | 0.0 | 2.1 | 55.0 |
| 19-28 | 1228 |  | 2.3 | 0.3 | 0.6 | 2.3 | 0.0 | 1.0 | 1.3 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 0.0 | 6.3 | 7.1 | 0.0 | 2.7 | 75.4 |

Table 5.7-Percent distribution of Middle Shuswap River adult equivalent (AEQ) total fishing mortalities and escapement to represent unmarked fish when recoveries with incomplete data were assumed to have been caught in mark-selective fisheries (MSFs).
Note: Troll, Net, and Sport (T,N,S) were combined for Southeast Alaska (SEAK), Northern British Columbia (NBC), and West Cost Vancouver Island (WCVI) aggregate abundance-based management (AABM) fisheries; S Falcon individual stock-based management (ISBM) fishery; and SEAK and Southern U.S. Terminal. The green shading identifies the calendar year exploitation rate (CYER) values where mark-selective fisheries (MSFs) did not change from the original mortality distribution tables (MDTs) for the marked stock and the yellow shading identifies revised CYERs.

|  | Est <br> \# of <br> CWT | Ages | AABM Fishery |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Catch <br> Year |  |  | SEAK <br> T,N,S | $\begin{gathered} \mathrm{NBC} \\ \mathrm{~T}, \mathrm{~S} \\ \hline \end{gathered}$ | $\begin{gathered} \text { WCVI } \\ \mathrm{T}, \mathrm{~S} \\ \hline \end{gathered}$ | $\begin{gathered} \hline \text { NBC \& } \\ \text { CBC } \\ \mathrm{T}, \mathrm{~N}, \mathrm{~S} \\ \hline \end{gathered}$ | T | N | S |  | Son | S Falcon T,S | WAC <br> N |  | Sd S | SEAK <br> T,N,S |  | S | US South T,N,S | Stray | Esc. |
| 2011 | 58 | 2,3 | 8.6 | 10.3 | 0.0 | 0.0 | 0.0 | 1.7 | 5.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 25.9 | 1.7 | 0.0 | 0.0 | 46.6 |
| 2012 | 288 | 2,3,4 | 10.0 | 19.4 | 2.4 | 0.3 | 0.0 | 0.7 | 12.5 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.1 | 2.9 | 0.0 | 1.4 | 38.2 |
| 2013 | 1700 | 2,3,4,5 | 2.9 | 11.5 | 0.9 | 0.1 | 0.0 | 1.1 | 14.7 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.1 | 3.6 | 0.0 | 1.3 | 60.6 |
| 2014 | 1218 | 2,3,4,5 | 10.2 | 12.4 | 5.2 | 0.5 | 0.0 | 1.5 | 7.7 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.1 | 4.8 | 0.0 | 0.5 | 53.1 |
| 2015 | 2078 | 2,3,4,5 | 4.7 | 3.8 | 2.7 | 0.3 | 0.0 | 0.7 | 13.5 | 1.7 | 0.1 | 0.0 | 0.0 | 0.2 | 0.6 | 0.0 | 1.7 | 3.4 | 0.0 | 4.9 | 61.7 |
| 2016 | 403 | 2,3,4,5 | 4.2 | 11.9 | 0.7 | 2.5 | 0.0 | 0.5 | 13.9 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.2 | 0.0 | 0.0 | 5.0 | 51.4 |
| 2017 | 471 | 2,3,4,5 | 9.7 | 8.1 | 1.5 | 0.8 | 0.0 | 0.0 | 13.6 | 0.4 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 3.9 | 3.9 | 0.0 | 0.8 | 56.6 |
| 2018 | 1325 | 2,3,4,5 | 1.2 | 3.0 | 3.0 | 0.0 | 0.0 | 1.2 | 15.3 | 0.3 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 6.7 | 1.8 | 0.0 | 0.8 | 66.6 |
| 2019 | 1058 | 2,3,4,5 | 0.5 | 0.9 | 0.7 | 0.7 | 0.0 | 0.5 | 1.9 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 2.4 | 3.8 | 0.0 | 5.0 | 83.4 |
| 2020 | 1861 | 2,3,4,5 | 2.6 | 0.0 | 0.0 | 4.2 | 0.0 | 1.2 | 1.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.0 | 9.3 | 0.0 | 1.8 | 67.9 |
| 2021 | 766 | 2,3,4,6 | 3.8 | 0.0 | 1.0 | 2.0 | 0.0 | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 5.5 | 8.1 | 0.0 | 1.3 | 74.9 |
| 09-18 | 1,069 |  | 6.1 | 10.0 | 2.3 | 0.6 | 0.0 | 0.8 | 13.0 | 0.9 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 | 5.4 | 2.9 | 0.0 | 2.1 | 55.5 |
| 19-28 | 1228 |  | 2.3 | 0.3 | 0.6 | 2.3 | 0.0 | 1.0 | 1.3 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 0.0 | 6.3 | 7.1 | 0.0 | 2.7 | 75.4 |

Table 5.8-Average absolute changes in Nicola, Lower Shuswap, and Middle Shuswap calendar year exploitation rates (CYERs) $(2002,2008-2020)$ when coded-wire tag (CWT) recoveries with incomplete data were assumed to have been caught in non-selective fisheries or mark-selective fisheries (MSFs).

| Indicator Stock | Southern BC Sport | Puget Sound Sport | N Falcon Sport | Canada Terminal Net | Canada Terminal Sport | Escapement |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Caught in NSF |  |  |  |  |  |  |
| Nicola | -0.2\% | -0.2\% | 0.0\% | +0.1\% | ~0.0\% | +0.3\% |
| Lower Shuswap | -0.2\% | -0.2\% | ~0.0\% | ~0.0\% | ~0.0\% | +0.4\% |
| Middle Shuswap | -0.1\% | -0.1\% | -0.1\% | ~0.0\% | ~0.0\% | +0.2\% |
| Caught in MSF |  |  |  |  |  |  |
| Nicola | -0.3\% | -0.2\% | 0.0\% | +0.1\% | ~0.0\% | +0.4\% |
| Lower Shuswap | -0.2\% | -0.2\% | ~0.0\% | ~0.0\% | ~0.0\% | +0.4\% |
| Middle Shuswap | -0.4\% | -0.1\% | -0.1\% | +0.1\% | ~0.0\% | +0.5\% |

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List of Appendices
Appendix A: Relationship between exploitation rate indicator stocks, escapement indicator stocks, and model stocks in the Pacific Salmon Treaty ..... 75
Appendix B: Parameters used in the 2021 Exploitation Rate Analysis ..... 82
Appendix C: Percent distribution of landed catch and total mortality and escapement for exploitation rate indicator stocks by calendar year. ..... 84
Appendix D: Brood Year Exploitation Rate Plots ..... 146
Appendix E: Survival Rate Plots. ..... 166
Appendix F: Terminal Area Adjustment Data ..... 186
Appendix G: Fishery exploitation rate indices by stock, age and fishery, based on Coded-Wire Tag data ..... 192
Appendix H: Calendar Year Exploitation Rate Metrics ..... 204
Appendix I: Issues with and changes to the Exploitation Rate Analysis ..... 209
Appendix J: Pseudo recovery inclusion assessment ..... 212
ApPENDIX A: RELATIONSHIP BETWEEN EXPLOITATION RATE INDICATOR STOCKS, ESCAPEMENT INDICATOR STOCKS, AND MODEL STOCKS IN THE PACIFIC SALMON Treaty
LIST OF APPENDIX A TABLES
Appendix A1- Indicator stocks for Transboundary (TBR) Rivers and Southeast Alaska (SEAK) ..... 76
Appendix A2- Indicator stocks for Northern British Columbia (NBC), Central British Columbia (CBC), and West Coast Vancouver Island (WCVI). ..... 77
Appendix A3- Indicator stocks for Fraser River and Strait of Georgia ..... 78
Appendix A4- Indicator stocks for Puget Sound. ..... 79
Appendix A5- Indicator stocks for the Washington Coast. ..... 80
Appendix A6- Indicator stocks for Columbia River and Oregon Coast. ..... 81

Appendix A1- Indicator stocks for Transboundary (TBR) Rivers and Southeast Alaska (SEAK).

| Region | Run | Attachment I stock | Escapement Indicator (PSC Management Objective) | Exploitation Rate Indicator/Acronym |  | Model Stock/Acrony |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Transboundary Rivers (TBR) | Spring | Yes | Taku (19,000-36,000) | Taku | TAK |  |  |
|  |  | Yes | Stikine (14,000-28,000) | Stikine | STI | Taku and Stikine |  |
|  |  | Yes | Alsek (3,500-5,300) | NA | NA | Alsek | ALS |
| Southeast <br> Alaska (SEAK) |  | Yes | Situk (500-1,000) | NA | NA | Yakutat Forelands | YAK |
|  |  | Yes | Chilkat (1,750-3,500) | Chilkat Northern Southeast Alaska | $\begin{aligned} & \hline \text { CHK, } \\ & \text { NSA }^{1} \end{aligned}$ | Northern Southeast Alaska | NSA |
|  |  | Yes | Unuk (1,800-3,800) | Unuk Southern Southeast Alaska | $\begin{aligned} & \hline \text { UNU, } \\ & \text { SSA }^{2} \end{aligned}$ | Southern Southeast Alaska | SSA |

${ }^{1}$ NSA is an aggregate of Crystal Lake (ACI) and Douglas Island Pink and Chum (DIPAC)/Macaulay (AMC) hatcheries.
${ }^{2}$ SSA is an aggregate of Little Port Walter (ALP), Neets Bay (ANB), Whitman Lake (AHC), and Deer Mountain (ADM) hatcheries.

Appendix A2- Indicator stocks for Northern British Columbia (NBC), Central British Columbia (CBC), and West Coast Vancouver Island (WCVI).

| Region | Run | Attachment I stock | Escapement Indicator (PSC Management Objective) | Exploitation Rate Indicator/Acronym |  | Model Stock /A |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Northern BC (NBC) | Summer | No | Nass | Kitsumkalum (Deep Creek <br> Hatchery) | KLM | Northern BC | NBC |
|  |  | Yes | Skeena (TBD) |  |  |  |  |
|  |  | No | Kitsumkalum |  |  |  |  |
| $\begin{aligned} & \text { Central BC } \\ & \text { (CBC) } \end{aligned}$ | Fall | No | Wannock | Atnarko <br> (Snootli Hatchery) | ATN | Central BC | CBC |
|  | Summer | No | Chuckwalla and Killbella |  |  |  |  |
|  |  | Yes | Atnarko (5,009) |  |  |  |  |
| West Coast Vancouver Island (WCVI) | Fall | Yes | North West Vancouver Island Aggregate (Colonial-Cayeagle, Tashish, Artlish, Kaouk) (TBD) | Robertson Creek Hatchery | $\begin{aligned} & \text { RBT } \\ & (\mathrm{adj})^{1} \end{aligned}$ | West Coast Vancouver Island Natural | WVN |
|  |  | Yes | South West Vancouver Island <br> Aggregate <br> (Bedwell/Ursus, Megin, <br> Moyeha) (TBD) |  |  |  |  |
|  |  | No | West Coast Vancouver Island Aggregate <br> (14 Streams) | Robertson Creek Hatchery | RBT | West Coast Vancouver Island Hatchery | WVH |

${ }^{1}$ CWT indicator stocks and fishery adjustments described in CTC 2021g.

## Appendix A3- Indicator stocks for Fraser River and Strait of Georgia.

| Region | Run | Attachment I stock | Escapement Indicator (PSC Management Objective) | Exploitation Rate Indicator/Acronym |  | Model Stock /Acronym |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Fraser River | Spring | Yes | Nicola (TBD) | Nicola <br> (Spius Creek Hatchery) | NIC | Fraser Spring 1.2 | FS2 |
|  |  | No | Fraser Spring 1.2 |  |  |  |  |
|  |  | No | NA | Dome (Penny Creek Hatchery) ${ }^{1}$ | DOM | Fraser Spring 1.3 | FS3 |
|  |  | Yes | Chilcotin (TBD) | Lower Chilcotin (in development) | LCT |  |  |
|  | Summer | Yes | Lower Shuswap (12,300) | Lower Shuswap (Shuswap Falls Hatchery) | SHU | Fraser Summer Oceantype 0.3 | FSO |
|  |  | No | NA | Middle Shuswap <br> (Shuswap Falls Hatchery) | MSH |  |  |
|  |  | Yes | Chilko (TBD) | Chilko (in development) | CKO | Fraser Summer Streamtype 1.3 | FSS |
|  | Fall | No | NA | Chilliwack Hatchery | CHI | Fraser Chilliwack Fall Hatchery | FCF |
|  |  | Yes | Harrison ( 75,100 ) | Harrison (Chehalis Hatchery) | HAR | Fraser Harrison Fall | FHF |
| North Strait of Georgia | Fall | No | TBD | Quinsam Hatchery ${ }^{2}$ | QUI | Upper Strait of Georgia | UGS |
|  |  | Yes | East Vancouver Island North (TBD) |  | $\begin{array}{\|l\|} \hline \text { QUI } \\ \text { (adj) } \\ \hline \end{array}$ |  |  |
|  |  | Yes | Phillips | Phillips (Gillard Pass Hatchery) ${ }^{3}$ | PHI |  |  |
| South Strait of Georgia | Fall | No | Cowichan (6,500) | Big Qualicum Hatchery | BQR | Middle Strait of Georgia | MGS |
|  |  | Yes |  | Cowichan Hatchery | COW | Lower Strait of Georgia | LGS |
|  |  | No |  | Nanaimo Hatchery ${ }^{4}$ | NAN |  |  |
|  | Summer | No |  | Puntledge Hatchery | PPS | Puntledge Hatchery | PPS |

${ }^{1}$ DOM was discontinued as an exploitation rate indicator stock as of brood year (BY) 2002.
${ }^{2}$ CWT indicator stocks and fishery adjustments described in CTC 2021g.
${ }^{3} \mathrm{PHI}$ will be discontinued as an exploitation rate indicator stock once all age classes from the 2019 brood have been recovered (i.e., 2024).
${ }^{4}$ NAN was discontinued as an exploitation rate indicator stock as of BY 2004.

Appendix A4-Indicator stocks for Puget Sound.

| Region | Run | Attachment I stock | Escapement Indicator (PSC Management Objective) | Exploitation Rate Indicator/Acronym |  | Model Stock /Acronym |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Northern Puget Sound | Spring | Yes | Nooksack Spring (TBD) | Nooksack Spring Fingerling (Kendall Creek Hatchery) | NSF | Nooksack Spring | NKS |
|  |  | Yes | Skagit Spring (690) | Skagit Spring Fingerling (Marblemount Hatchery) | SKF | NA | NA |
|  | Fall | No | NA | Samish Fall Fingerling (Samish Hatchery) | SAM | Nooksack Fall | NKF |
|  | Summer/ <br> Fall | Yes | Skagit Summer/Fall (9,202) | Skagit Summer Fingerling (Marblemount Hatchery) | SSF | Skagit Summer/Fall | SKG |
|  | Fall | Yes | Stillaguamish (TBD) | Stillaguamish Fall <br> Fingerling <br> (Whitehorse Hatchery) | STL | Stillaguamish | STL |
|  | Summer | Yes | Snohomish (TBD) | Skykomish Fingerling (Wallace Hatchery) | SKY | Snohomish | SNO |
| Central and <br> Southern <br> Puget Sound | Spring | No | NA | White River Hatchery Spring Yearling ${ }^{2}$ | WRY | NA | NA |
|  | Fall | No | NA | SPS Fall Yearling ${ }^{2}$ | SPY | Puget Sound Hatchery Yearling | PSY |
|  |  | No | NA | University of Washington Accelerated ${ }^{2}$ | UWA |  |  |
|  |  | No | Green | Green River Fingerling ${ }^{1}$ <br> (Soos Creek Hatchery) | GRN | Puget Sound Hatchery Fingerling | PSF |
|  |  |  |  | SPS Fall Fingerling ${ }^{1}$ | SPS |  |  |
|  |  | No | Lake Washington |  |  |  |  |
|  |  | No | NA | Nisqually Fall Fingerling (Clear Creek Hatchery) | NIS |  |  |
| Hood Canal |  | No | NA | George Adams Hatchery Fall Fingerling | GAD | Puget Sound Natural Fingerling | PSN |

${ }^{1}$ SPS is aggregate from Soos Creek (Green R), Grovers, and Issaquah hatcheries. The Soos Creek (GRN tag group) are included in the SPS exploitation rate indicator.
${ }^{2}$ This stock has been discontinued and is no longer analyzed on an annual basis. For more information, see Appendix I of CTC 2022c.

Appendix A5- Indicator stocks for the Washington Coast.

| Region | Run | Attachment I stock | Escapement Indicator (PSC Management Objective) | Exploitation Rate Indicator/Acronym |  | Model Stock /Acronym |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Juan de Fuca | Fall | No | NA | Elwha Fall Fingerling (Lower Elwha Hatchery) | ELW | NA | NA |
| Washington Coast (WAC) |  | Yes | Hoko (TBD) | Hoko Fall Fingerling (Hoko Falls Hatchery) | HOK | NA | NA |
|  |  | Yes | Queets Fall $(2,500)$ | Queets Fall Fingerling (Salmon River brood stock) | $\begin{aligned} & \text { QUE } \\ & (\mathrm{adj})^{2} \end{aligned}$ | WA Coastal Wild | WCN |
|  |  | Yes | Grays Harbor Fall $(13,326)$ |  |  |  |  |
|  |  | Yes | Quillayute Fall $(3,000)$ |  |  |  |  |
|  |  | Yes | Hoh Fall (1,200) |  |  |  |  |
|  |  | No | NA |  |  | WA Coastal Hatchery | WCH |
|  |  | No | NA | Tsoo-Yess Fall Fingerling (Makah National Fish Hatchery) | SOO | NA | NA |
|  | Spring | No | Grays Harbor Spring ${ }^{1}$ | NA | NA | NA | NA |
|  | Spring/ Summer | No | Queets Spring/Summer (700) ${ }^{1}$ | NA | NA | NA | NA |
|  | Summer | No | Quillayute Summer ${ }^{1}$ | NA | NA | NA | NA |
|  | Spring/ Summer | No | Hoh Spring/Summer (900) ${ }^{1}$ | NA | NA | NA | NA |

${ }^{1}$ Escapement indicator stock is not included in the Washington Coastal Model stocks.
${ }^{2}$ CWT indicator stocks and fishery adjustments described in CTC 2021g.

## Appendix A6- Indicator stocks for Columbia River and Oregon Coast.

| Region | Run | Attachment I stock | Escapement Indicator (PSC Management Objective) | Exploitation Rate Indicator/Acronym |  | Model Stock /Acrony |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Columbia River | Spring | No | NA | Cowlitz/Kalama/Lewis Springs | CWS | Cowlitz Spring Hatchery | CWS |
|  |  | No | NA | Willamette Spring (Hatchery Complex) | WSH | Willamette River Hatchery | WSH |
|  | Summer | Yes | Mid-Columbia Summers $(12,143)$ | Columbia Summers (Wells Hatchery) | SUM | Columbia River Summers | SUM |
|  |  | No | NA | Similkameen Summer Yearling | SMK |  |  |
|  | NoYes |  | NA | Columbia Upriver Brights (Priest Rapids Hatchery) | URB | Mid-Columbia Brights | MCB |
|  |  |  | Upriver Brights (40,000) |  |  | Columbia Upriver Brights | URB |
|  |  |  | Hanford Wild | HAN |  |  |
|  | Fall | No |  | NA | Lyons Ferry Fingerling | LYF | Lyons Ferry Hatchery | LYF |
|  |  | No | NA | Lyons Ferry Yearling | LYY |  |  |
|  |  | Yes | Lewis (5,700) | Lewis River Wild | LRW | Lewis River | LRW |
|  |  | Yes | Coweeman (TBD) | Cowlitz Hatchery Fall Tule | CWF | Cowlitz Hatchery | CWF |
|  |  | No | NA | Spring Creek National Fish Hatchery | SPR | Spring Creek | SPR |
|  |  | No | NA | Lower River Hatchery (Big Creek Hatchery) | LRH | Bonneville Hatchery | BON |
| North Oregon Coast (NOC) | Fall | Yes | Nehalem (6,989) | Salmon River Hatchery (adj) | $\begin{aligned} & \text { SRH } \\ & (\operatorname{adj})^{1} \end{aligned}$ | North Oregon Coast | NOC |
|  |  | Yes | Siletz ( 2,944 ) |  |  |  |  |
|  |  | Yes | Siuslaw (12,925) |  |  |  |  |
| Mid-Oregon Coast (MOC) |  | Yes | South Umpqua (TBD) | Elk River Hatchery (adj) | $\begin{array}{\|l\|l} \text { ELK } \\ (\mathrm{adj})^{1} \end{array}$ | Mid-Oregon Coast | MOC |
|  |  | Yes | Coquille (TBD) |  |  |  |  |

${ }^{1}$ CWT indicator stocks and fishery adjustments described in CTC 2021g.

## Appendix B: Parameters used in the 2021 Exploitation Rate Analysis

The following two tables summarize the notations used throughout this report.

## LIST OF APPENDIX B TABLES

Appendix B1- Parameter definitions for all equations except those used for the Stratified Proportional Fishery Index (SPFI).82
Appendix B2- Parameter descriptions for equations used for the stratified proportional fishery index (SPFI). ..... 83

Appendix B1- Parameter definitions for all equations except those used for the Stratified Proportional Fishery Index (SPFI).

| Parameter | Description |
| :---: | :---: |
| $a$ | age class |
| A | set of all ages that meet selection criteria |
| $\begin{aligned} & A E Q_{B Y, a, f} \\ & A E Q_{B Y, \text { Maxage, } f}=1.0 \end{aligned}$ | adult equivalent factor in brood year $B Y$, age $a$, and fishery $f$ (for terminal fisheries, AEQ = 1.0 for all ages) |
| $A E Q_{s, B Y, a, f}$ | adult equivalent factor for stock $s$, brood year $B Y$, age $a$, and fishery $f$ |
| AvgMatRte $_{a}$ | average maturation rate for age $a$ |
| BPYR | base period year |
| $B Y E R_{B Y, f}$ | brood year exploitation rate in adult equivalents for brood year $B Y$ and fishery $f$ |
| BY | brood year |
| Cohort $_{\text {BY,a }}$ | cohort by brood year BY and age a (where stock is implied from context) |
| Cohort $_{s, B Y, a}$ | cohort by stock $s$, brood year $B Y$ and age $a$ (where stocks are defined explicitly in a summation) |
| CohSurv $_{B Y}, a=20 r 3$ | cohort survival of CWT fish to age 2 or 3 for brood year BY |
| CY | calendar year |
| CYDistcy, ${ }^{\text {F }}$ | proportion of total stock mortality (or escapement) in a calendar year $C Y$ attributable to a fishery or a set of fisheries $F$ |
| $d_{t, s, a}$ | distribution parameter for time step $t$, stock $s$, and age $a$ |
| Escry ${ }_{\text {a }}$ | escapement past all fisheries for either brood year $B Y$ or calendar year $C Y$ and age $a$ |
|  | exploitation rate at age $a$ divided by cohort size at age $a$ for stock $s$ in fishery $f$ in year $C Y$ |
| $E V_{n, B Y}$ | the stock productivity scalar for iteration $n$ and brood year $B Y$ |
| $f$ | a single fishery or escapement |
| $f \in\{F\}$ | a fishery $f$ within the set of fisheries F = Preterminal or Terminal |
| $f \in\left\{F_{p, I S B M}\right\}$ | a fishery $f$ within the set of each party's ( $p$ ) ISBM fisheries $F$ |
| $F_{I_{f, C Y}}$ | fishery exploitation rate index for fishery $f$ in year $C Y$ |
| MatRte $_{\text {a-1,BY}}$ | maturity rate at next younger age by brood year |


| Parameter | Description |
| :---: | :---: |
| Maxage | maximum age of stock (generally age 6 for stream type stocks, age 5 for ocean type stocks) |
| Minage | minimum age of stock (generally age 3 for stream type stocks, age 2 for ocean type stocks) |
| Mortscr, , f | landed or total fishing mortality in year $C Y$ and age $a$ in fishery $f$ |
| NMa | annual natural mortality prior to fishing on age $a$ cohort |
| Numfisheries | total number of fisheries |
| $s$ | a particular stock |
| S | set of all stocks that meet selection criteria |
| Surva | survival rate (1-NMa) by age |
| TotCWTRelease $_{B Y}$ | total number of fish released with coded-wire tags for a given brood year |
| TotMorts ${ }_{s, Y, a, f}$ | total fishing related mortality for stock $s$, brood year $B Y$ or calendar year $C Y$, age $a$, and fishery $f$ |
| RepMorts $_{B Y}, a, f$ | reported fishing-related mortality for brood year $B Y$ or calendar year $C Y$ or during the base period BPER and age $a$ in fishery $f$ |

Appendix B2- Parameter descriptions for equations used for the stratified proportional fishery index (SPFI).

| Parameter | Description |
| :--- | :--- |
| $A_{t, C Y}$ | Alaska hatchery origin catch by strata $t$, year $C Y$ |
| $c_{t, C Y}, s, a$ | adult equivalent CWT catch by strata $t$, year $C Y$, stock $s$ and age $a$ |
| $C_{t, C Y}$ | catch by strata $t$, year $C Y$ |
| $d_{t, s, a}$ | distribution parameter by strata $t$, stock $s$ and age $a$ |
| $h_{t, C Y}$ | CWT harvest rate by strata $t$, year $C Y$ |
| $H_{C Y}$ | harvest rate by year $C Y$ |
| $H_{t, C Y}$ | harvest rate by strata $t$, year $C Y$ |
| $n_{C Y, s, a}$ | CWT cohort size by year $C Y$, stock $s$ and age $a$ |
| $r_{t, C Y, s, a}$ | CWT recoveries by strata $t$, year $C Y$, stock $s$ and age $a$ |
| $S_{C Y}$ | SPFI by year $C Y$ |
| $S_{t, C Y}$ | SPFI by strata $t$, year $C Y$ |

## Appendix C: Percent distribution of landed catch and total mortality AND ESCAPEMENT FOR EXPLOITATION RATE INDICATOR STOCKS BY CALENDAR YEAR

Mortality distribution tables show the percent of estimated landed catch or total mortality for individual stocks attributed to specific fisheries ( $\mathrm{T}=$ troll, $\mathrm{N}=$ net, $\mathrm{S}=$ sport). Landed catch mortalities are calculated from catch estimation and CWT sampling programs. Total mortality includes landed catch and incidental mortality (i.e., release mortality) which occurs in both retention and non-retention fisheries; incidental mortalities are estimated based on sampling data and/or internal algorithms (i.e., size-at-age vulnerability algorithms and gear-specific mortality rates). Mortality distribution within a calendar year sums to $100 \%$.

For mortality distribution among fisheries, we report total mortality that includes estimated incidental mortality; calendar years that do not the meet the minimum criteria of at least 3 ages and 105 estimated CWT recoveries are shaded or in some cases omitted. If only 1 age class was present in a calendar year, data from that year were omitted. If 2 age classes or less than 105 estimated CWTs were present in a calendar year, data from that year were shaded, but excluded from the calculation of the time period averages found at the bottom rows of the table. Where relevant, escapement includes inter-dam loss mortalities (i.e., Columbia River stocks). A complete time series of mortality distribution can be found on the PSC webpage: https://www.psc.org/publications/technical-reports/technical-committee-reports/chinook

The distributions of mortalities (reported catch and total) among fisheries and escapement in a catch year were calculated for each stock to determine the exploitation patterns. The distributions were computed if at least two BYs contributed to the CWT recoveries for a catch year. Distributions were computed for each fishery across all ages present in the catch year as

$$
\text { CYDist }_{C Y, F}=\frac{\sum_{a=\text { Minage }}^{\text {Maxage }} \sum_{f \in\{F\}} \operatorname{Morts}_{C Y, a, f} * A E Q_{B Y=C Y-a, a, f}}{\sum_{a=\text { Minage }}^{\text {Maxage }}\left(\sum_{f=1}^{\text {Numfisheries }} \operatorname{Morts}_{C Y, a, f} * A E Q_{B Y=C Y-a, a, f}+E s c_{C Y, a}\right)}
$$

Equation C. 1
Calculated mortality distributions may not indicate the true geographic distribution of an indicator stock. For example, no CWTs will be recovered if a fishery area is closed but this would not necessarily indicate zero abundance of a given stock in that fishing area.

Mortality distribution tables for stocks with terminal area adjustments are also included in this appendix. These tables, along with their source mortality distribution table, are denoted in the table caption.

## LIST OF APPENDIX C FIGURES

Appendix C2- Percent distribution of Big Qualicum River Fall adult equivalent (AEQ) total fishing mortalities and escapement. ..... 89
Appendix C3- Percent distribution of Chilliwack River Fall adult equivalent (AEQ) total fishing mortalities and escapement. ..... 90
Appendix C4- Percent distribution of Chilkat River adult equivalent (AEQ) total fishing mortalities and escapement. ..... 91
Appendix C5— Percent distribution of Cowichan River Fall adult equivalent (AEQ) total fishing mortalities and escapement. ..... 92
Appendix C6 - Percent distribution of Cowlitz Fall Tule adult equivalent (AEQ) total fishing mortalities and escapement. ..... 93
Appendix C7— Percent distribution of Elk River adult equivalent (AEQ) total fishing mortalities and escapement. ..... 94
Appendix C8- Percent distribution of South Umpqua adult equivalent (AEQ) total fishing mortalities and escapement Elk River (ELK) coded-wire tag (CWT) recoveries with terminal adjustments for basin-specific performance. ..... 95
Appendix C9— Percent distribution of Coquille adult equivalent (AEQ) total fishing mortalities and escapement EIk River (ELK) coded-wire tag (CWT) recoveries with terminal adjustments for basin-specific performance. ..... 96
Appendix C10— Percent distribution of Elwha River adult equivalent (AEQ) total fishing mortalities and escapement. ..... 97
Appendix C11- Percent distribution of George Adams Fall Fingerling adult equivalent (AEQ) total fishing mortalities and escapement. ..... 98
Appendix C12- Percent distribution of Hanford Wild Brights adult equivalent (AEQ) total fishing mortalities and escapement. ..... 99
Appendix C13- Percent distribution of Harrison River adult equivalent (AEQ) total fishing mortalities and escapement. ..... 100
Appendix C14— Percent distribution of Hoko Fall Fingerling adult equivalent (AEQ) total fishing mortalities and escapement. ..... 101
Appendix C15 - Percent distribution of Kitsumkalum River Summer adult equivalent (AEQ) total fishing mortalities and escapement. ..... 102
Appendix C16 - Percent distribution of Kitsumkalum Yearling adult equivalent (AEQ) total fishing mortalities and escapement. ..... 103
Appendix C17- Percent distribution of Lower River Hatchery Tule adult equivalent (AEQ) total fishing mortalities and escapement. ..... 104
Appendix C18— Percent distribution of Lewis River Wild adult equivalent (AEQ) total fishing mortalities and escapement. ..... 105
Appendix C19 - Percent distribution of Lyons Ferry adult equivalent (AEQ) total fishing mortalities and escapement. ..... 106
Appendix C20— Percent distribution of Lyons Ferry Yearling adult equivalent (AEQ) total fishing mortalities and escapement. ..... 107
Appendix C21- Percent distribution of Middle Shuswap River Summer adult equivalent (AEQ) total fishing mortalities and escapement. ..... 108
Appendix C22- Percent distribution of Nicola River Spring adult equivalent (AEQ) total fishing mortalities and escapement. ..... 109
Appendix C23- Percent distribution of Nisqually Fall Fingerling adult equivalent (AEQ) total fishing mortalities and escapement. ..... 110
Appendix C24— Percent distribution of Northern Southeast Alaska Spring adult equivalent (AEQ) total fishing mortalities and escapement ..... 111
Appendix C25- Percent distribution of Nooksack Spring Fingerling adult equivalent (AEQ) total fishing mortalities and escapement. ..... 112
Appendix C26- Percent distribution of Phillips River Fall adult equivalent (AEQ) total fishing mortalities and escapement. ..... 113
Appendix C27— Percent distribution of Puntledge River Summer adult equivalent (AEQ) total fishing mortalities and escapement. ..... 114
Appendix C28— Percent distribution of Queets Fall Fingerling adult equivalent (AEQ) total fishing mortalities and escapement. ..... 115
Appendix C29— Percent distribution of Quillayute adult equivalent (AEQ) total fishing mortalities and escapement Queets River Fall (QUE) coded-wire tag (CWT) recoveries with terminal adjustments for basin-specific performance. ..... 116
Appendix C30- Percent distribution of Grays Harbor adult equivalent (AEQ) total fishing mortalities and escapement Queets River Fall (QUE) coded-wire tag (CWT) recoveries with terminal adjustments for basin-specific performance. ..... 117
Appendix C31 - Percent distribution of Hoh River adult equivalent (AEQ) total fishing mortalities and escapement Queets River Fall (QUE) coded-wire tag (CWT) recoveries with terminal adjustments for basin-specific performance. ..... 118
Appendix C32- Percent distribution of Quinsam River Fall adult equivalent (AEQ) total fishing mortalities and escapement. ..... 119
Appendix C33- Percent distribution of East Vancouver Island North adult equivalent (AEQ) total fishing mortalities and escapement Quinsam River Fall (QUI) coded-wire tag (CWT) recoveries with terminal adjustments for basin-specific performance. ..... 120
Appendix C34- Percent distribution of Robertson Creek Fall adult equivalent (AEQ) total fishing mortalities and escapement. ..... 121
Appendix C35- Percent distribution of Northwest Vancouver Island adult equivalent (AEQ) total fishing mortalities and escapement Robertson Creek Fall (RBT) coded-wire tag (CWT) recoveries with terminal adjustments for basin-specific performance. ..... 122
Appendix C36- Percent distribution of Southwest Vancouver Island adult equivalent (AEQ) total fishing mortalities and escapement Robertson Creek Fall (RBT) coded-wire tag (CWT) recoveries with terminal adjustments for basin-specific performance. ..... 123
Appendix C37- Percent distribution of Samish Fall Fingerling adult equivalent (AEQ) total fishing mortalities and escapement. ..... 124
Appendix C38- Percent distribution of Lower Shuswap River Summer adult equivalent (AEQ) total fishing mortalities and escapement. ..... 125
Appendix C39— Percent distribution of Skagit Spring Fingerling adult equivalent (AEQ) total fishing mortalities and escapement. ..... 126
Appendix C40- Percent distribution of Skykomish Fall Fingerling adult equivalent (AEQ) total fishing mortalities and escapement. ..... 127
Appendix C41- Percent distribution of Similkameen Summer Yearling adult equivalent (AEQ) total fishing mortalities and escapement. ..... 128
Appendix C42- Percent distribution of Tsoo-Yess Fall Fingerling adult equivalent (AEQ) total fishing mortalities and escapement. ..... 129
Appendix C43- Percent distribution of Spring Creek Tule adult equivalent (AEQ) total fishing mortalities and escapement. ..... 130
Appendix C44- Percent distribution of South Puget Sound Fall Fingerling adult equivalent (AEQ) total fishing mortalities and escapement. ..... 131
Appendix C45- Percent distribution of Salmon River adult equivalent (AEQ) total fishing mortalities and escapement. ..... 132
Appendix C46- Percent distribution of Siletz River adult equivalent (AEQ) total fishing mortalities and escapement based on Salmon River (SRH) coded-wire tag (CWT) recoveries with terminal adjustments for basin-specific performance. ..... 133
Appendix C47- Percent distribution of Siuslaw River adult equivalent (AEQ) total fishing mortalities and escapement based on Salmon River (SRH) coded-wire tag (CWT) recoveries with terminal adjustments for basin-specific performance. ..... 134
Appendix C48- Percent distribution of Nehalem River adult equivalent (AEQ) total fishing mortalities and escapement based on Salmon River (SRH) coded-wire tag (CWT) recoveries with terminal adjustments for basin-specific performance. ..... 135
Appendix C49— Percent distribution of Southern Southeast Alaska Spring adult equivalent (AEQ) total fishing mortalities and escapement. ..... 136
Appendix C50 - Percent distribution of Skagit Summer Fingerling adult equivalent (AEQ) total fishing mortalities and escapement. ..... 137
Appendix C51 - Percent distribution of Stikine River adult equivalent (AEQ) total fishing mortalities and escapement. ..... 138
Appendix C52- Percent distribution of Stillaguamish Fall Fingerling adult equivalent (AEQ) total fishing mortalities and escapement. ..... 139
Appendix C53 - Percent distribution of Columbia River Summers adult equivalent (AEQ) total fishing mortalities and escapement. ..... 140
Appendix C54- Percent distribution of Taku River adult equivalent (AEQ) total fishing mortalities and escapement. ..... 141
Appendix C55- Percent distribution of Taku and Stikine Rivers adult equivalent (AEQ) total fishing mortalities and escapement. ..... 142
Appendix C56 - Percent distribution of Unuk River adult equivalent (AEQ) total fishing mortalities and escapement. ..... 143
Appendix C57- Percent distribution of Columbia River Upriver Bright adult equivalent (AEQ) total fishing mortalities and escapement. ..... 144
Appendix C58- Percent distribution of Willamette Spring adult equivalent (AEQ) total fishing mortalities and escapement. ..... 145

Appendix C1— Percent distribution of Atnarko River adult equivalent (AEQ) total fishing mortalities and escapement.

| Catch Year | Est <br> \# of <br> CWT | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | N Falcon |  | S Falcon |  | WAC N | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 670 | 2,3,4 | 9.6 | 0.0 | 0.0 | 3.3 | 3.4 | 0.0 | 0.0 | 0.0 | 23.3 | 2.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.6 | 3.6 | 0.0 | 0.0 | 0.0 | 0.0 | 46.6 |
| 2010 | 780 | 2,3,4,5 | 11.9 | 0.1 | 0.6 | 3.1 | 1.8 | 0.0 | 0.0 | 0.0 | 14.0 | 7.1 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.3 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 53.5 |
| 2011 | 557 | 2,3,4,5 | 14.2 | 0.0 | 0.5 | 8.4 | 3.1 | 0.0 | 0.0 | 0.0 | 22.1 | 7.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 37.3 |
| 2012 | 843 | 2,3,4,5 | 13.0 | 0.6 | 0.8 | 2.3 | 2.3 | 0.0 | 0.0 | 0.0 | 16.8 | 2.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 53.4 |
| 2013 | 2,327 | 2,3,4,5 | 5.8 | 0.5 | 0.5 | 1.9 | 3.4 | 0.0 | 0.0 | 0.0 | 11.8 | 1.6 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 5.7 | 3.5 | 0.0 | 0.0 | 0.0 | 0.0 | 65.1 |
| 2014 | 3,152 | 2,3,4,5 | 6.6 | 0.6 | 0.4 | 2.8 | 2.1 | 0.2 | 0.2 | 0.0 | 7.2 | 4.2 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.1 | 2.5 | 0.0 | 0.0 | 0.0 | 0.0 | 65.9 |
| 2015 | 8,337 | 2,3,4,5 | 3.9 | 0.0 | 0.7 | 1.0 | 2.5 | 0.2 | 0.0 | 0.0 | 8.0 | 3.6 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.5 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 74.6 |
| 2016 | 4,577 | 2,3,4,5 | 5.0 | 1.3 | 0.9 | 1.1 | 3.2 | 0.3 | 0.0 | 0.0 | 4.4 | 4.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.2 | 2.4 | 0.0 | 0.0 | 0.0 | 0.0 | 70.9 |
| 2017 | 1,922 | 2,3,4,5 | 6.0 | 0.2 | 0.8 | 2.2 | 2.1 | 0.2 | 0.0 | 0.0 | 12.9 | 3.4 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.4 | 2.4 | 0.0 | 0.0 | 0.0 | 0.0 | 60.0 |
| 2018 | 2,114 | 2,3,4,5 | 2.8 | 0.0 | 0.5 | 0.8 | 1.1 | 0.1 | 0.0 | 0.0 | 18.0 | 1.2 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.9 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 67.4 |
| 2019 | 2,174 | 2,3,4,5 | 1.6 | 0.0 | 0.8 | 0.0 | 2.6 | 0.0 | 0.8 | 0.0 | 17.6 | 4.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.9 | 4.9 | 0.0 | 0.0 | 0.0 | 0.0 | 61.8 |
| 2020 | 2,665 | 2,3,4,5 | 2.9 | 0.2 | 0.1 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 19.3 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.1 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 68.9 |
| 2021 | 2,173 | 3,4,5 | 3.4 | 0.7 | 0.5 | 0.0 | 0.4 | 0.0 | 0.4 | 0.0 | 6.1 | 4.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.8 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 76.7 |
| 79-84 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 85-95 | 1,215 |  | 9.9 | 0.8 | 0.3 | 2.1 | 1.7 | 0.3 | 0.0 | 2.4 | 16.5 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.2 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 59.8 |
| 96-98 | 1,429 |  | 4.8 | 0.0 | 0.8 | 0.1 | 2.9 | 0.0 | 0.0 | 0.1 | 11.2 | 1.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.0 | 4.5 | 0.0 | 0.0 | 0.0 | 0.0 | 66.6 |
| 99-08 | 884 |  | 7.4 | 0.1 | 1.0 | 2.8 | 4.3 | 0.2 | 0.0 | 0.0 | 14.6 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.2 | 3.1 | 0.0 | 0.0 | 0.0 | 0.0 | 55.2 |
| 09-18 | 2,528 |  | 7.9 | 0.3 | 0.6 | 2.7 | 2.5 | 0.1 | 0.0 | 0.0 | 13.8 | 3.8 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.7 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 59.5 |
| 19-28 | 2,337 |  | 2.6 | 0.3 | 0.4 | 0.0 | 1.0 | 0.0 | 0.4 | 0.0 | 14.3 | 4.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.3 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 | 69.1 |

Appendix C2- Percent distribution of Big Qualicum River Fall adult equivalent (AEQ) total fishing mortalities and escapement.

| Catch Year | Est | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | \# of <br> CWT |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | $N$ Falcon |  | S Falcon |  | WAC$N$ | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 557 | 2,3,4,5 | 4.7 | 5.6 | 0.0 | 2.0 | 0.0 | 1.4 | 2.5 | 0.0 | 0.0 | 1.6 | 0.0 | 0.0 | 16.2 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 1.6 | 62.3 |
| 2010 | 476 | 2,3,4,5 | 6.3 | 0.2 | 1.5 | 1.7 | 0.0 | 1.1 | 3.8 | 0.0 | 0.0 | 1.5 | 0.0 | 0.0 | 20.6 | 1.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.0 | 0.8 | 59.2 |
| 2011 | 524 | 2,3,4,5 | 7.8 | 1.7 | 2.1 | 0.0 | 1.3 | 1.1 | 0.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 13.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 1.1 | 0.0 | 1.0 | 65.5 |
| 2012 | 554 | 2,3,4,5 | 7.6 | 1.6 | 0.0 | 3.1 | 1.4 | 2.9 | 0.0 | 0.0 | 0.0 | 4.3 | 0.0 | 0.0 | 26.5 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 0.0 | 0.0 | 0.0 | 0.7 | 49.1 |
| 2013 | 902 | 2,3,4,5 | 1.9 | 1.8 | 0.0 | 1.3 | 1.4 | 0.4 | 2.0 | 0.0 | 0.0 | 1.2 | 0.0 | 0.0 | 26.8 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.6 | 0.0 | 0.2 | 60.9 |
| 2014 | 1,941 | 2,3,4,5 | 3.2 | 2.0 | 0.3 | 1.2 | 0.8 | 0.4 | 2.4 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 43.0 | 0.4 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.2 | 44.3 |
| 2015 | 2,055 | 2,3,4,5 | 4.9 | 0.6 | 0.5 | 0.9 | 0.2 | 1.1 | 0.6 | 0.0 | 0.1 | 1.9 | 0.0 | 0.0 | 23.3 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.2 | 65.3 |
| 2016 | 1,134 | 2,3,4,5 | 6.7 | 2.8 | 0.5 | 0.7 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 3.9 | 0.0 | 0.0 | 40.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 42.5 |
| 2017 | 698 | 2,3,4,5 | 1.7 | 0.6 | 0.0 | 1.7 | 0.6 | 0.0 | 0.1 | 0.0 | 0.0 | 3.3 | 0.0 | 0.0 | 18.3 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 72.9 |
| 2018 | 264 | 2,3,4,5 | 1.1 | 1.9 | 0.0 | 1.5 | 0.0 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 33.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 61.4 |
| 2019 | 379 | 2,3,4,5 | 1.3 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.5 | 0.0 | 0.0 | 38.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 49.6 |
| 2020 | 508 | 2,3,4,5 | 3.0 | 0.2 | 0.2 | 0.6 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 6.7 | 0.0 | 0.0 | 37.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 1.8 | 47.4 |
| 2021 | 434 | 2,3,4,5 | 0.2 | 1.8 | 0.0 | 1.2 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 33.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 62.7 |
| 79-84 | 1,930 |  | 3.6 | 0.6 | 0.6 | 3.2 | 0.0 | 2.7 | 0.0 | 8.4 | 4.8 | 0.3 | 15.0 | 9.8 | 27.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 22.3 |
| 85-95 | 683 |  | 4.5 | 2.2 | 0.4 | 2.9 | 0.3 | 2.5 | 0.0 | 3.3 | 4.5 | 0.3 | 4.2 | 5.7 | 37.4 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.4 | 0.1 | 0.0 | 0.0 | 0.1 | 0.6 | 0.0 | 0.1 | 0.0 | 0.5 | 29.4 |
| 96-98 | 271 |  | 4.8 | 0.2 | 0.0 | 1.3 | 0.0 | 0.1 | 0.7 | 1.1 | 0.8 | 1.5 | 0.3 | 1.1 | 40.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 46.6 |
| 99-08 | 438 |  | 8.7 | 2.0 | 1.1 | 2.3 | 1.5 | 1.5 | 1.1 | 0.4 | 0.2 | 2.6 | 0.0 | 0.5 | 16.2 | 0.1 | 0.2 | 0.0 | 0.0 | 0.0 | 0.1 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 0.0 | 1.2 | 58.5 |
| 09-18 | 910 |  | 4.6 | 1.9 | 0.5 | 1.4 | 0.6 | 1.0 | 1.2 | 0.0 | 0.0 | 2.3 | 0.0 | 0.0 | 26.1 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.3 | 0.0 | 0.5 | 58.3 |
| 19-28 | 440 |  | 1.5 | 0.9 | 0.1 | 0.6 | 0.0 | 0.2 | 0.7 | 0.0 | 0.0 | 5.4 | 0.0 | 0.0 | 36.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.6 | 53.2 |

Appendix C3- Percent distribution of Chilliwack River Fall adult equivalent (AEQ) total fishing mortalities and escapement.

| Catch <br> Year | Est <br> \# of <br> CWT | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | N Falcon |  | S Falcon |  | $\begin{gathered} \text { WAC } \\ \mathrm{N} \end{gathered}$ | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 2,986 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.7 | 2.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.7 | 0.7 | 0.3 | 0.0 | 0.0 | 0.0 | 0.6 | 3.2 | 0.0 | 0.0 | 0.0 | 3.3 | 14.0 | 0.0 | 0.2 | 0.0 | 1.3 | 67.5 |
| 2010 | 6,390 | 2,3,4,5 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 2.6 | 2.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.2 | 3.1 | 1.0 | 0.4 | 0.0 | 0.0 | 0.4 | 1.5 | 0.0 | 0.0 | 0.0 | 1.4 | 6.2 | 0.0 | 0.4 | 0.0 | 0.6 | 73.6 |
| 2011 | 5,881 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 3.7 | 2.7 | 0.0 | 0.0 | 0.2 | 0.0 | 0.9 | 3.5 | 1.3 | 0.6 | 0.0 | 0.0 | 0.0 | 0.3 | 2.7 | 0.0 | 0.0 | 0.0 | 0.7 | 3.0 | 0.0 | 0.5 | 0.0 | 0.0 | 79.8 |
| 2012 | 5,612 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 11.5 | 5.1 | 0.7 | 0.1 | 0.1 | 0.0 | 0.1 | 7.4 | 0.0 | 0.0 | 0.0 | 0.3 | 5.4 | 0.0 | 0.4 | 0.0 | 0.0 | 66.2 |
| 2013 | 13,025 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 2.4 | 2.3 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 10.1 | 5.4 | 1.0 | 0.1 | 0.0 | 0.0 | 0.5 | 3.0 | 0.0 | 0.0 | 0.0 | 1.3 | 5.7 | 0.0 | 0.2 | 0.0 | 0.3 | 66.4 |
| 2014 | 11,945 | 2,3,4,5 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 1.4 | 1.2 | 0.0 | 0.0 | 0.0 | 0.1 | 2.3 | 11.5 | 3.5 | 0.6 | 0.1 | 0.0 | 0.0 | 0.6 | 2.0 | 0.0 | 0.0 | 0.0 | 1.3 | 3.8 | 0.0 | 0.2 | 0.0 | 0.3 | 70.9 |
| 2015 | 6,335 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.5 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 10.4 | 3.1 | 0.5 | 0.0 | 0.0 | 0.2 | 0.3 | 1.5 | 0.0 | 0.0 | 0.0 | 3.2 | 6.0 | 0.0 | 0.0 | 0.0 | 1.1 | 71.6 |
| 2016 | 6,942 | 2,3,4,5 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 12.4 | 1.9 | 0.4 | 0.1 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.8 | 6.8 | 0.0 | 0.2 | 0.0 | 0.3 | 73.6 |
| 2017 | 5,666 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 1.8 | 3.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 19.1 | 4.6 | 0.6 | 0.1 | 0.1 | 0.0 | 0.2 | 1.0 | 0.0 | 0.0 | 0.0 | 0.6 | 8.8 | 0.0 | 0.1 | 0.0 | 1.0 | 58.1 |
| 2018 | 6,753 | 2,3,4,5 | 0.2 | 0.0 | 0.0 | 0.3 | 0.0 | 0.4 | 0.9 | 0.0 | 0.0 | 0.2 | 0.0 | 0.7 | 21.2 | 4.6 | 0.2 | 0.0 | 0.0 | 0.0 | 0.3 | 0.9 | 0.0 | 0.0 | 0.0 | 1.2 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 | 66.7 |
| 2019 | 10,740 | 2,3,4,5 | 0.1 | 0.1 | 0.0 | 0.2 | 0.0 | 0.5 | 0.8 | 0.0 | 0.0 | 0.1 | 0.0 | 0.4 | 8.5 | 1.8 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 1.9 | 0.0 | 0.0 | 0.0 | 0.2 | 7.1 | 0.0 | 0.0 | 0.0 | 0.1 | 78.0 |
| 2020 | 8,634 | 2,3,4,5 | 0.2 | 0.2 | 0.0 | 0.1 | 0.0 | 0.6 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 15.6 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.3 | 0.0 | 0.0 | 0.0 | 2.1 | 11.7 | 0.0 | 0.0 | 0.0 | 0.4 | 63.7 |
| 2021 | 11,094 | 2,3,4,5 | 0.1 | 0.2 | 0.0 | 0.0 | 0.0 | 0.6 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 11.8 | 0.2 | 0.4 | 0.1 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 2.7 | 7.8 | 0.0 | 0.0 | 0.0 | 0.2 | 74.7 |
| 79-84 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - | - |  | - |
| 85-95 | 2,270 |  | 0.3 | 0.1 | 0.0 | 0.3 | 0.0 | 17.9 | 0.4 | 0.6 | 0.7 | 0.0 | 6.3 | 3.3 | 14.6 | 5.1 | 0.2 | 0.2 | 0.0 | 0.0 | 2.8 | 4.0 | 0.0 | 0.0 | 0.0 | 0.9 | 1.7 | 0.0 | 0.3 | 0.0 | 1.9 | 38.4 |
| 96-98 | 2,458 |  | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.4 | 0.1 | 0.6 | 0.1 | 0.0 | 0.3 | 14.2 | 2.8 | 0.1 | 1.2 | 0.0 | 0.0 | 0.8 | 3.1 | 0.0 | 0.0 | 0.0 | 1.2 | 2.1 | 0.0 | 0.3 | 0.0 | 0.2 | 67.1 |
| 99-08 | 3,971 |  | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 6.0 | 2.5 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 4.9 | 5.8 | 0.6 | 0.2 | 0.0 | 0.0 | 0.1 | 1.7 | 0.0 | 0.0 | 0.0 | 0.9 | 6.0 | 0.0 | 0.3 | 0.0 | 0.8 | 69.7 |
| 09-18 | 7,154 |  | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 1.7 | 1.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 11.1 | 3.3 | 0.6 | 0.1 | 0.0 | 0.0 | 0.3 | 2.3 | 0.0 | 0.0 | 0.0 | 1.4 | 6.2 | 0.0 | 0.2 | 0.0 | 0.5 | 69.4 |
| 19-28 | 10,156 |  | 0.1 | 0.2 | 0.0 | 0.1 | 0.0 | 0.5 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 12.0 | 0.7 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 | 0.0 | 1.6 | 8.9 | 0.0 | 0.0 | 0.0 | 0.2 | 72.1 |

Appendix C4 - Percent distribution of Chilkat River adult equivalent (AEQ) total fishing mortalities and escapement.

| Catch <br> Year | Est <br> \# of <br> CWT | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | $N$ Falcon |  | S Falcon |  | WAC <br> N | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 567 | 3,4,5,6 | 3.7 | 1.6 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 94.5 |
| 2010 | 302 | 3,4,5,6 | 4.6 | 10.3 | 8.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 75.8 |
| 2011 | 352 | 3,4,5,6 | 6.8 | 6.8 | 6.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 79.8 |
| 2012 | 239 | 3,4,5,6 | 7.5 | 11.3 | 7.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 72.4 |
| 2013 | 341 | 3,4,5,6 | 1.8 | 10.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 87.4 |
| 2014 | 231 | 3,4,5,6 | 0.0 | 21.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 78.4 |
| 2015 | 294 | 3,4,5,6 | 2.4 | 7.1 | 5.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 84.7 |
| 2016 | 125 | 3,4,5,6 | 3.2 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 95.2 |
| 2017 | 213 | 3,4,5,6 | 4.2 | 2.3 | 2.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 91.1 |
| 2018 | 221 | 3,4,5,6 | 0.0 | 10.9 | 2.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 86.4 |
| 2019 | 341 | 3,4,5,6 | 2.6 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 97.1 |
| 2020 | 417 | 3,4,5,6 | 0.7 | 2.2 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 96.6 |
| 2021 | 239 | 4,5,6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 |
| 79-84 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 85-95 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 96-98 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 99-08 | 452 |  | 4.4 | 5.7 | 11.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 78.4 |
| 09-18 | 288 |  | 3.4 | 8.4 | 3.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 84.6 |
| 19-28 | 332 |  | 1.1 | 0.7 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 97.9 |

Appendix C5- Percent distribution of Cowichan River Fall adult equivalent (AEQ) total fishing mortalities and escapement.

| Catch Year | Est <br> \# of <br> CWT | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | N Falcon |  | S Falcon |  | WAC <br> N | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 603 | 2,3,4 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 5.8 | 6.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 42.8 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.3 | 0.0 | 0.0 | 0.0 | 5.6 | 0.0 | 0.0 | 4.1 | 0.0 | 11.3 | 17.7 |
| 2010 | 1,249 | 2,3,4,5 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 | 8.5 | 2.2 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 40.8 | 1.2 | 0.0 | 0.0 | 0.0 | 0.1 | 0.6 | 3.8 | 0.0 | 0.0 | 0.0 | 1.4 | 0.0 | 0.0 | 5.3 | 0.0 | 2.4 | 33.1 |
| 2011 | 1,929 | 2,3,4,5 | 0.7 | 0.2 | 0.0 | 0.2 | 0.2 | 5.7 | 3.9 | 0.0 | 0.0 | 1.3 | 0.0 | 0.0 | 21.2 | 1.5 | 0.3 | 0.0 | 0.0 | 0.0 | 0.7 | 6.3 | 0.0 | 0.0 | 0.0 | 1.8 | 0.0 | 0.0 | 4.3 | 0.0 | 1.8 | 50.2 |
| 2012 | 3,377 | 2,3,4,5 | 0.7 | 0.1 | 0.1 | 0.5 | 0.0 | 3.6 | 3.0 | 0.0 | 0.0 | 0.6 | 0.0 | 0.1 | 24.9 | 2.7 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 9.2 | 0.0 | 0.0 | 0.0 | 12.0 | 0.1 | 0.0 | 3.6 | 0.0 | 1.7 | 36.8 |
| 2013 | 3,657 | 2,3,4,5 | 0.3 | 0.1 | 0.0 | 0.0 | 0.2 | 2.5 | 3.6 | 0.0 | 0.0 | 0.2 | 0.0 | 0.1 | 34.3 | 2.1 | 0.4 | 0.0 | 0.0 | 0.0 | 1.0 | 5.6 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 5.0 | 0.0 | 4.3 | 38.3 |
| 2014 | 2,713 | 2,3,4,5 | 1.2 | 0.0 | 0.2 | 0.7 | 0.0 | 6.0 | 5.7 | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 | 44.2 | 1.4 | 0.1 | 0.0 | 0.0 | 0.0 | 0.2 | 4.3 | 0.0 | 0.0 | 0.0 | 4.4 | 0.0 | 0.0 | 1.1 | 0.0 | 1.5 | 28.4 |
| 2015 | 1,316 | 2,3,4,5 | 0.8 | 0.5 | 0.0 | 0.2 | 0.0 | 0.5 | 2.5 | 0.0 | 0.0 | 2.1 | 0.0 | 0.0 | 35.7 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 2.0 | 0.0 | 0.0 | 0.0 | 3.6 | 0.0 | 0.0 | 1.3 | 0.0 | 7.8 | 41.6 |
| 2016 | 3,362 | 2,3,4,5 | 0.3 | 0.1 | 0.0 | 0.1 | 0.0 | 1.0 | 1.3 | 0.0 | 0.0 | 0.7 | 0.0 | 0.0 | 36.4 | 0.7 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 1.4 | 0.0 | 0.0 | 0.0 | 2.6 | 0.0 | 0.0 | 3.6 | 0.0 | 1.5 | 50.2 |
| 2017 | 3,019 | 2,3,4,5 | 0.3 | 0.1 | 0.5 | 0.3 | 0.0 | 4.5 | 4.5 | 0.0 | 0.0 | 0.7 | 0.0 | 0.0 | 24.5 | 1.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.3 | 3.5 | 0.0 | 0.0 | 0.0 | 3.7 | 0.0 | 0.0 | 3.9 | 0.0 | 1.3 | 51.0 |
| 2018 | 3,511 | 2,3,4,5 | 0.7 | 0.1 | 0.0 | 0.2 | 0.0 | 1.1 | 3.6 | 0.0 | 0.3 | 0.5 | 0.0 | 0.0 | 45.6 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 2.1 | 0.0 | 0.0 | 0.0 | 16.1 | 0.0 | 0.0 | 1.3 | 0.0 | 0.9 | 26.8 |
| 2019 | 1,477 | 2,3,4,5 | 0.4 | 0.4 | 0.1 | 0.5 | 0.0 | 1.8 | 3.0 | 0.0 | 0.0 | 4.9 | 0.0 | 0.0 | 45.0 | 0.8 | 0.3 | 0.0 | 0.0 | 0.0 | 0.1 | 3.2 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 2.2 | 0.0 | 0.4 | 36.7 |
| 2020 | 3,378 | 2,3,4,5 | 0.1 | 0.0 | 0.0 | 0.2 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 14.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 1.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.5 | 81.6 |
| 2021 | 1,585 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 2.5 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 26.5 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 68.4 |
| 79-84 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 85-95 | 3,009 |  | 0.2 | 0.0 | 0.0 | 0.2 | 0.0 | 5.3 | 0.5 | 0.5 | 1.4 | 0.0 | 9.5 | 4.0 | 52.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 1.0 | 0.0 | 0.0 | 0.0 | 1.5 | 0.1 | 0.0 | 1.1 | 0.0 | 0.5 | 20.8 |
| 96-98 | 923 |  | 1.7 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 1.2 | 0.0 | 0.3 | 0.4 | 0.0 | 0.6 | 37.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 2.8 | 0.0 | 0.0 | 0.0 | 4.5 | 0.3 | 0.0 | 1.5 | 0.0 | 1.9 | 45.2 |
| 99-08 | 484 |  | 0.6 | 0.1 | 0.1 | 0.5 | 0.5 | 10.4 | 3.0 | 0.0 | 0.3 | 0.4 | 0.0 | 0.0 | 30.4 | 0.9 | 0.3 | 0.0 | 0.0 | 0.0 | 0.5 | 2.5 | 0.0 | 0.0 | 0.0 | 4.8 | 0.6 | 0.0 | 6.8 | 0.0 | 4.2 | 33.1 |
| 09-18 | 2,474 |  | 0.5 | 0.1 | 0.1 | 0.2 | 0.0 | 3.9 | 3.6 | 0.0 | 0.0 | 0.7 | 0.0 | 0.0 | 35.0 | 1.3 | 0.1 | 0.0 | 0.0 | 0.0 | 0.3 | 4.3 | 0.0 | 0.0 | 0.0 | 5.3 | 0.0 | 0.0 | 3.3 | 0.0 | 3.4 | 37.4 |
| 19-28 | 2,147 |  | 0.2 | 0.1 | 0.0 | 0.3 | 0.0 | 0.9 | 1.8 | 0.0 | 0.0 | 1.8 | 0.0 | 0.0 | 28.5 | 0.3 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 2.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 1.1 | 0.0 | 0.5 | 62.2 |

Appendix C6- Percent distribution of Cowlitz Fall Tule adult equivalent (AEQ) total fishing mortalities and escapement.

| Catch <br> Year | Est <br> \# of <br> CWT | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | $N$ Falcon |  | S Falcon |  | WAC <br> N | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 463 | 2,3,4,5 | 2.6 | 0.0 | 2.2 | 0.0 | 1.1 | 1.5 | 1.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.2 | 6.3 | 3.9 | 0.0 | 0.0 | 0.0 | 0.0 | 2.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 6.7 | 1.1 | 65.7 |
| 2010 | 630 | 2,3,4,5 | 3.3 | 0.5 | 0.0 | 1.1 | 0.3 | 3.0 | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.0 | 10.3 | 1.7 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.7 | 1.3 | 1.3 | 63.5 |
| 2011 | 1,377 | 2,3,4,5 | 1.2 | 0.1 | 0.1 | 0.3 | 0.4 | 1.2 | 0.4 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 1.5 | 2.4 | 0.2 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.7 | 0.1 | 90.5 |
| 2012 | 596 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 1.2 | 0.3 | 2.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 3.9 | 6.2 | 1.2 | 0.5 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 6.0 | 0.0 | 75.2 |
| 2013 | 735 | 2,3,4,5 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.2 | 4.5 | 1.2 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 2.0 | 1.1 | 82.2 |
| 2014 | 541 | 2,3,4,5 | 4.1 | 0.0 | 0.4 | 2.0 | 0.0 | 2.0 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.0 | 1.8 | 0.7 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 18.5 | 1.5 | 62.5 |
| 2015 | 389 | 2,3,4,5 | 3.9 | 5.1 | 0.0 | 2.3 | 2.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.4 | 8.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.6 | 17.2 | 3.9 | 48.1 |
| 2016 | 459 | 2,3,4,5 | 4.6 | 0.0 | 0.0 | 2.8 | 1.3 | 2.2 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.7 | 3.7 | 6.8 | 2.8 | 0.0 | 0.0 | 0.0 | 1.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.7 | 8.3 | 0.4 | 56.2 |
| 2017 | 518 | 2,3,4,5 | 4.2 | 0.0 | 0.0 | 2.3 | 1.5 | 1.5 | 5.8 | 0.0 | 0.0 | 3.3 | 0.0 | 0.0 | 0.0 | 3.5 | 9.3 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 7.7 | 0.2 | 58.5 |
| 2018 | 453 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 4.9 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.1 | 4.2 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 13.0 | 0.4 | 69.5 |
| 2019 | 731 | 2,3,4,5 | 2.2 | 1.9 | 0.0 | 0.0 | 0.0 | 0.4 | 1.1 | 0.0 | 0.0 | 0.7 | 0.0 | 0.0 | 0.0 | 2.2 | 1.9 | 1.4 | 0.0 | 0.0 | 0.0 | 1.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 3.3 | 0.8 | 81.1 |
| 2020 | 1,351 | 2,3,4,5 | 3.7 | 0.5 | 0.0 | 0.7 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.1 | 1.2 | 1.9 | 0.3 | 0.4 | 0.1 | 0.0 | 1.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 2.4 | 0.3 | 83.0 |
| 2021 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - | - | - | - |  | - | - |  | - |  |
| 79-84 | 574 |  | 4.9 | 0.0 | 0.1 | 4.6 | 0.0 | 19.6 | 0.0 | 1.7 | 1.0 | 0.2 | 0.0 | 1.4 | 2.0 | 8.4 | 10.5 | 2.9 | 0.1 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.7 | 1.5 | 2.0 | 28.9 |
| 85-95 | 654 |  | 3.9 | 0.9 | 0.1 | 2.8 | 0.0 | 10.8 | 0.7 | 0.8 | 1.0 | 0.0 | 0.0 | 0.5 | 0.2 | 6.4 | 4.1 | 4.6 | 0.2 | 0.2 | 0.2 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.2 | 5.6 | 2.1 | 45.2 |
| 96-98 | 222 |  | 5.3 | 0.0 | 5.3 | 1.4 | 0.0 | 3.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.3 | 1.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 2.2 | 0.0 | 73.9 |
| 99-08 | 296 |  | 4.0 | 1.2 | 0.5 | 1.6 | 0.8 | 6.4 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 8.4 | 7.2 | 5.0 | 0.4 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.3 | 5.6 | 1.2 | 52.1 |
| 09-18 | 616 |  | 2.5 | 0.6 | 0.3 | 1.7 | 0.9 | 1.5 | 1.6 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.6 | 4.6 | 5.8 | 0.9 | 0.2 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.6 | 8.2 | 1.0 | 67.2 |
| 19-28 | 1,041 |  | 2.9 | 1.2 | 0.0 | 0.4 | 0.0 | 0.7 | 0.5 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 1.1 | 1.7 | 1.9 | 0.8 | 0.2 | 0.1 | 0.0 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 2.9 | 0.6 | 82.0 |

Appendix C7- Percent distribution of Elk River adult equivalent (AEQ) total fishing mortalities and escapement.

| Catch Year | Est <br> \# of <br> CWT | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | N Falcon |  | S Falcon |  | WAC$\mathrm{N}$ | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 3,008 | 2,3,4,5 | 7.3 | 0.0 | 0.1 | 4.9 | 0.7 | 1.7 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 1.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 0.0 | 17.2 | 0.0 | 64.3 |
| 2010 | 3,795 | 2,3,4,5 | 5.9 | 0.0 | 0.4 | 4.7 | 0.2 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 | 0.7 | 0.8 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.1 | 0.0 | 11.7 | 0.0 | 64.8 |
| 2011 | 1,969 | 2,3,4,5 | 6.7 | 0.0 | 0.5 | 4.4 | 0.4 | 2.0 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.1 | 0.5 | 1.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 16.0 | 0.0 | 18.1 | 0.1 | 43.6 |
| 2012 | 2,781 | 2,3,4,5 | 2.2 | 0.3 | 0.0 | 2.2 | 0.1 | 3.2 | 2.7 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.6 | 6.6 | 0.7 | 3.8 | 0.6 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.5 | 0.0 | 15.9 | 0.0 | 47.9 |
| 2013 | 5,647 | 2,3,4,5 | 3.2 | 0.0 | 0.2 | 4.6 | 1.2 | 0.9 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 9.7 | 0.4 | 5.8 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 16.7 | 0.0 | 13.7 | 0.0 | 42.3 |
| 2014 | 4,500 | 2,3,4,5 | 8.2 | 0.0 | 0.2 | 5.9 | 0.8 | 2.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 3.9 | 0.2 | 5.4 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.7 | 0.0 | 12.9 | 0.0 | 47.5 |
| 2015 | 6,487 | 2,3,4,5 | 3.2 | 0.0 | 0.2 | 1.0 | 0.2 | 0.5 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.1 | 0.4 | 1.9 | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.3 | 0.0 | 16.3 | 0.1 | 53.5 |
| 2016 | 5,763 | 2,3,4,5 | 8.7 | 0.2 | 0.3 | 10.1 | 0.5 | 1.7 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.3 | 2.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.5 | 0.0 | 13.8 | 0.4 | 54.6 |
| 2017 | 2,450 | 2,3,4,5 | 2.8 | 0.0 | 0.0 | 7.7 | 1.0 | 2.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 1.6 | 0.2 | 1.2 | 0.2 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.1 | 0.0 | 15.1 | 0.0 | 57.2 |
| 2018 | 1,388 | 2,3,4,5 | 7.1 | 0.3 | 0.0 | 4.8 | 1.7 | 1.7 | 3.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 3.5 | 0.3 | 1.1 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 15.4 | 0.0 | 13.3 | 0.0 | 46.9 |
| 2019 | 3,445 | 2,3,4,5 | 8.0 | 0.0 | 0.2 | 5.3 | 0.3 | 3.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 3.3 | 0.2 | 5.5 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.7 | 0.0 | 7.9 | 0.0 | 56.4 |
| 2020 | 4,299 | 2,3,4,5 | 7.7 | 0.0 | 0.2 | 2.1 | 0.1 | 2.8 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.4 | 0.5 | 0.9 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.1 | 0.0 | 14.4 | 0.0 | 55.5 |
| 2021 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  |  | - |
| 79-84 | 2,504 |  | 3.2 | 0.1 | 0.0 | 5.1 | 0.1 | 6.3 | 0.0 | 0.9 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 1.4 | 0.1 | 2.9 | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.8 | 0.0 | 24.8 | 0.0 | 49.0 |
| 85-95 | 1,437 |  | 1.5 | 0.4 | 0.1 | 1.8 | 0.1 | 4.4 | 0.2 | 0.3 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.8 | 0.1 | 9.6 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.3 | 0.0 | 30.0 | 0.2 | 43.6 |
| 96-98 | 5,035 |  | 8.0 | 0.0 | 0.0 | 2.1 | 0.1 | 0.5 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 8.3 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.0 | 0.0 | 13.3 | 0.2 | 54.9 |
| 99-08 | 4,666 |  | 8.2 | 0.0 | 0.4 | 4.3 | 0.9 | 2.2 | 0.5 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 | 2.7 | 0.4 | 4.2 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.3 | 0.0 | 14.7 | 0.1 | 46.6 |
| 09-18 | 3,779 |  | 5.5 | 0.1 | 0.2 | 5.0 | 0.7 | 1.7 | 1.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.3 | 3.9 | 0.4 | 2.4 | 0.2 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.4 | 0.0 | 14.8 | 0.1 | 52.3 |
| 19-28 | 3,872 |  | 7.9 | 0.0 | 0.2 | 3.7 | 0.2 | 2.9 | 0.5 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 3.4 | 0.4 | 3.2 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.4 | 0.0 | 11.1 | 0.0 | 55.9 |

Appendix C8- Percent distribution of South Umpqua adult equivalent (AEQ) total fishing mortalities and escapement Elk River (ELK) codedwire tag (CWT) recoveries with terminal adjustments for basin-specific performance.

|  | Est |  | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Catc | \# |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | $N$ Falcon |  | S Falcon |  | WAC N | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
| Year | CWT | Ages | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 3,008 | 2,3,4,5 | 7.3 | 0.0 | 0.1 | 4.9 | 0.7 | 1.7 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 1.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.9 | 0.0 | 61.9 |
| 2010 | 3,795 | 2,3,4,5 | 5.9 | 0.0 | 0.4 | 4.7 | 0.2 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 | 0.7 | 0.8 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 25.5 | 0.0 | 57.1 |
| 2011 | 1,969 | 2,3,4,5 | 6.7 | 0.0 | 0.5 | 4.4 | 0.4 | 2.0 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.1 | 0.5 | 1.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 29.2 | 0.1 | 48.5 |
| 2012 | 2,781 | 2,3,4,5 | 2.2 | 0.3 | 0.0 | 2.2 | 0.1 | 3.2 | 2.7 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.6 | 6.6 | 0.7 | 3.8 | 0.6 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 26.9 | 0.0 | 49.5 |
| 2013 | 5,647 | 2,3,4,5 | 3.2 | 0.0 | 0.2 | 4.6 | 1.2 | 0.9 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 9.7 | 0.4 | 5.8 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 24.1 | 0.0 | 48.5 |
| 2014 | 4,500 | 2,3,4,5 | 8.2 | 0.0 | 0.2 | 5.9 | 0.8 | 2.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 3.9 | 0.2 | 5.4 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 21.5 | 0.0 | 50.5 |
| 2015 | 6,487 | 2,3,4,5 | 3.2 | 0.0 | 0.2 | 1.0 | 0.2 | 0.5 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.1 | 0.4 | 1.9 | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 17.7 | 0.1 | 72.4 |
| 2016 | 5,763 | 2,3,4,5 | 8.7 | 0.2 | 0.3 | 10.1 | 0.5 | 1.7 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.3 | 2.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 26.3 | 0.4 | 46.6 |
| 2017 | 2,450 | 2,3,4,5 | 2.8 | 0.0 | 0.0 | 7.7 | 1.0 | 2.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 1.6 | 0.2 | 1.2 | 0.2 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.6 | 0.0 | 60.9 |
| 2018 | 1,388 | 2,3,4,5 | 7.1 | 0.3 | 0.0 | 4.8 | 1.7 | 1.7 | 3.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 3.5 | 0.3 | 1.1 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 18.6 | 0.0 | 57.1 |
| 2019 | 3,445 | 2,3,4,5 | 8.0 | 0.0 | 0.2 | 5.3 | 0.3 | 3.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 3.3 | 0.2 | 5.5 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 26.3 | 0.0 | 47.6 |
| 2020 | 4,299 | 2,3,4,5 | 7.7 | 0.0 | 0.2 | 2.1 | 0.1 | 2.8 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.4 | 0.5 | 0.9 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 22.6 | 0.0 | 58.4 |
| 2021 | NA |  |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  |  |
| 79-84 | 2,504 |  | 3.2 | 0.1 | 0.0 | 5.1 | 0.1 | 6.3 | 0.0 | 0.9 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 1.4 | 0.1 | 2.9 | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.0 | 0.0 | 72.6 |
| 85-95 | 1,437 |  | 1.5 | 0.4 | 0.1 | 1.8 | 0.1 | 4.4 | 0.2 | 0.3 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.8 | 0.1 | 9.6 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.7 | 0.2 | 70.2 |
| 96-98 | 5,035 |  | 8.0 | 0.0 | 0.0 | 2.1 | 0.1 | 0.5 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 8.3 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 17.3 | 0.2 | 62.9 |
| 99-08 | 4,666 |  | 8.2 | 0.0 | 0.4 | 4.3 | 0.9 | 2.2 | 0.5 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 | 2.7 | 0.4 | 4.2 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.1 | 0.1 | 55.6 |
| 09-18 | 3,779 |  | 5.5 | 0.1 | 0.2 | 5.0 | 0.7 | 1.7 | 1.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.3 | 3.9 | 0.4 | 2.4 | 0.2 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 23.1 | 0.1 | 55.3 |
| 19-28 | 3,872 |  | 7.9 | 0.0 | 0.2 | 3.7 | 0.2 | 2.9 | 0.5 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 3.4 | 0.4 | 3.2 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 24.5 | 0.0 | 53.0 |

Appendix C9- Percent distribution of Coquille adult equivalent (AEQ) total fishing mortalities and escapement Elk River (ELK) coded-wire tag (CWT) recoveries with terminal adjustments for basin-specific performance.

| Catch <br> Year | Est <br> \# of <br> CWT | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | N Falcon |  | S Falcon |  | WAC N | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 3,008 | 2,3,4,5 | 7.3 | 0.0 | 0.1 | 4.9 | 0.7 | 1.7 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 1.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.6 | 0.0 | 77.2 |
| 2010 | 3,795 | 2,3,4,5 | 5.9 | 0.0 | 0.4 | 4.7 | 0.2 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 | 0.7 | 0.8 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.1 | 0.0 | 74.5 |
| 2011 | 1,969 | 2,3,4,5 | 6.7 | 0.0 | 0.5 | 4.4 | 0.4 | 2.0 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.1 | 0.5 | 1.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 18.5 | 0.1 | 59.2 |
| 2012 | 2,781 | 2,3,4,5 | 2.2 | 0.3 | 0.0 | 2.2 | 0.1 | 3.2 | 2.7 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.6 | 6.6 | 0.7 | 3.8 | 0.6 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 21.8 | 0.0 | 54.6 |
| 2013 | 5,647 | 2,3,4,5 | 3.2 | 0.0 | 0.2 | 4.6 | 1.2 | 0.9 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 9.7 | 0.4 | 5.8 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 29.2 | 0.0 | 43.5 |
| 2014 | 4,500 | 2,3,4,5 | 8.2 | 0.0 | 0.2 | 5.9 | 0.8 | 2.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 3.9 | 0.2 | 5.4 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 18.2 | 0.0 | 53.8 |
| 2015 | 6,487 | 2,3,4,5 | 3.2 | 0.0 | 0.2 | 1.0 | 0.2 | 0.5 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.1 | 0.4 | 1.9 | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 28.0 | 0.1 | 62.0 |
| 2016 | 5,763 | 2,3,4,5 | 8.7 | 0.2 | 0.3 | 10.1 | 0.5 | 1.7 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.3 | 2.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.4 | 0.4 | 58.5 |
| 2017 | 2,450 | 2,3,4,5 | 2.8 | 0.0 | 0.0 | 7.7 | 1.0 | 2.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 1.6 | 0.2 | 1.2 | 0.2 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 17.6 | 0.0 | 63.9 |
| 2018 | 1,388 | 2,3,4,5 | 7.1 | 0.3 | 0.0 | 4.8 | 1.7 | 1.7 | 3.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 3.5 | 0.3 | 1.1 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 45.1 | 0.0 | 30.5 |
| 2019 | 3,445 | 2,3,4,5 | 8.0 | 0.0 | 0.2 | 5.3 | 0.3 | 3.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 3.3 | 0.2 | 5.5 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 42.1 | 0.0 | 31.8 |
| 2020 | 4,299 | 2,3,4,5 | 7.7 | 0.0 | 0.2 | 2.1 | 0.1 | 2.8 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.4 | 0.5 | 0.9 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.2 | 0.0 | 75.8 |
| 2021 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 79-84 | 2,504 |  | 3.2 | 0.1 | 0.0 | 5.1 | 0.1 | 6.3 | 0.0 | 0.9 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 1.4 | 0.1 | 2.9 | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 18.0 | 0.0 | 61.7 |
| 85-95 | 1,437 |  | 1.5 | 0.4 | 0.1 | 1.8 | 0.1 | 4.4 | 0.2 | 0.3 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.8 | 0.1 | 9.6 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.2 | 0.2 | 66.8 |
| 96-98 | 5,035 |  | 8.0 | 0.0 | 0.0 | 2.1 | 0.1 | 0.5 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 8.3 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.7 | 0.2 | 66.4 |
| 99-08 | 4,666 |  | 8.2 | 0.0 | 0.4 | 4.3 | 0.9 | 2.2 | 0.5 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 | 2.7 | 0.4 | 4.2 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.8 | 0.1 | 60.8 |
| 09-18 | 3,779 |  | 5.5 | 0.1 | 0.2 | 5.0 | 0.7 | 1.7 | 1.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.3 | 3.9 | 0.4 | 2.4 | 0.2 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.7 | 0.1 | 57.8 |
| 19-28 | 3,872 |  | 7.9 | 0.0 | 0.2 | 3.7 | 0.2 | 2.9 | 0.5 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 3.4 | 0.4 | 3.2 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 23.7 | 0.0 | 53.8 |

Appendix C10 - Percent distribution of Elwha River adult equivalent (AEQ) total fishing mortalities and escapement.

|  | Est |  | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Catch | \# of |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | N Falcon |  | S Falcon |  | WAC <br> N | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
| Year | CWT | Ages | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2010 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2011 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2012 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2013 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2014 | 16 | 2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2015 | 76 | 2,3 | 1.3 | 6.6 | 0.0 | 9.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.9 | 0.0 | 0.0 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 35.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 42.1 |
| 2016 | 310 | 2,3,4 | 4.8 | 1.0 | 0.3 | 5.5 | 1.6 | 0.3 | 0.3 | 0.0 | 0.0 | 2.3 | 0.0 | 0.0 | 6.8 | 0.3 | 1.9 | 0.0 | 0.0 | 0.0 | 0.0 | 5.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 69.4 |
| 2017 | 228 | 2,3,4,5 | 4.8 | 0.0 | 2.6 | 2.2 | 2.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 16.7 | 0.0 | 2.2 | 0.0 | 0.0 | 0.0 | 0.0 | 12.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.1 | 53.5 |
| 2018 | 615 | 2,3,4,5 | 1.1 | 0.0 | 0.0 | 0.5 | 1.1 | 1.0 | 5.2 | 0.0 | 0.0 | 4.7 | 0.0 | 0.0 | 4.6 | 1.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 7.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.9 | 69.6 |
| 2019 | 761 | 2,3,4,5 | 2.9 | 0.5 | 0.8 | 0.5 | 0.4 | 0.0 | 2.8 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 1.6 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 15.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 1.3 | 70.3 |
| 2020 | 583 | 2,3,4,5 | 1.2 | 0.9 | 0.0 | 1.0 | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 82.3 |
| 2021 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 79-84 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 85-95 | 376 |  | 9.7 | 1.6 | 0.1 | 2.7 | 0.8 | 17.1 | 2.0 | 2.0 | 2.8 | 0.0 | 0.8 | 0.4 | 7.0 | 2.5 | 0.1 | 0.1 | 0.0 | 1.2 | 0.9 | 16.7 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.7 | 0.0 | 0.0 | 26.2 |
| 96-98 | 254 |  | 9.3 | 0.0 | 0.3 | 1.3 | 0.0 | 2.9 | 1.6 | 0.0 | 3.5 | 0.0 | 0.0 | 0.0 | 5.3 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.3 | 63.9 |
| 99-08 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 09-18 | 384 |  | 3.6 | 0.3 | 1.0 | 2.7 | 1.8 | 0.4 | 1.8 | 0.0 | 0.0 | 2.3 | 0.0 | 0.0 | 9.3 | 0.4 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 8.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.1 | 64.2 |
| 19-28 | 672 |  | 2.0 | 0.7 | 0.4 | 0.8 | 0.2 | 0.0 | 2.5 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.6 | 0.8 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 13.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.7 | 76.3 |

Appendix C11- Percent distribution of George Adams Fall Fingerling adult equivalent (AEQ) total fishing mortalities and escapement.

| Catch <br> Year | Est <br> \# of <br> CWT | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | $N$ Falcon |  | S Falcon |  | WAC N | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 1,602 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 5.6 | 5.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.2 | 2.4 | 0.4 | 0.0 | 0.0 | 0.0 | 2.9 | 18.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.7 | 0.0 | 0.0 | 55.1 |
| 2010 | 1,937 | 2,3,4,5 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 9.6 | 5.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.7 | 4.7 | 0.4 | 0.2 | 0.0 | 0.2 | 5.1 | 12.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.6 | 5.5 | 0.1 | 41.9 |
| 2011 | 2,762 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.0 | 2.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.7 | 2.1 | 0.3 | 0.3 | 0.0 | 0.0 | 4.9 | 16.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.7 | 6.6 | 0.0 | 52.6 |
| 2012 | 3,137 | 2,3,4,5 | 0.2 | 0.1 | 0.0 | 0.1 | 0.0 | 2.6 | 3.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 2.6 | 5.4 | 1.4 | 0.2 | 0.0 | 0.0 | 7.6 | 15.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.5 | 6.9 | 0.3 | 39.3 |
| 2013 | 1,946 | 2,3,4,5 | 0.0 | 0.5 | 0.0 | 0.2 | 0.0 | 3.4 | 4.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.5 | 5.1 | 1.0 | 0.3 | 0.0 | 0.0 | 3.1 | 8.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.4 | 8.3 | 0.2 | 54.6 |
| 2014 | 1,061 | 2,3,4,5 | 0.3 | 0.4 | 0.0 | 1.6 | 0.0 | 4.0 | 5.7 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 4.5 | 1.7 | 1.3 | 0.0 | 0.0 | 0.0 | 12.7 | 17.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 23.3 | 2.9 | 0.0 | 23.8 |
| 2015 | 1,431 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.8 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 3.8 | 6.5 | 0.6 | 0.0 | 0.0 | 0.0 | 5.9 | 11.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 24.2 | 7.0 | 0.3 | 38.2 |
| 2016 | 2,323 | 2,3,4,5 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 2.4 | 1.5 | 0.0 | 0.0 | 0.9 | 0.0 | 0.0 | 7.2 | 1.9 | 0.7 | 0.1 | 0.0 | 0.0 | 5.3 | 15.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.4 | 0.0 | 0.2 | 52.8 |
| 2017 | 3,756 | 2,3,4,5 | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 2.9 | 4.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.6 | 2.5 | 0.9 | 0.1 | 0.0 | 0.0 | 12.3 | 9.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.9 | 0.0 | 0.2 | 52.9 |
| 2018 | 4,046 | 2,3,4,5 | 0.1 | 0.0 | 0.0 | 0.2 | 0.0 | 1.5 | 3.6 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 3.8 | 4.1 | 0.7 | 0.0 | 0.0 | 0.0 | 14.0 | 12.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.5 | 0.0 | 0.1 | 45.2 |
| 2019 | 2,263 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 3.4 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 2.7 | 2.0 | 0.3 | 0.1 | 0.0 | 0.0 | 12.3 | 21.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 25.4 | 0.0 | 1.5 | 30.0 |
| 2020 | 1,364 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 0.4 | 0.3 | 0.0 | 0.0 | 0.0 | 9.0 | 47.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.3 | 0.0 | 6.0 | 31.0 |
| 2021 | NA |  | - | - | - | - | - | - | - |  | - | - | - | - |  | - | - | - | - | - | - | - | - | - | - | - | - |  | - |  |  |  |
| 79-84 | 908 |  | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 17.6 | 0.0 | 1.8 | 0.7 | 0.0 | 0.5 | 1.6 | 4.0 | 1.8 | 0.5 | 0.1 | 0.0 | 2.5 | 14.6 | 27.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.3 | 0.0 | 0.5 | 15.4 |
| 85-95 | 844 |  | 0.2 | 0.1 | 0.0 | 0.1 | 0.0 | 18.6 | 3.6 | 0.1 | 0.6 | 0.0 | 0.2 | 1.9 | 3.7 | 11.1 | 0.2 | 0.1 | 0.0 | 0.1 | 7.6 | 25.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.9 | 0.4 | 0.2 | 16.0 |
| 96-98 | 449 |  | 0.9 | 0.1 | 0.0 | 0.0 | 0.0 | 2.1 | 2.4 | 0.0 | 0.8 | 0.0 | 0.0 | 0.2 | 6.0 | 3.1 | 0.2 | 0.2 | 0.0 | 0.0 | 0.3 | 22.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.4 | 0.0 | 0.3 | 60.6 |
| 99-08 | 1,225 |  | 0.5 | 0.2 | 0.0 | 0.2 | 0.0 | 10.8 | 5.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 3.8 | 4.6 | 0.6 | 0.7 | 0.0 | 0.0 | 4.0 | 12.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 5.1 | 0.3 | 46.9 |
| 09-18 | 2,400 |  | 0.1 | 0.1 | 0.0 | 0.2 | 0.0 | 3.6 | 3.7 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 4.2 | 3.6 | 0.8 | 0.1 | 0.0 | 0.0 | 7.4 | 13.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.9 | 3.7 | 0.1 | 45.6 |
| 19-28 | 1,814 |  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 1.7 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 1.8 | 1.2 | 0.3 | 0.0 | 0.0 | 0.0 | 10.7 | 34.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.9 | 0.0 | 3.8 | 30.5 |

Appendix C12- Percent distribution of Hanford Wild Brights adult equivalent (AEQ) total fishing mortalities and escapement.

| Catch <br> Year | Est <br> \# of <br> CWT | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | N Falcon |  | S Falcon |  | WAC N | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 228 | 2,3,4,5 | 21.9 | 0.0 | 0.9 | 3.9 | 2.2 | 1.3 | 2.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 48.2 | 4.4 | 0.0 | 11.4 |
| 2010 | 507 | 2,3,4,5 | 16.0 | 0.0 | 4.5 | 8.3 | 3.7 | 0.8 | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.6 | 0.6 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.8 | 3.0 | 0.0 | 48.9 |
| 2011 | 545 | 2,3,4,5 | 21.3 | 0.7 | 0.0 | 2.0 | 5.3 | 2.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.5 | 0.0 | 0.2 | 0.7 | 0.9 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 21.1 | 3.7 | 0.0 | 39.4 |
| 2012 | 663 | 2,3,4,5 | 16.1 | 0.9 | 1.8 | 5.3 | 2.4 | 5.7 | 5.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.7 | 0.3 | 0.5 | 0.8 | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 15.8 | 6.2 | 0.0 | 33.3 |
| 2013 | 1,692 | 2,3,4,5 | 7.4 | 0.0 | 0.8 | 4.5 | 2.8 | 1.4 | 1.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 1.2 | 0.5 | 1.4 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 23.0 | 4.3 | 0.0 | 49.8 |
| 2014 | 2,250 | 2,3,4,5 | 13.5 | 0.4 | 1.0 | 4.6 | 1.4 | 2.5 | 1.3 | 0.0 | 0.0 | 0.7 | 0.0 | 0.0 | 0.6 | 1.3 | 0.2 | 2.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 17.6 | 4.0 | 0.0 | 48.4 |
| 2015 | 2,124 | 2,3,4,5 | 13.9 | 1.7 | 1.6 | 2.4 | 3.9 | 0.6 | 1.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.3 | 1.8 | 0.9 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 16.7 | 3.3 | 0.0 | 51.0 |
| 2016 | 1,455 | 2,3,4,5 | 15.5 | 0.5 | 2.4 | 4.9 | 1.6 | 1.6 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 19.9 | 4.4 | 0.0 | 46.8 |
| 2017 | 790 | 2,3,4,5 | 12.5 | 0.0 | 3.0 | 3.5 | 1.4 | 0.5 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.6 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 21.0 | 7.2 | 0.0 | 48.6 |
| 2018 | 189 | 2,3,4,5 | 5.3 | 0.0 | 3.7 | 5.3 | 3.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 0.0 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.7 | 0.0 | 0.0 | 67.2 |
| 2019 | 208 | 2,3,4,5 | 11.5 | 0.0 | 0.0 | 11.5 | 1.4 | 1.0 | 0.0 | 0.0 | 0.0 | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.8 | 1.0 | 0.5 | 67.8 |
| 2020 | 556 | 2,3,4,5 | 12.2 | 0.7 | 1.1 | 5.2 | 0.7 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.4 | 2.9 | 0.0 | 66.0 |
| 2021 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - |
| 79-84 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 85-95 | 558 |  | 14.0 | 3.2 | 1.6 | 5.9 | 0.3 | 7.2 | 0.9 | 0.1 | 0.3 | 0.0 | 0.0 | 0.4 | 0.2 | 0.9 | 0.3 | 0.2 | 0.1 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.4 | 2.2 | 0.0 | 47.7 |
| 96-98 | 540 |  | 14.5 | 0.4 | 0.4 | 5.1 | 1.2 | 0.5 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 19.0 | 2.1 | 0.0 | 56.3 |
| 99-08 | 685 |  | 17.7 | 0.3 | 1.8 | 4.6 | 1.7 | 1.8 | 0.5 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.2 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.2 | 3.5 | 0.3 | 52.5 |
| 09-18 | 1,044 |  | 14.3 | 0.4 | 2.0 | 4.5 | 2.8 | 1.7 | 1.5 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.6 | 1.4 | 0.3 | 0.9 | 0.2 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.7 | 4.0 | 0.0 | 44.5 |
| 19-28 | 382 |  | 11.9 | 0.4 | 0.5 | 8.4 | 1.1 | 0.5 | 0.1 | 0.0 | 0.0 | 0.7 | 0.0 | 0.0 | 0.0 | 0.4 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.6 | 1.9 | 0.2 | 66.9 |

Appendix C13- Percent distribution of Harrison River adult equivalent (AEQ) total fishing mortalities and escapement.

| Catch Year | Est <br> \# of <br> CWT | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | $N$ Falcon |  | S Falcon |  | WAC <br> N | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 2,202 | 2,3,4 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 1.5 | 3.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.3 | 1.2 | 0.2 | 0.0 | 0.0 | 0.0 | 0.1 | 1.8 | 0.0 | 0.0 | 0.0 | 1.5 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 83.8 |
| 2010 | 2,003 | 2,3,4,5 | 0.6 | 0.0 | 0.0 | 0.2 | 0.0 | 3.9 | 3.7 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 5.5 | 4.0 | 1.1 | 0.0 | 0.0 | 0.0 | 0.4 | 2.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.3 | 0.0 | 0.1 | 0.0 | 0.0 | 76.5 |
| 2011 | 2,722 | 2,3,4,5 | 0.3 | 0.0 | 0.0 | 0.1 | 0.4 | 3.3 | 5.8 | 0.0 | 0.0 | 0.1 | 0.0 | 0.8 | 4.3 | 3.1 | 0.6 | 0.0 | 0.0 | 0.0 | 0.4 | 2.1 | 0.0 | 0.0 | 0.0 | 1.4 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 77.0 |
| 2012 | 2,075 | 2,3,4,5 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 9.7 | 3.4 | 0.5 | 0.2 | 0.0 | 0.0 | 0.1 | 5.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.2 | 0.0 | 0.1 | 0.0 | 0.0 | 78.0 |
| 2013 | 3,472 | 2,3,4,5 | 0.0 | 0.1 | 0.1 | 0.0 | 0.1 | 2.0 | 2.3 | 0.0 | 0.0 | 0.1 | 0.0 | 1.0 | 7.5 | 5.1 | 0.9 | 0.3 | 0.0 | 0.0 | 0.3 | 3.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 0.4 | 0.0 | 1.2 | 74.4 |
| 2014 | 2,274 | 2,3,4,5 | 0.5 | 0.0 | 0.1 | 0.0 | 0.0 | 3.9 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 1.9 | 13.8 | 5.1 | 0.7 | 0.8 | 0.0 | 0.0 | 0.5 | 2.1 | 0.0 | 0.0 | 0.0 | 3.3 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 66.1 |
| 2015 | 1,850 | 2,3,4,5 | 0.2 | 0.1 | 0.0 | 0.4 | 0.0 | 0.9 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 10.4 | 3.5 | 0.0 | 0.9 | 0.0 | 0.3 | 0.3 | 1.6 | 0.0 | 0.0 | 0.0 | 2.1 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 76.8 |
| 2016 | 2,670 | 2,3,4,5 | 0.4 | 0.3 | 0.0 | 0.2 | 0.0 | 0.7 | 2.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 11.2 | 1.4 | 0.5 | 0.1 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 79.4 |
| 2017 | 1,732 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 2.2 | 7.5 | 0.0 | 0.0 | 0.1 | 0.0 | 0.6 | 21.8 | 8.2 | 0.5 | 0.2 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.7 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 56.4 |
| 2018 | 2,576 | 2,3,4,5 | 0.2 | 0.2 | 0.0 | 0.4 | 0.0 | 0.5 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 12.3 | 6.1 | 0.3 | 0.1 | 0.0 | 0.0 | 0.5 | 1.3 | 0.0 | 0.0 | 0.0 | 3.4 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 69.6 |
| 2019 | 1,868 | 2,3,4,5 | 0.3 | 0.2 | 0.0 | 0.0 | 0.0 | 1.5 | 0.7 | 0.0 | 0.0 | 0.2 | 0.0 | 1.2 | 15.9 | 4.1 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 0.0 | 0.0 | 0.0 | 2.0 | 1.0 | 0.0 | 0.0 | 0.0 | 1.0 | 69.9 |
| 2020 | 2,182 | 2,3,4,5 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 11.7 | 0.9 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 3.5 | 0.0 | 0.0 | 0.0 | 2.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 78.9 |
| 2021 | 3,292 | 2,3,4,5 | 0.3 | 0.0 | 0.0 | 0.2 | 0.0 | 0.8 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 14.7 | 0.3 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 79.5 |
| 79-84 | NA |  | - | - |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - |
| 85-95 | 1,457 |  | 0.4 | 0.0 | 0.1 | 0.3 | 0.0 | 18.1 | 0.7 | 0.7 | 1.0 | 0.0 | 8.3 | 3.4 | 17.8 | 5.5 | 0.1 | 0.6 | 0.0 | 0.0 | 2.8 | 4.1 | 0.0 | 0.0 | 0.0 | 0.8 | 0.4 | 0.0 | 0.3 | 0.0 | 0.4 | 34.2 |
| 96-98 | 1,080 |  | 0.8 | 0.1 | 0.0 | 0.0 | 0.0 | 5.1 | 1.2 | 0.0 | 0.4 | 0.0 | 0.0 | 0.3 | 15.3 | 4.8 | 0.0 | 1.6 | 0.0 | 0.0 | 1.0 | 4.9 | 0.0 | 0.0 | 0.0 | 0.9 | 0.1 | 0.0 | 0.1 | 0.0 | 0.3 | 63.2 |
| 99-08 | 718 |  | 0.7 | 0.1 | 0.0 | 0.3 | 0.0 | 13.0 | 4.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 6.2 | 9.6 | 1.0 | 0.6 | 0.0 | 0.1 | 0.3 | 1.5 | 0.0 | 0.0 | 0.0 | 1.1 | 0.0 | 0.0 | 0.4 | 0.0 | 0.3 | 59.8 |
| 09-18 | 2,358 |  | 0.2 | 0.1 | 0.0 | 0.2 | 0.0 | 2.0 | 3.2 | 0.0 | 0.0 | 0.1 | 0.0 | 0.7 | 10.1 | 4.1 | 0.5 | 0.3 | 0.0 | 0.0 | 0.3 | 2.1 | 0.0 | 0.0 | 0.0 | 1.5 | 0.3 | 0.0 | 0.1 | 0.0 | 0.2 | 73.8 |
| 19-28 | 2,447 |  | 0.3 | 0.1 | 0.0 | 0.1 | 0.0 | 1.1 | 0.4 | 0.0 | 0.0 | 0.1 | 0.0 | 0.9 | 14.1 | 1.7 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 | 0.0 | 1.9 | 0.3 | 0.0 | 0.1 | 0.0 | 0.3 | 76.1 |

Appendix C14- Percent distribution of Hoko Fall Fingerling adult equivalent (AEQ) total fishing mortalities and escapement.

|  | Est |  | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Catch | \# |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | $N$ Falcon |  | S Falcon |  | WAC N | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
| Year | CWT | Ages | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 349 | 2,3,4,5 | 12.6 | 0.0 | 0.0 | 10.0 | 1.1 | 0.0 | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 69.9 |
| 2010 | 723 | 2,3,4,5 | 3.3 | 0.0 | 2.4 | 4.8 | 0.7 | 0.8 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 85.2 |
| 2011 | 1,122 | 2,3,4,5 | 10.8 | 0.9 | 0.9 | 2.5 | 1.1 | 1.2 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 79.6 |
| 2012 | 598 | 2,3,4,5 | 8.2 | 2.2 | 1.8 | 10.4 | 2.8 | 0.7 | 2.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 66.4 |
| 2013 | 857 | 2,3,4,5 | 4.7 | 0.0 | 0.8 | 0.4 | 2.5 | 0.6 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.1 | 1.4 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 5.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.9 | 74.7 |
| 2014 | 829 | 2,3,4,5 | 14.5 | 2.2 | 1.0 | 6.4 | 2.1 | 1.3 | 2.1 | 0.0 | 0.0 | 2.4 | 0.0 | 0.0 | 5.7 | 0.8 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.2 | 57.4 |
| 2015 | 1,241 | 2,3,4,5 | 6.6 | 0.6 | 1.0 | 5.3 | 3.0 | 0.6 | 1.9 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 1.0 | 3.5 | 0.3 | 0.4 | 0.0 | 0.0 | 0.0 | 4.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 69.2 |
| 2016 | 939 | 2,3,4,5 | 6.7 | 0.6 | 0.3 | 8.5 | 2.0 | 0.5 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 4.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 3.5 | 68.4 |
| 2017 | 1,185 | 2,3,4,5 | 8.0 | 0.3 | 1.4 | 7.3 | 1.0 | 0.6 | 2.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 73.2 |
| 2018 | 742 | 2,3,4,5 | 10.1 | 0.0 | 1.6 | 14.7 | 8.4 | 2.3 | 1.3 | 0.0 | 0.0 | 1.9 | 0.0 | 0.0 | 7.7 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 43.0 |
| 2019 | 474 | 2,3,4,5 | 15.6 | 1.9 | 1.9 | 3.6 | 4.0 | 8.4 | 1.5 | 0.0 | 0.0 | 0.8 | 0.0 | 0.0 | 18.4 | 1.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 21.1 |
| 2020 | 1,457 | 3,4,5 | 6.1 | 0.5 | 1.1 | 3.0 | 0.3 | 1.0 | 1.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 7.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 9.0 | 69.2 |
| 2021 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 79-84 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 85-95 | 665 |  | 14.5 | 3.8 | 1.7 | 8.4 | 0.2 | 11.2 | 0.1 | 0.7 | 1.8 | 0.0 | 0.1 | 2.5 | 1.3 | 0.2 | 0.2 | 0.0 | 0.0 | 0.0 | 0.2 | 7.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.4 | 45.2 |
| 96-98 | 917 |  | 13.3 | 0.0 | 1.6 | 3.3 | 0.0 | 0.8 | 0.1 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 1.8 | 78.1 |
| 99-08 | 652 |  | 14.0 | 0.3 | 2.9 | 6.7 | 3.5 | 0.3 | 0.1 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 2.7 | 0.1 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 68.0 |
| 09-18 | 858 |  | 8.5 | 0.7 | 1.1 | 7.0 | 2.5 | 0.9 | 1.6 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 3.1 | 1.0 | 0.3 | 0.1 | 0.0 | 0.0 | 0.0 | 3.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.8 | 68.7 |
| 19-28 | 966 |  | 10.9 | 1.2 | 1.5 | 3.3 | 2.1 | 4.7 | 1.2 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 13.0 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.7 | 45.1 |

Appendix C15- Percent distribution of Kitsumkalum River Summer adult equivalent (AEQ) total fishing mortalities and escapement.

| Catch <br> Year | Est <br> \# of <br> CWT | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | $N$ Falcon |  | S Falcon |  | WAC <br> N | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 571 | 3,4,5,6 | 15.8 | 3.2 | 6.5 | 1.6 | 5.1 | 0.5 | 0.0 | 0.0 | 0.9 | 4.4 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 60.9 |
| 2010 | 769 | 3,4,5,6 | 7.0 | 0.7 | 5.3 | 3.1 | 7.3 | 0.0 | 0.0 | 0.0 | 1.2 | 11.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.0 | 0.0 | 0.0 | 0.0 | 0.0 | 58.1 |
| 2011 | 412 | 3,4,5,6 | 15.8 | 0.0 | 1.5 | 2.4 | 4.1 | 0.0 | 0.0 | 0.0 | 8.7 | 14.6 | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.4 | 0.0 | 0.0 | 0.0 | 0.0 | 50.0 |
| 2012 | 224 | 3,4,5,6 | 19.2 | 1.3 | 2.7 | 1.3 | 5.8 | 0.0 | 0.0 | 0.0 | 1.8 | 8.9 | 0.0 | 0.0 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 57.6 |
| 2013 | 236 | 3,4,5,6 | 10.6 | 0.0 | 3.4 | 6.4 | 1.7 | 0.0 | 0.0 | 0.0 | 0.4 | 7.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 | 67.8 |
| 2014 | 251 | 3,4,5,6 | 11.6 | 0.4 | 2.0 | 1.6 | 5.2 | 0.0 | 0.0 | 0.0 | 1.2 | 6.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.6 | 0.0 | 0.0 | 0.0 | 0.0 | 62.5 |
| 2015 | 466 | 3,4,5,6 | 11.2 | 7.5 | 3.2 | 2.8 | 3.2 | 0.0 | 0.0 | 0.0 | 1.3 | 5.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.8 | 0.0 | 0.0 | 0.0 | 0.0 | 59.2 |
| 2016 | 611 | 3,4,5,6 | 8.8 | 5.6 | 2.1 | 1.3 | 4.9 | 0.0 | 0.0 | 0.0 | 0.8 | 13.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.9 | 0.0 | 0.0 | 0.0 | 0.0 | 58.1 |
| 2017 | 264 | 3,4,5,6 | 10.6 | 0.0 | 2.3 | 6.8 | 1.9 | 0.0 | 0.0 | 0.0 | 0.8 | 24.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.8 | 0.0 | 0.0 | 0.0 | 0.0 | 49.2 |
| 2018 | 232 | 3,4,5,6 | 6.0 | 0.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 85.8 |
| 2019 | 521 | 3,4,5,6 | 6.7 | 4.6 | 2.7 | 0.8 | 3.5 | 0.0 | 0.0 | 0.0 | 1.5 | 11.3 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 68.7 |
| 2020 | 249 | 3,4,5,6 | 2.4 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.6 | 10.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 82.7 |
| 2021 | 163 | 3,4,5,6 | 3.1 | 18.4 | 14.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 60.7 |
| 79-84 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 85-95 | 345 |  | 16.8 | 0.4 | 2.9 | 9.8 | 1.9 | 0.0 | 0.0 | 0.1 | 14.4 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.9 | 0.0 | 0.0 | 0.0 | 0.0 | 49.1 |
| 96-98 | 460 |  | 13.9 | 0.1 | 7.6 | 0.1 | 1.6 | 0.0 | 0.0 | 0.0 | 11.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 58.9 |
| 99-08 | 478 |  | 15.6 | 1.1 | 7.3 | 2.4 | 8.2 | 0.0 | 0.0 | 0.0 | 5.5 | 3.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 51.8 |
| 09-18 | 404 |  | 11.7 | 1.9 | 2.9 | 3.0 | 4.2 | 0.1 | 0.0 | 0.0 | 1.9 | 9.7 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.5 | 0.0 | 0.0 | 0.0 | 0.0 | 60.9 |
| 19-28 | 311 |  | 4.1 | 7.8 | 5.6 | 0.3 | 1.2 | 0.0 | 0.0 | 0.0 | 2.9 | 7.4 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 70.7 |

Appendix C16- Percent distribution of Kitsumkalum Yearling adult equivalent (AEQ) total fishing mortalities and escapement.

| Catch <br> Year | Est | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\begin{aligned} & \text { \# of } \\ & \text { CWT } \end{aligned}$ |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | N Falcon |  | S Falcon |  | WAC N | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 648 | 3,5,6 | 14.5 | 0.0 | 7.7 | 1.2 | 4.9 | 0.0 | 0.0 | 0.0 | 0.3 | 4.9 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 62.3 |
| 2010 | 393 | 3,4,6 | 13.0 | 0.3 | 2.8 | 2.5 | 3.3 | 0.0 | 0.0 | 0.0 | 2.5 | 10.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.4 | 0.0 | 0.0 | 0.0 | 0.0 | 58.5 |
| 2011 | 261 | 3,4,5 | 21.8 | 1.1 | 1.9 | 3.4 | 4.6 | 0.0 | 0.0 | 0.0 | 4.2 | 11.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.8 | 0.0 | 0.0 | 0.0 | 0.0 | 47.9 |
| 2012 | 340 | 3,4,5,6 | 28.2 | 0.0 | 2.1 | 0.9 | 2.6 | 0.0 | 0.0 | 0.0 | 2.1 | 16.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.5 | 0.0 | 0.0 | 0.0 | 0.0 | 41.2 |
| 2013 | 450 | 3,4,5,6 | 9.1 | 0.2 | 0.7 | 0.7 | 2.9 | 0.0 | 0.0 | 0.0 | 0.9 | 4.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.3 | 0.0 | 0.0 | 0.0 | 0.0 | 75.8 |
| 2014 | 599 | 3,4,5,6 | 17.9 | 3.0 | 1.0 | 2.8 | 3.0 | 0.0 | 0.0 | 0.0 | 2.0 | 2.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.2 | 0.0 | 0.0 | 0.0 | 0.0 | 63.8 |
| 2015 | 1,291 | 3,4,5,6 | 9.8 | 1.0 | 3.9 | 1.2 | 5.8 | 0.0 | 0.0 | 0.0 | 1.3 | 3.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.9 | 0.0 | 0.0 | 0.0 | 0.0 | 66.8 |
| 2016 | 592 | 3,4,5,6 | 5.2 | 6.8 | 4.2 | 3.4 | 5.2 | 0.0 | 0.0 | 0.0 | 0.0 | 7.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.8 | 0.0 | 0.0 | 0.0 | 0.0 | 56.9 |
| 2017 | 670 | 3,4,5,6 | 4.6 | 4.9 | 4.0 | 3.3 | 2.8 | 0.0 | 0.0 | 0.0 | 1.2 | 6.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.5 | 0.0 | 0.0 | 0.0 | 0.0 | 64.9 |
| 2018 | 1,326 | 3,4,5,6 | 2.8 | 0.2 | 1.1 | 0.5 | 2.6 | 0.0 | 0.0 | 0.0 | 1.0 | 5.8 | 0.0 | 0.0 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 85.2 |
| 2019 | 488 | 3,4,5,6 | 4.7 | 8.2 | 0.8 | 0.0 | 4.5 | 0.0 | 0.0 | 0.0 | 1.0 | 11.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 69.3 |
| 2020 | 340 | 3,4,5,6 | 3.5 | 2.6 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.4 | 7.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 82.1 |
| 2021 | 268 | 3,4,5,6 | 4.5 | 4.9 | 5.2 | 0.0 | 8.2 | 0.0 | 0.0 | 0.0 | 4.1 | 17.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 56.0 |
| 79-84 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 85-95 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 96-98 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 99-08 | 725 |  | 19.6 | 2.0 | 5.4 | 2.7 | 6.9 | 0.0 | 0.0 | 0.0 | 7.9 | 5.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.2 | 0.0 | 0.0 | 0.0 | 0.0 | 46.2 |
| 09-18 | 657 |  | 12.7 | 1.8 | 2.9 | 2.0 | 3.8 | 0.0 | 0.0 | 0.0 | 1.6 | 7.3 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.5 | 0.0 | 0.0 | 0.0 | 0.0 | 62.3 |
| 19-28 | 365 |  | 4.2 | 5.2 | 2.5 | 0.0 | 4.2 | 0.0 | 0.0 | 0.0 | 2.5 | 12.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 69.1 |

Appendix C17- Percent distribution of Lower River Hatchery Tule adult equivalent (AEQ) total fishing mortalities and escapement.

| Catch Year | Est <br> \# of <br> CWT | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | $N$ Falcon |  | S Falcon |  | WAC <br> N | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 609 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.1 | 7.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.8 | 3.9 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 7.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 26.3 | 2.5 | 0.0 | 39.6 |
| 2010 | 1,597 | 2,3,4,5 | 0.3 | 0.0 | 0.0 | 0.3 | 0.0 | 6.6 | 6.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.9 | 14.8 | 5.4 | 3.8 | 0.0 | 0.3 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 26.7 | 3.1 | 0.0 | 29.2 |
| 2011 | 841 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.4 | 6.4 | 0.0 | 0.0 | 1.1 | 0.0 | 0.0 | 0.5 | 4.8 | 7.5 | 2.3 | 0.4 | 2.3 | 0.0 | 2.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 17.4 | 3.1 | 0.0 | 42.2 |
| 2012 | 865 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 3.0 | 8.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 9.2 | 13.1 | 6.8 | 1.5 | 0.2 | 0.0 | 3.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 15.1 | 2.7 | 0.0 | 35.5 |
| 2013 | 713 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 3.2 | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 | 3.1 | 6.7 | 6.0 | 2.1 | 0.0 | 0.0 | 0.0 | 12.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 15.1 | 4.2 | 0.0 | 44.5 |
| 2014 | 2,474 | 2,3,4,5 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 6.1 | 2.9 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 3.0 | 15.7 | 13.4 | 8.0 | 1.1 | 0.4 | 0.0 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 15.2 | 3.2 | 0.2 | 29.0 |
| 2015 | 1,470 | 2,3,4,5 | 0.3 | 0.0 | 0.0 | 0.2 | 0.6 | 5.2 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 17.3 | 9.0 | 5.7 | 0.2 | 0.0 | 0.0 | 3.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.3 | 2.4 | 0.0 | 40.1 |
| 2016 | 458 | 2,3,4,5 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 8.5 | 11.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 5.2 | 7.0 | 1.5 | 0.0 | 0.0 | 0.0 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.0 | 7.9 | 0.7 | 41.3 |
| 2017 | 632 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.7 | 11.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.7 | 22.3 | 11.2 | 2.2 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.2 | 5.5 | 0.8 | 26.6 |
| 2018 | 684 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.0 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.0 | 16.1 | 6.6 | 6.1 | 0.6 | 0.0 | 0.3 | 2.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.5 | 6.9 | 0.4 | 35.2 |
| 2019 | 607 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.3 | 9.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.1 | 6.1 | 4.9 | 3.5 | 1.5 | 0.0 | 0.0 | 5.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.3 | 4.4 | 0.5 | 44.3 |
| 2020 | 1,155 | 2,3,4,5 | 0.3 | 0.3 | 0.0 | 0.0 | 0.0 | 1.3 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.4 | 3.5 | 0.4 | 1.4 | 0.0 | 0.0 | 12.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.7 | 4.0 | 3.7 | 54.1 |
| 2021 | NA |  |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - | - | - | - | - | - | - | - | - | - |
| 79-84 | 2,204 |  | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 35.5 | 0.2 | 1.8 | 0.3 | 0.0 | 0.1 | 1.8 | 1.7 | 15.2 | 5.9 | 2.3 | 0.2 | 0.4 | 0.8 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.5 | 0.4 | 0.1 | 22.0 |
| 85-95 | 1,929 |  | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 22.1 | 1.7 | 0.6 | 0.1 | 0.0 | 0.0 | 1.6 | 0.8 | 12.8 | 2.8 | 4.7 | 0.8 | 0.1 | 0.4 | 4.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.5 | 3.3 | 0.2 | 37.2 |
| 96-98 | 167 |  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.4 | 7.2 | 0.0 | 0.0 | 2.3 | 0.0 | 0.0 | 1.1 | 2.0 | 2.5 | 2.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 13.9 | 1.3 | 54.2 |
| 99-08 | 973 |  | 0.1 | 0.1 | 0.0 | 0.1 | 0.0 | 14.1 | 6.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 7.1 | 3.5 | 3.2 | 0.5 | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.4 | 2.8 | 0.1 | 52.5 |
| 09-18 | 1,034 |  | 0.2 | 0.0 | 0.0 | 0.1 | 0.1 | 6.0 | 6.4 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 2.5 | 11.6 | 8.4 | 3.9 | 0.4 | 0.3 | 0.0 | 3.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 15.9 | 4.1 | 0.2 | 36.3 |
| 19-28 | 881 |  | 0.2 | 0.2 | 0.0 | 0.0 | 0.0 | 1.8 | 5.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.1 | 4.7 | 4.2 | 1.9 | 1.4 | 0.0 | 0.0 | 9.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.5 | 4.2 | 2.1 | 49.2 |

Appendix C18 - Percent distribution of Lewis River Wild adult equivalent (AEQ) total fishing mortalities and escapement.

| Catch <br> Year | Est <br> \# of <br> CWT | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | $N$ Falcon |  | S Falcon |  | WAC$N$ | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 176 | 2,3,4,5 | 19.9 | 0.0 | 0.0 | 3.4 | 2.3 | 6.2 | 19.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 0.0 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 3.4 | 0.0 | 42.6 |
| 2010 | 200 | 2,3,4,5 | 6.5 | 0.0 | 0.0 | 5.0 | 2.5 | 1.5 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 | 4.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 8.0 | 0.0 | 64.0 |
| 2011 | 225 | 2,3,4,5 | 12.0 | 0.0 | 1.3 | 12.4 | 1.3 | 4.4 | 4.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 6.2 | 2.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 20.9 | 1.8 | 30.7 |
| 2012 | 273 | 2,3,4,5 | 12.5 | 2.6 | 0.4 | 3.3 | 3.3 | 6.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.3 | 2.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.1 | 16.5 | 1.1 | 43.2 |
| 2013 | 305 | 2,3,4,5 | 1.3 | 0.0 | 1.3 | 3.0 | 1.6 | 3.6 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.6 | 1.6 | 2.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 34.8 | 1.3 | 43.9 |
| 2014 | 271 | 2,3,4,5 | 8.1 | 0.4 | 0.0 | 6.6 | 0.0 | 4.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.6 | 7.4 | 1.5 | 8.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.3 | 0.0 | 0.4 | 57.2 |
| 2015 | 381 | 2,3,4,5 | 6.3 | 0.0 | 1.0 | 5.5 | 4.2 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 1.0 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.7 | 2.6 | 0.0 | 67.5 |
| 2016 | 105 | 2,3,4,5 | 5.7 | 0.0 | 10.5 | 3.8 | 0.0 | 1.9 | 8.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.8 | 9.5 | 0.0 | 56.2 |
| 2017 | 92 | 2,3,4,5 | 3.3 | 1.1 | 0.0 | 4.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.3 | 1.1 | 71.7 |
| 2018 | 138 | 2,3,4,5 | 2.9 | 0.0 | 0.0 | 6.5 | 0.0 | 0.0 | 8.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.9 | 1.4 | 2.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 38.4 | 0.0 | 37.0 |
| 2019 | 339 | 2,3,4,5 | 2.7 | 42.8 | 0.0 | 6.2 | 0.0 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.5 | 0.0 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 43.4 |
| 2020 | 394 | 2,3,4,5 | 13.7 | 0.0 | 0.8 | 4.8 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 1.5 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 2.5 | 3.6 | 68.0 |
| 2021 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 79-84 | 1,078 |  | 7.6 | 0.4 | 0.1 | 3.5 | 0.0 | 9.1 | 0.0 | 1.6 | 0.4 | 0.0 | 0.2 | 0.7 | 1.1 | 2.7 | 5.3 | 0.8 | 0.0 | 0.4 | 0.4 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.2 | 14.0 | 2.0 | 45.0 |
| 85-95 | 807 |  | 5.6 | 0.1 | 0.3 | 4.2 | 0.2 | 8.0 | 0.4 | 0.7 | 0.3 | 0.1 | 0.0 | 0.5 | 0.2 | 1.7 | 0.6 | 1.1 | 0.1 | 0.1 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.0 | 10.0 | 2.7 | 51.7 |
| 96-98 | 282 |  | 12.4 | 0.0 | 0.0 | 2.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 3.8 | 0.2 | 79.5 |
| 99-08 | 575 |  | 12.8 | 0.0 | 0.8 | 3.9 | 1.5 | 6.1 | 1.5 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.3 | 3.0 | 1.3 | 1.9 | 0.1 | 0.0 | 0.0 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.5 | 5.6 | 1.4 | 54.2 |
| 09-18 | 246 |  | 8.7 | 0.4 | 0.5 | 5.7 | 1.9 | 3.4 | 4.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 2.6 | 2.5 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.1 | 15.6 | 0.6 | 48.3 |
| 19-28 | 366 |  | 8.2 | 21.4 | 0.4 | 5.5 | 0.0 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.6 | 0.8 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.3 | 1.8 | 55.7 |

Appendix C19 - Percent distribution of Lyons Ferry adult equivalent (AEQ) total fishing mortalities and escapement.

| Catch <br> Year | Est <br> \# of <br> CWT | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | N Falcon |  | S Falcon |  | WAC$\mathrm{N}$ | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 4,917 | 2,3,4,5 | 0.6 | 0.0 | 0.1 | 0.5 | 0.0 | 1.1 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 1.1 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.1 | 1.3 | 0.0 | 88.7 |
| 2010 | 3,104 | 2,3,4,5 | 0.3 | 0.1 | 0.0 | 0.8 | 0.1 | 3.6 | 2.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 5.4 | 4.5 | 0.6 | 0.1 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.8 | 1.6 | 0.0 | 69.8 |
| 2011 | 2,217 | 2,3,4,5 | 0.7 | 0.0 | 0.1 | 0.9 | 0.1 | 3.4 | 2.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 3.8 | 1.7 | 0.8 | 0.5 | 0.0 | 0.0 | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.6 | 3.1 | 0.0 | 67.0 |
| 2012 | 2,761 | 2,3,4,5 | 1.2 | 0.2 | 0.1 | 0.3 | 0.0 | 3.2 | 2.9 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.3 | 5.1 | 3.1 | 2.1 | 0.5 | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.5 | 7.8 | 0.3 | 62.5 |
| 2013 | 3,496 | 2,3,4,5 | 1.0 | 0.0 | 0.0 | 0.6 | 0.2 | 1.7 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 4.2 | 2.0 | 2.1 | 0.3 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.9 | 5.7 | 0.0 | 65.4 |
| 2014 | 2,352 | 2,3,4,5 | 5.5 | 0.2 | 0.2 | 1.6 | 1.1 | 4.6 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 5.7 | 1.4 | 2.5 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 16.7 | 3.1 | 0.5 | 56.1 |
| 2015 | 2,321 | 2,3,4,5 | 3.6 | 0.2 | 1.5 | 1.2 | 0.0 | 0.4 | 0.6 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.2 | 5.0 | 2.8 | 2.4 | 0.0 | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.8 | 3.1 | 0.0 | 67.3 |
| 2016 | 2,205 | 2,3,4,5 | 3.3 | 0.2 | 0.5 | 5.8 | 0.5 | 2.7 | 3.1 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 1.1 | 3.3 | 0.8 | 0.4 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.6 | 5.1 | 0.3 | 58.0 |
| 2017 | 1,052 | 2,3,4,5 | 2.9 | 0.0 | 0.0 | 3.4 | 0.0 | 2.6 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.9 | 4.0 | 2.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 18.0 | 16.3 | 0.1 | 41.1 |
| 2018 | 725 | 2,3,4,5 | 2.8 | 0.1 | 0.7 | 4.0 | 0.8 | 1.9 | 2.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.1 | 1.4 | 2.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.9 | 5.2 | 0.4 | 68.6 |
| 2019 | 412 | 2,3,4,5 | 5.8 | 3.9 | 0.0 | 0.7 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 3.2 | 0.0 | 0.0 | 0.0 | 2.4 | 0.0 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.8 | 7.8 | 4.6 | 64.1 |
| 2020 | 967 | 2,3,4,5 | 3.1 | 0.6 | 0.0 | 0.4 | 0.0 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 0.2 | 0.3 | 0.9 | 0.0 | 0.0 | 0.0 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.0 | 1.7 | 0.2 | 81.2 |
| 2021 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 79-84 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 85-95 | 390 |  | 2.2 | 0.0 | 0.5 | 4.9 | 0.4 | 14.8 | 1.5 | 0.0 | 0.4 | 0.0 | 0.0 | 0.8 | 0.0 | 4.8 | 1.4 | 4.8 | 1.4 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.3 | 2.4 | 0.1 | 45.1 |
| 96-98 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 99-08 | 1,114 |  | 2.6 | 0.1 | 0.0 | 0.9 | 0.3 | 2.5 | 0.5 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.1 | 2.8 | 1.4 | 1.2 | 0.1 | 0.0 | 0.0 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.2 | 1.1 | 0.1 | 78.9 |
| 09-18 | 2,515 |  | 2.2 | 0.1 | 0.3 | 1.9 | 0.3 | 2.5 | 1.8 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.3 | 4.3 | 2.2 | 1.6 | 0.2 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.9 | 5.2 | 0.2 | 64.5 |
| 19-28 | 690 |  | 4.5 | 2.3 | 0.0 | 0.6 | 0.0 | 0.6 | 0.1 | 0.0 | 0.0 | 1.6 | 0.0 | 0.0 | 0.4 | 1.3 | 0.2 | 1.2 | 0.0 | 0.0 | 0.0 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.9 | 4.7 | 2.4 | 72.6 |

Appendix C20- Percent distribution of Lyons Ferry Yearling adult equivalent (AEQ) total fishing mortalities and escapement.

| Catch Year | Est | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | \# of <br> CWT |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | N Falcon |  | S Falcon |  | WAC$N$ | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 13,873 | 3,4,5,6 | 0.1 | 0.0 | 0.0 | 0.2 | 0.1 | 1.4 | 3.4 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.5 | 2.7 | 4.2 | 0.0 | 0.1 | 0.0 | 0.0 | 6.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.4 | 2.0 | 0.0 | 71.6 |
| 2010 | 8,001 | 3,4,5,6 | 0.8 | 0.1 | 0.0 | 1.0 | 0.2 | 5.4 | 2.8 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.2 | 8.6 | 7.9 | 2.9 | 0.2 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.8 | 2.1 | 0.3 | 46.0 |
| 2011 | 6,525 | 3,4,5,6 | 0.6 | 0.0 | 0.0 | 0.4 | 0.1 | 3.7 | 2.6 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.2 | 5.5 | 6.3 | 1.3 | 1.1 | 0.0 | 0.0 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 18.9 | 6.1 | 0.0 | 52.3 |
| 2012 | 5,232 | 3,4,5,6 | 0.8 | 0.2 | 0.0 | 0.4 | 0.0 | 2.4 | 3.1 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.6 | 8.4 | 5.5 | 5.4 | 1.2 | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.7 | 6.5 | 0.0 | 51.1 |
| 2013 | 7,127 | 3,4,5,6 | 0.4 | 0.1 | 0.0 | 0.2 | 0.0 | 1.4 | 1.7 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.7 | 7.6 | 3.8 | 2.4 | 0.4 | 0.0 | 0.0 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 15.2 | 6.4 | 0.3 | 58.6 |
| 2014 | 6,228 | 3,4,5,6 | 1.0 | 0.1 | 0.3 | 0.9 | 0.1 | 3.9 | 1.4 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.8 | 13.2 | 4.4 | 6.9 | 0.6 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.9 | 7.3 | 0.2 | 37.3 |
| 2015 | 5,535 | 3,4,5,6 | 2.3 | 0.5 | 0.3 | 1.2 | 0.0 | 1.0 | 1.4 | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 | 0.5 | 9.1 | 3.8 | 4.3 | 0.3 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.7 | 8.1 | 0.7 | 50.7 |
| 2016 | 4,005 | 3,4,5,6 | 3.5 | 0.5 | 0.4 | 4.3 | 0.3 | 6.5 | 3.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.4 | 7.3 | 5.1 | 2.3 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 18.3 | 8.6 | 0.0 | 38.7 |
| 2017 | 2,812 | 3,4,5,6 | 1.4 | 0.2 | 0.2 | 5.4 | 1.5 | 5.0 | 2.4 | 0.0 | 0.0 | 1.7 | 0.0 | 0.0 | 0.7 | 10.0 | 3.9 | 3.3 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 16.8 | 14.3 | 0.6 | 32.5 |
| 2018 | 3,399 | 3,4,5,6 | 1.9 | 0.2 | 0.1 | 4.5 | 1.0 | 3.1 | 2.5 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.3 | 12.6 | 2.6 | 1.6 | 0.3 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.6 | 8.3 | 0.0 | 46.2 |
| 2019 | 1,207 | 3,4,5,6 | 2.0 | 0.6 | 0.0 | 2.1 | 0.0 | 3.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 8.9 | 3.5 | 1.5 | 0.9 | 0.0 | 0.0 | 2.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.2 | 4.1 | 0.1 | 56.7 |
| 2020 | 698 | 3,4,5,6 | 6.6 | 0.3 | 1.3 | 1.4 | 0.6 | 4.9 | 0.1 | 0.0 | 0.0 | 1.4 | 0.0 | 0.0 | 0.1 | 3.9 | 2.1 | 2.7 | 0.0 | 0.0 | 0.0 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 25.5 | 4.4 | 2.4 | 41.0 |
| 2021 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  |
| 79-84 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 85-95 | 2,726 |  | 0.6 | 0.0 | 0.0 | 1.4 | 0.0 | 19.5 | 2.6 | 0.3 | 0.7 | 0.1 | 0.1 | 0.5 | 0.5 | 12.2 | 2.8 | 7.7 | 0.7 | 0.0 | 0.2 | 2.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.0 | 1.4 | 0.3 | 33.1 |
| 96-98 | 3,552 |  | 1.7 | 0.1 | 0.1 | 1.5 | 0.4 | 2.3 | 0.6 | 0.2 | 0.6 | 0.3 | 0.0 | 0.1 | 0.2 | 1.4 | 0.3 | 5.9 | 0.2 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 14.4 | 5.1 | 1.2 | 63.4 |
| 99-08 | 7,946 |  | 0.9 | 0.1 | 0.1 | 0.5 | 0.2 | 6.0 | 1.9 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.4 | 6.4 | 3.7 | 5.0 | 0.7 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.7 | 2.8 | 0.5 | 60.3 |
| 09-18 | 6,274 |  | 1.3 | 0.2 | 0.1 | 1.9 | 0.3 | 3.4 | 2.4 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.6 | 8.5 | 4.7 | 3.0 | 0.5 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 15.9 | 7.0 | 0.2 | 48.5 |
| 19-28 | 952 |  | 4.3 | 0.4 | 0.6 | 1.8 | 0.3 | 4.0 | 0.1 | 0.0 | 0.0 | 0.7 | 0.0 | 0.0 | 0.4 | 6.4 | 2.8 | 2.1 | 0.5 | 0.0 | 0.0 | 1.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 19.3 | 4.3 | 1.3 | 48.8 |

Appendix C21- Percent distribution of Middle Shuswap River Summer adult equivalent (AEQ) total fishing mortalities and escapement.

| Catch <br> Year | Est <br> \# of <br> CWT | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | $N$ Falcon |  | S Falcon |  | WAC$N$ | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | NA |  | - | - | - | - | - | - | - | - |  | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - |  | - |  | - | - | - |
| 2010 | 3 | 2 |  | d Cri | ria | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - |  |  |  | - | - | - |
| 2011 | 58 | 2,3 | 6.9 | 0.0 | 1.7 | 6.9 | 3.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.7 | 5.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 25.9 | 1.7 | 0.0 | 0.0 | 0.0 | 0.0 | 46.6 |
| 2012 | 288 | 2,3,4 | 8.3 | 0.0 | 1.7 | 10.4 | 9.0 | 2.1 | 0.3 | 0.0 | 0.0 | 0.3 | 0.0 | 0.7 | 13.9 | 2.1 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.7 | 2.8 | 0.0 | 0.0 | 0.0 | 1.4 | 36.8 |
| 2013 | 1,700 | 2,3,4,5 | 2.4 | 0.0 | 0.5 | 7.4 | 4.1 | 0.3 | 0.6 | 0.0 | 0.0 | 0.1 | 0.0 | 1.1 | 14.7 | 0.1 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.1 | 3.6 | 0.0 | 0.0 | 0.0 | 1.3 | 60.5 |
| 2014 | 1,218 | 2,3,4,5 | 9.4 | 0.0 | 0.8 | 6.9 | 5.5 | 3.0 | 2.2 | 0.0 | 0.0 | 0.5 | 0.0 | 1.5 | 7.7 | 0.8 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.1 | 4.8 | 0.0 | 0.0 | 0.0 | 0.5 | 53.0 |
| 2015 | 2,078 | 2,3,4,5 | 4.2 | 0.0 | 0.5 | 2.1 | 1.7 | 1.6 | 1.1 | 0.0 | 0.0 | 0.3 | 0.0 | 0.7 | 14.2 | 1.7 | 0.1 | 0.0 | 0.0 | 0.0 | 0.2 | 1.1 | 0.0 | 0.0 | 0.0 | 1.7 | 3.3 | 0.0 | 0.0 | 0.0 | 4.8 | 60.6 |
| 2016 | 403 | 2,3,4,5 | 4.0 | 0.0 | 0.2 | 6.2 | 5.7 | 0.7 | 0.0 | 0.0 | 0.0 | 2.5 | 0.0 | 0.5 | 13.9 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.2 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 51.4 |
| 2017 | 471 | 2,3,4,5 | 7.6 | 0.0 | 2.1 | 7.0 | 1.1 | 1.5 | 0.0 | 0.0 | 0.0 | 0.8 | 0.0 | 0.0 | 15.5 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 3.8 | 3.8 | 0.0 | 0.0 | 0.0 | 0.8 | 55.0 |
| 2018 | 1,325 | 2,3,4,5 | 0.9 | 0.0 | 0.3 | 1.7 | 1.3 | 1.4 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 15.8 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 6.7 | 1.8 | 0.0 | 0.0 | 0.0 | 0.8 | 66.1 |
| 2019 | 1,058 | 2,3,4,5 | 0.5 | 0.0 | 0.0 | 0.0 | 0.9 | 0.0 | 0.7 | 0.0 | 0.0 | 0.7 | 0.0 | 0.5 | 1.9 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 0.0 | 0.0 | 0.0 | 2.4 | 3.8 | 0.0 | 0.0 | 0.0 | 5.0 | 83.0 |
| 2020 | 1,861 | 2,3,4,5 | 2.1 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.2 | 0.0 | 1.2 | 1.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.0 | 9.3 | 0.0 | 0.0 | 0.0 | 1.8 | 67.9 |
| 2021 | 766 | 2,3,4,5 | 1.7 | 0.0 | 2.1 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 2.0 | 0.0 | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 5.5 | 8.1 | 0.0 | 0.0 | 0.0 | 1.3 | 74.9 |
| 79-84 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 85-95 | 704 |  | 5.6 | 0.3 | 0.6 | 9.2 | 1.9 | 5.9 | 0.3 | 2.8 | 0.2 | 0.2 | 0.6 | 1.4 | 5.3 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 1.2 | 0.0 | 0.0 | 0.0 | 5.7 | 6.6 | 0.0 | 0.0 | 0.0 | 0.0 | 51.5 |
| 96-98 | 777 |  | 2.8 | 0.5 | 0.0 | 1.4 | 0.8 | 0.1 | 0.2 | 0.2 | 0.1 | 0.5 | 0.0 | 1.4 | 3.9 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 3.3 | 5.9 | 0.0 | 0.0 | 0.0 | 0.0 | 78.7 |
| 99-08 | 1,282 |  | 4.1 | 0.0 | 0.9 | 3.3 | 3.5 | 0.3 | 0.1 | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 | 6.5 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.4 | 0.0 | 0.0 | 0.0 | 4.0 | 7.6 | 0.0 | 0.0 | 0.0 | 0.0 | 68.4 |
| 09-18 | 1,069 |  | 5.3 | 0.0 | 0.9 | 6.0 | 4.1 | 1.5 | 0.8 | 0.0 | 0.0 | 0.7 | 0.0 | 0.8 | 13.7 | 0.9 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.2 | 0.0 | 0.0 | 0.0 | 5.3 | 2.9 | 0.0 | 0.0 | 0.0 | 2.1 | 54.8 |
| 19-28 | 1,228 |  | 1.4 | 0.0 | 0.9 | 0.0 | 0.3 | 0.0 | 0.6 | 0.0 | 0.0 | 2.3 | 0.0 | 1.0 | 1.3 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 0.0 | 0.0 | 0.0 | 6.3 | 7.1 | 0.0 | 0.0 | 0.0 | 2.7 | 75.3 |

Appendix C22- Percent distribution of Nicola River Spring adult equivalent (AEQ) total fishing mortalities and escapement.

|  | Est |  | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Catch | \# |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | $N$ Falcon |  | S Falcon |  | WAC <br> N | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
| Year | CWT | Ages | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 293 | 3,4,5,6 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.2 | 3.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.8 | 0.0 | 0.0 | 0.0 | 18.8 | 20.1 | 0.0 | 0.0 | 0.0 | 0.0 | 45.4 |
| 2010 | 2,328 | 3,4,5,6 | 0.4 | 0.0 | 0.0 | 1.5 | 0.2 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 4.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 90.2 |
| 2011 | 683 | 3,4,5,6 | 0.0 | 0.0 | 0.0 | 0.9 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 4.4 | 2.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 1.5 | 0.0 | 0.0 | 0.0 | 3.8 | 2.5 | 0.0 | 0.0 | 0.0 | 0.0 | 83.7 |
| 2012 | 722 | 3,4,5,6 | 0.0 | 0.0 | 0.0 | 0.6 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 4.0 | 8.2 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 17.2 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 67.3 |
| 2013 | 1,466 | 3,4,5,6 | 0.0 | 0.0 | 0.0 | 1.2 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.5 | 4.6 | 3.3 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 87.0 |
| 2014 | 436 | 3,4,5,6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.6 | 0.9 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.2 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 83.7 |
| 2015 | 1,549 | 3,4,5,6 | 0.0 | 0.0 | 0.0 | 0.3 | 0.2 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 3.4 | 0.9 | 0.2 | 0.0 | 0.0 | 0.0 | 0.2 | 0.6 | 0.0 | 0.0 | 0.0 | 10.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 83.1 |
| 2016 | 975 | 3,4,5,6 | 0.2 | 0.0 | 0.0 | 1.7 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 10.3 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 75.0 |
| 2017 | 1,085 | 3,4,5,6 | 0.0 | 0.0 | 0.0 | 0.9 | 0.0 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 3.4 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 84.8 |
| 2018 | 1,371 | 3,4,5,6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 3.3 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.4 | 0.0 | 0.0 | 0.0 | 11.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 82.0 |
| 2019 | 2,057 | 3,4,5,6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.6 | 0.7 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 96.0 |
| 2020 | 2,015 | 3,4,5,6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 0.8 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 1.4 | 0.0 | 0.0 | 0.0 | 25.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 70.9 |
| 2021 | 3,134 | 3,4,5,6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 0.4 | 0.1 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 94.1 |
| 79-84 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - |
| 85-95 | 1,236 |  | 0.0 | 0.1 | 0.0 | 1.6 | 0.1 | 4.3 | 0.4 | 0.5 | 0.1 | 0.0 | 0.0 | 0.7 | 4.8 | 1.7 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 2.8 | 0.0 | 0.0 | 0.0 | 7.8 | 7.4 | 0.0 | 0.0 | 0.0 | 0.5 | 66.9 |
| 96-98 | 321 |  | 0.0 | 0.0 | 0.0 | 0.0 | 2.4 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 2.0 | 3.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.6 | 0.0 | 0.0 | 0.0 | 5.9 | 11.6 | 0.0 | 0.0 | 0.0 | 0.0 | 68.1 |
| 99-08 | 1,265 |  | 0.0 | 0.0 | 0.0 | 1.1 | 0.3 | 1.6 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.1 | 0.8 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.1 | 7.1 | 0.0 | 0.0 | 0.0 | 0.0 | 73.8 |
| 09-18 | 1,091 |  | 0.1 | 0.0 | 0.0 | 0.7 | 0.1 | 0.5 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 4.4 | 2.4 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.8 | 0.0 | 0.0 | 0.0 | 9.4 | 2.4 | 0.0 | 0.0 | 0.0 | 0.0 | 78.2 |
| 19-28 | 2,402 |  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 0.6 | 0.3 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 0.0 | 0.0 | 0.0 | 10.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 87.0 |

Appendix C23- Percent distribution of Nisqually Fall Fingerling adult equivalent (AEQ) total fishing mortalities and escapement.

| Catch Year | Est | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | \# of <br> CWT |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | $N$ Falcon |  | S Falcon |  | $\begin{gathered} \text { WAC } \\ \mathrm{N} \end{gathered}$ | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 1,645 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.1 | 3.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 2.2 | 0.3 | 0.0 | 0.0 | 0.0 | 0.5 | 15.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 35.4 | 0.0 | 0.0 | 39.2 |
| 2010 | 1,719 | 2,3,4,5 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 4.6 | 3.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 4.7 | 0.7 | 0.1 | 0.0 | 0.3 | 0.2 | 9.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 32.5 | 3.3 | 0.0 | 38.7 |
| 2011 | 1,455 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 2.9 | 3.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 3.4 | 0.6 | 0.5 | 0.0 | 0.0 | 1.3 | 14.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 17.5 | 3.7 | 0.0 | 51.5 |
| 2012 | 1,489 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.7 | 1.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.3 | 5.7 | 1.1 | 0.3 | 0.0 | 0.0 | 0.5 | 13.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 15.6 | 13.3 | 0.0 | 44.0 |
| 2013 | 2,218 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.3 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.0 | 3.2 | 0.2 | 0.2 | 0.0 | 0.0 | 1.2 | 10.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 19.9 | 4.4 | 0.0 | 53.2 |
| 2014 | 896 | 2,3,4,5 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 4.4 | 4.7 | 0.0 | 0.0 | 0.8 | 0.0 | 0.0 | 2.0 | 5.8 | 1.8 | 0.0 | 0.0 | 0.0 | 0.1 | 18.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 23.9 | 0.0 | 0.1 | 37.6 |
| 2015 | 916 | 2,3,4,5 | 0.0 | 0.1 | 0.0 | 0.3 | 0.0 | 1.6 | 2.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 6.2 | 0.2 | 0.0 | 0.0 | 0.0 | 0.3 | 16.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 18.1 | 0.0 | 0.0 | 52.0 |
| 2016 | 2,455 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 1.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.1 | 1.5 | 0.8 | 0.0 | 0.0 | 0.0 | 0.1 | 11.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.6 | 0.3 | 0.0 | 72.1 |
| 2017 | 3,154 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 2.9 | 6.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.5 | 4.5 | 1.8 | 0.0 | 0.0 | 0.0 | 0.2 | 12.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 27.2 | 0.0 | 0.0 | 42.2 |
| 2018 | 1,944 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.9 | 1.5 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 7.2 | 5.8 | 1.0 | 0.1 | 0.0 | 0.0 | 0.2 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 21.5 | 0.0 | 0.1 | 40.5 |
| 2019 | 1,279 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 4.3 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 1.5 | 3.6 | 0.2 | 0.2 | 0.0 | 0.0 | 0.5 | 28.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 31.3 | 0.0 | 0.0 | 28.5 |
| 2020 | 831 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 23.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.8 | 0.0 | 0.0 | 67.0 |
| 2021 | NA |  |  | - | - | - | - | - | - |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  |  |
| 79-84 | 258 |  | 0.0 | 0.0 | 0.0 | 0.9 | 0.0 | 22.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 3.8 | 4.4 | 1.6 | 0.0 | 0.6 | 0.0 | 0.0 | 10.0 | 42.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.9 | 0.0 | 0.2 | 2.9 |
| 85-95 | 807 |  | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 10.9 | 2.2 | 0.4 | 0.4 | 0.0 | 0.4 | 1.8 | 8.3 | 6.5 | 0.2 | 0.3 | 0.0 | 0.2 | 4.3 | 23.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 19.8 | 0.5 | 0.1 | 19.6 |
| 96-98 | 1,036 |  | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 1.4 | 1.5 | 0.0 | 0.4 | 0.1 | 0.0 | 0.1 | 2.7 | 0.6 | 0.3 | 0.3 | 0.0 | 0.0 | 0.7 | 27.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 27.5 | 0.6 | 0.0 | 35.6 |
| 99-08 | 1,698 |  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.3 | 2.2 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 2.4 | 3.7 | 0.7 | 0.5 | 0.0 | 0.0 | 0.6 | 17.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 33.0 | 0.5 | 0.0 | 32.3 |
| 09-18 | 1,789 |  | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 2.5 | 3.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 2.5 | 4.3 | 0.9 | 0.1 | 0.0 | 0.0 | 0.5 | 14.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 22.0 | 2.5 | 0.0 | 47.1 |
| 19-28 | 1,055 |  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 2.2 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 1.6 | 1.8 | 0.1 | 0.1 | 0.0 | 0.0 | 0.4 | 26.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 19.5 | 0.0 | 0.0 | 47.8 |

Appendix C24- Percent distribution of Northern Southeast Alaska Spring adult equivalent (AEQ) total fishing mortalities and escapement.

| $\begin{aligned} & \text { Catch } \\ & \text { Year } \end{aligned}$ | Est <br> \# of <br> CWT | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | $N$ Falcon |  | S Falcon |  | WAC <br> N | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 214 | 3,4,5,6 | 38.3 | 14.0 | 1.4 | 0.0 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.4 | 0.0 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 40.2 |
| 2010 | 175 | 3,4,5,6 | 18.9 | 30.3 | 4.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.0 | 2.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 42.9 |
| 2011 | 192 | 3,4,5,6 | 20.3 | 25.0 | 3.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.3 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 43.8 |
| 2012 | 201 | 3,4,5,6 | 25.4 | 16.9 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.5 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 53.7 |
| 2013 | 416 | ,4,5,6 | 8.4 | 15.9 | 0.2 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 75.0 |
| 2014 | 343 | 3,4,5,6 | 26.8 | 14.6 | 1.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 2.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 53.4 |
| 2015 | 595 | 3,4,5,6 | 10.8 | 23.2 | 1.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 0.2 | 4.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 56.8 |
| 2016 | 370 | 3,4,5,6 | 25.7 | 6.5 | 5.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.7 | 0.0 | 13.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 45.7 |
| 2017 | 354 | 3,4,5,6 | 12.7 | 11.0 | 7.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.1 | 2.5 | 7.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 56.5 |
| 2018 | 311 | 3,4,5,6 | 18.0 | 9.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 67.2 |
| 2019 | 632 | 3,4,5,6 | 6.5 | 60.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.8 | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 30.7 |
| 2020 | 397 | 3,4,5,6 | 21.2 | 4.5 | 2.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 71.8 |
| 2021 | 254 | 3,4,5,6 | 43.3 | 18.9 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 10.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 25.2 |
| 79-84 | 2,704 |  | 29.5 | 2.3 | 12.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 1.8 | 0.0 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 52.8 |
| 85-95 | 1,780 |  | 30.2 | 10.4 | 7.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.8 | 0.1 | 2.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 39.7 |
| 96-98 | 804 |  | 14.0 | 9.5 | 6.6 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.4 | 0.2 | 5.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 52.8 |
| 99-08 | 823 |  | 15.9 | 8.8 | 5.7 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.1 | 0.2 | 10.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 55.8 |
| 09-18 | 317 |  | 20.5 | 16.6 | 2.7 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 0.6 | 3.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 53.5 |
| 19-28 | 428 |  | 23.7 | 27.8 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.4 | 3.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 42.6 |

Appendix C25- Percent distribution of Nooksack Spring Fingerling adult equivalent (AEQ) total fishing mortalities and escapement.

| Catch Year | Est <br> \# of <br> CWT | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | N Falcon |  | S Falcon |  | WAC <br> N | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 799 | 2,3,4,5 | 3.0 | 0.6 | 0.0 | 0.0 | 0.0 | 7.8 | 6.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 19.0 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.4 | 0.0 | 1.6 | 55.9 |
| 2010 | 936 | 2,3,4,5 | 3.0 | 0.3 | 0.0 | 0.6 | 0.0 | 19.6 | 8.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 4.7 | 2.2 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 3.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.0 | 0.2 | 56.8 |
| 2011 | 518 | 2,3,4,5 | 3.1 | 0.0 | 0.0 | 0.0 | 0.0 | 15.6 | 5.6 | 0.0 | 0.4 | 0.8 | 0.0 | 0.0 | 13.1 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.5 | 0.0 | 0.2 | 53.7 |
| 2012 | 469 | 2,3,4,5 | 4.9 | 0.9 | 0.6 | 0.0 | 0.0 | 14.7 | 6.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.7 | 13.2 | 3.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.8 | 0.0 | 1.5 | 36.9 |
| 2013 | 925 | 2,3,4,5 | 1.1 | 1.6 | 0.5 | 0.0 | 0.0 | 5.7 | 8.8 | 0.0 | 0.0 | 1.1 | 0.0 | 0.0 | 14.8 | 1.6 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 5.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.7 | 0.0 | 0.3 | 52.8 |
| 2014 | 1,393 | 2,3,4,5 | 4.5 | 0.8 | 0.0 | 0.3 | 0.4 | 9.2 | 8.3 | 0.0 | 0.0 | 3.5 | 0.0 | 0.0 | 20.2 | 0.6 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 6.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.4 | 39.8 |
| 2015 | 1,654 | 2,3,4,5 | 4.4 | 0.1 | 0.0 | 0.2 | 0.0 | 3.8 | 1.5 | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 | 10.5 | 2.4 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 3.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 0.0 | 0.1 | 71.8 |
| 2016 | 1,779 | 2,3,4,5 | 4.0 | 0.3 | 0.0 | 1.3 | 0.0 | 6.0 | 2.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 10.6 | 0.4 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.4 | 0.0 | 0.7 | 69.6 |
| 2017 | 2,139 | 2,3,4,5 | 1.3 | 0.1 | 0.0 | 0.6 | 0.6 | 12.0 | 9.0 | 0.0 | 0.0 | 0.8 | 0.0 | 0.0 | 11.2 | 1.2 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.4 | 0.0 | 0.8 | 57.9 |
| 2018 | 1,918 | 2,3,4,5 | 1.7 | 0.8 | 0.0 | 0.0 | 0.0 | 3.4 | 2.9 | 0.0 | 0.4 | 2.2 | 0.0 | 0.0 | 12.6 | 0.7 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.3 | 0.0 | 0.1 | 62.8 |
| 2019 | 1,058 | 2,3,4,5 | 2.4 | 0.2 | 0.0 | 0.3 | 0.2 | 2.8 | 2.2 | 0.0 | 0.0 | 0.7 | 0.0 | 0.0 | 9.9 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 4.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.9 | 0.0 | 0.2 | 63.4 |
| 2020 | 1,226 | 2,3,4,5 | 4.3 | 1.1 | 0.1 | 0.0 | 0.0 | 1.1 | 4.5 | 0.0 | 0.0 | 2.4 | 0.0 | 0.0 | 14.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 3.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.1 | 0.0 | 0.1 | 53.9 |
| 2021 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - |  |  | - |
| 79-84 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - |  |  | - |
| 85-95 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 96-98 | 1,555 |  | 5.4 | 0.2 | 0.3 | 0.1 | 0.0 | 1.7 | 3.4 | 0.3 | 2.0 | 0.3 | 0.0 | 0.4 | 10.7 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 5.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 1.0 | 67.3 |
| 99-08 | 974 |  | 3.3 | 0.1 | 0.2 | 0.3 | 0.0 | 20.7 | 5.5 | 0.0 | 0.1 | 0.3 | 0.0 | 0.0 | 8.5 | 0.9 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 2.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 0.1 | 0.7 | 55.4 |
| 09-18 | 1,253 |  | 3.1 | 0.6 | 0.1 | 0.3 | 0.1 | 9.8 | 5.8 | 0.0 | 0.1 | 0.9 | 0.0 | 0.2 | 13.0 | 1.5 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 4.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.6 | 0.0 | 0.6 | 55.8 |
| 19-28 | 1,142 |  | 3.3 | 0.6 | 0.0 | 0.1 | 0.1 | 1.9 | 3.3 | 0.0 | 0.0 | 1.5 | 0.0 | 0.0 | 12.2 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 4.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.5 | 0.0 | 0.1 | 58.7 |

Appendix C26 - Percent distribution of Phillips River Fall adult equivalent (AEQ) total fishing mortalities and escapement.

| Catch Year | Est <br> \# of <br> CWT | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | $N$ Falcon |  | S Falcon |  | WAC N | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | NA |  | - | - | - | - |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - | - | - |  |  |  |  |  | - |
| 2010 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - | - | - | - |  | - | - | - | - |
| 2011 | 20 | 2 |  | ed Cri | eria | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2012 | 56 | 2,3 | 16.1 | 5.4 | 3.6 | 0.0 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 7.1 | 0.0 | 0.0 | 14.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 51.8 |
| 2013 | 646 | 2,3,4 | 6.3 | 6.5 | 2.8 | 0.0 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 3.6 | 0.0 | 0.0 | 3.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 76.5 |
| 2014 | 1,341 | 2,3,4,5 | 9.3 | 4.7 | 1.3 | 0.8 | 1.3 | 0.3 | 0.0 | 0.0 | 0.1 | 6.6 | 0.0 | 0.0 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 71.3 |
| 2015 | 1,692 | 2,3,4,5 | 12.1 | 0.9 | 2.7 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 7.3 | 0.0 | 0.0 | 5.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 71.0 |
| 2016 | 1,859 | 2,3,4,5 | 15.5 | 4.7 | 1.2 | 0.9 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 6.6 | 0.0 | 0.0 | 6.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 63.2 |
| 2017 | 1,791 | 2,3,4,5 | 9.3 | 0.3 | 1.1 | 1.2 | 2.8 | 0.0 | 0.0 | 0.0 | 0.2 | 6.4 | 0.0 | 0.0 | 8.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 70.1 |
| 2018 | 785 | 2,3,4,5 | 6.8 | 2.2 | 1.3 | 0.4 | 2.4 | 0.0 | 0.0 | 0.0 | 0.8 | 9.9 | 0.0 | 0.0 | 12.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 64.1 |
| 2019 | 1,429 | 2,3,4,5 | 3.1 | 5.5 | 0.3 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 5.9 | 0.0 | 0.1 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 83.4 |
| 2020 | 1,593 | 2,3,4,5 | 11.1 | 1.2 | 0.4 | 0.0 | 0.8 | 0.0 | 0.1 | 0.0 | 0.0 | 5.2 | 0.0 | 0.0 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 79.3 |
| 2021 | 870 | 2,3,4,5 | 13.1 | 5.5 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.0 | 0.0 | 0.0 | 4.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 66.2 |
| 79-84 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 85-95 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 96-98 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 99-08 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 09-18 | 1,352 |  | 9.9 | 3.2 | 1.7 | 0.5 | 1.7 | 0.0 | 0.0 | 0.0 | 0.2 | 6.7 | 0.0 | 0.0 | 6.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 69.4 |
| 19-28 | 1,297 |  | 9.1 | 4.1 | 0.9 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 6.4 | 0.0 | 0.0 | 2.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 76.3 |

Appendix C27- Percent distribution of Puntledge River Summer adult equivalent (AEQ) total fishing mortalities and escapement.

| Catch <br> Year | Est <br> \# of <br> CWT | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | $N$ Falcon |  | S Falcon |  | $\begin{gathered} \text { WAC } \\ \mathrm{N} \end{gathered}$ | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 612 | 2,3,4,5 | 5.2 | 1.8 | 0.2 | 1.1 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 76.5 |
| 2010 | 491 | 2,3,4,5 | 7.3 | 0.8 | 0.0 | 0.0 | 1.0 | 1.6 | 1.0 | 0.0 | 0.0 | 2.9 | 0.0 | 0.0 | 15.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 69.9 |
| 2011 | 332 | 2,3,4,5 | 6.6 | 3.3 | 0.3 | 1.2 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 8.4 | 0.0 | 0.0 | 11.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 66.9 |
| 2012 | 216 | 2,3,4,5 | 12.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.8 | 0.0 | 0.0 | 2.3 | 0.0 | 0.0 | 25.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 56.9 |
| 2013 | 273 | 2,3,4,5 | 0.0 | 1.5 | 0.0 | 1.5 | 2.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 32.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 61.9 |
| 2014 | 506 | 2,3,4,5 | 1.6 | 0.0 | 1.2 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 1.0 | 0.0 | 0.0 | 23.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 71.7 |
| 2015 | 338 | 2,3,4,5 | 6.2 | 0.0 | 0.0 | 0.0 | 1.5 | 0.9 | 0.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 18.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 65.7 |
| 2016 | 426 | 2,3,4,5 | 4.9 | 4.9 | 0.5 | 2.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.5 | 0.0 | 0.0 | 33.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 50.0 |
| 2017 | 369 | 2,3,4,5 | 7.6 | 0.5 | 0.5 | 0.0 | 1.6 | 1.4 | 0.0 | 0.0 | 0.3 | 9.2 | 0.0 | 0.0 | 38.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 40.1 |
| 2018 | 463 | 2,3,4,5 | 3.7 | 0.0 | 1.1 | 0.6 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 3.7 | 0.0 | 0.0 | 30.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 60.3 |
| 2019 | 325 | 2,3,4,5 | 6.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 7.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 83.4 |
| 2020 | 352 | 2,3,4,5 | 8.0 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.9 | 0.0 | 0.0 | 29.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 49.7 |
| 2021 | 276 | 2,3,4,5 | 3.3 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.3 | 0.0 | 0.0 | 9.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 79.0 |
| 79-84 | 749 |  | 1.3 | 0.3 | 0.1 | 4.0 | 0.0 | 2.2 | 0.0 | 10.2 | 4.9 | 0.1 | 13.3 | 6.6 | 23.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 32.9 |
| 85-95 | 164 |  | 6.9 | 2.4 | 2.1 | 6.0 | 0.8 | 0.6 | 1.1 | 2.0 | 7.5 | 1.4 | 3.2 | 3.0 | 34.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 28.7 |
| 96-98 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 99-08 | 257 |  | 4.4 | 1.7 | 0.2 | 0.4 | 0.0 | 0.5 | 2.4 | 0.0 | 0.2 | 2.2 | 0.0 | 0.0 | 11.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 75.6 |
| 09-18 | 403 |  | 5.5 | 1.3 | 0.4 | 0.8 | 0.9 | 0.4 | 0.4 | 0.0 | 0.0 | 3.4 | 0.0 | 0.0 | 24.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 62.0 |
| 19-28 | 318 |  | 6.0 | 0.4 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.6 | 0.0 | 0.0 | 15.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 70.7 |

Appendix C28- Percent distribution of Queets Fall Fingerling adult equivalent (AEQ) total fishing mortalities and escapement.

| Catch Year | Est <br> \# of <br> CWT | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | N Falcon |  | S Falcon |  | WAC <br> N | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 1,700 | 2,3,4,5 | 27.7 | 1.6 | 3.6 | 9.9 | 3.4 | 0.1 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 17.2 | 0.0 | 0.3 | 35.1 |
| 2010 | 2,695 | 2,3,4,5 | 21.2 | 0.0 | 4.2 | 4.6 | 4.6 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.2 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.2 | 0.0 | 0.0 | 50.2 |
| 2011 | 2,750 | 2,3,4,5 | 23.2 | 0.1 | 3.5 | 5.9 | 4.9 | 0.1 | 0.2 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.3 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.3 | 0.0 | 0.0 | 41.3 |
| 2012 | 2,761 | 2,3,4,5 | 37.9 | 0.2 | 2.8 | 8.7 | 7.3 | 0.9 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.7 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 19.8 | 0.0 | 0.4 | 20.0 |
| 2013 | 1,795 | 2,3,4,5 | 19.3 | 0.9 | 5.7 | 8.5 | 16.3 | 0.4 | 1.0 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.8 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 19.4 | 0.0 | 0.0 | 26.7 |
| 2014 | 2,256 | 2,3,4,5 | 24.4 | 1.1 | 3.4 | 7.4 | 6.2 | 0.8 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.4 | 0.0 | 0.0 | 41.8 |
| 2015 | 2,226 | 2,3,4,5 | 19.0 | 0.0 | 5.4 | 7.6 | 8.1 | 0.4 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.7 | 0.0 | 0.7 | 50.8 |
| 2016 | 1,520 | 2,3,4,5 | 28.5 | 0.1 | 2.6 | 18.0 | 1.8 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.3 | 0.0 | 0.0 | 38.4 |
| 2017 | 1,286 | 2,3,4,5 | 13.5 | 0.0 | 3.2 | 8.9 | 2.2 | 1.3 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 24.3 | 0.0 | 0.0 | 44.6 |
| 2018 | 1,454 | 2,3,4,5 | 20.7 | 0.0 | 5.3 | 20.6 | 3.6 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.8 | 0.0 | 0.0 | 34.0 |
| 2019 | 1,372 | 2,3,4,5 | 21.6 | 0.7 | 0.7 | 20.8 | 5.0 | 0.9 | 0.7 | 0.0 | 0.0 | 0.9 | 0.0 | 0.0 | 1.5 | 1.3 | 0.3 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 18.1 | 0.0 | 0.0 | 27.1 |
| 2020 | 968 | 3,4,5 | 27.9 | 1.0 | 1.9 | 11.1 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 27.8 | 0.0 | 0.0 | 29.5 |
| 2021 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 79-84 | 203 |  | 25.0 | 0.8 | 0.0 | 20.1 | 0.9 | 9.1 | 0.0 | 0.0 | 0.4 | 0.4 | 0.0 | 0.5 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 22.4 | 0.0 | 0.0 | 19.1 |
| 85-95 | 813 |  | 20.5 | 1.2 | 0.8 | 13.0 | 1.3 | 6.7 | 0.0 | 0.6 | 0.2 | 0.0 | 0.0 | 0.2 | 0.2 | 0.1 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 16.7 | 0.0 | 0.0 | 37.2 |
| 96-98 | 826 |  | 27.9 | 0.2 | 1.4 | 9.2 | 0.0 | 0.2 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 15.3 | 0.0 | 0.0 | 44.1 |
| 99-08 | 1,761 |  | 17.3 | 0.1 | 3.5 | 6.7 | 3.6 | 0.8 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.5 | 0.0 | 1.2 | 53.5 |
| 09-18 | 2,044 |  | 23.5 | 0.4 | 4.0 | 10.0 | 5.8 | 0.5 | 0.6 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 | 0.3 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 15.9 | 0.0 | 0.1 | 38.3 |
| 19-28 | 1,170 |  | 24.8 | 0.8 | 1.3 | 15.9 | 2.5 | 0.8 | 0.3 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.7 | 0.8 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 23.0 | 0.0 | 0.0 | 28.3 |

Appendix C29 - Percent distribution of Quillayute adult equivalent (AEQ) total fishing mortalities and escapement Queets River Fall (QUE) coded-wire tag (CWT) recoveries with terminal adjustments for basin-specific performance.

| Catch Year | Est \# of CWT | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | N Falcon |  | S Falcon |  | WAC <br> N | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 1,700 | 2,3,4,5 | 27.7 | 1.6 | 3.6 | 9.9 | 3.4 | 0.1 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 21.3 | 3.1 | 0.3 | 27.9 |
| 2010 | 2,695 | 2,3,4,5 | 21.2 | 0.0 | 4.2 | 4.6 | 4.6 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.2 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 16.6 | 5.1 | 0.0 | 42.7 |
| 2011 | 2,750 | 2,3,4,5 | 23.2 | 0.1 | 3.5 | 5.9 | 4.9 | 0.1 | 0.2 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.3 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 17.7 | 7.8 | 0.0 | 36.1 |
| 2012 | 2,761 | 2,3,4,5 | 37.9 | 0.2 | 2.8 | 8.7 | 7.3 | 0.9 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.7 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 16.7 | 2.1 | 0.4 | 20.9 |
| 2013 | 1,795 | 2,3,4,5 | 19.3 | 0.9 | 5.7 | 8.5 | 16.3 | 0.4 | 1.0 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.8 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.2 | 6.7 | 0.0 | 26.2 |
| 2014 | 2,256 | 2,3,4,5 | 24.4 | 1.1 | 3.4 | 7.4 | 6.2 | 0.8 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 31.1 | 3.1 | 0.0 | 21.0 |
| 2015 | 2,226 | 2,3,4,5 | 19.0 | 0.0 | 5.4 | 7.6 | 8.1 | 0.4 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.4 | 7.4 | 0.7 | 29.7 |
| 2016 | 1,520 | 2,3,4,5 | 28.5 | 0.1 | 2.6 | 18.0 | 1.8 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.9 | 0.3 | 0.0 | 35.5 |
| 2017 | 1,286 | 2,3,4,5 | 13.5 | 0.0 | 3.2 | 8.9 | 2.2 | 1.3 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 34.3 | 3.4 | 0.0 | 31.2 |
| 2018 | 1,454 | 2,3,4,5 | 20.7 | 0.0 | 5.3 | 20.6 | 3.6 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.5 | 5.2 | 0.0 | 28.1 |
| 2019 | 1,372 | 2,3,4,5 | 21.6 | 0.7 | 0.7 | 20.8 | 5.0 | 0.9 | 0.7 | 0.0 | 0.0 | 0.9 | 0.0 | 0.0 | 1.5 | 1.3 | 0.3 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.8 | 3.8 | 0.0 | 34.6 |
| 2020 | 968 | 3,4,5 | 27.9 | 1.0 | 1.9 | 11.1 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.4 | 3.9 | 0.0 | 45.0 |
| 2021 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 79-84 | 203 |  | 25.0 | 0.8 | 0.0 | 20.1 | 0.9 | 9.1 | 0.0 | 0.0 | 0.4 | 0.4 | 0.0 | 0.5 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.5 | 0.5 | 0.0 | 30.5 |
| 85-95 | 813 |  | 20.5 | 1.2 | 0.8 | 13.0 | 1.3 | 6.7 | 0.0 | 0.6 | 0.2 | 0.0 | 0.0 | 0.2 | 0.2 | 0.1 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.0 | 1.9 | 0.0 | 41.0 |
| 96-98 | 826 |  | 27.9 | 0.2 | 1.4 | 9.2 | 0.0 | 0.2 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.9 | 3.0 | 0.0 | 50.7 |
| 99-08 | 1,761 |  | 17.3 | 0.1 | 3.5 | 6.7 | 3.6 | 0.8 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.6 | 4.4 | 1.2 | 47.1 |
| 09-18 | 2,044 |  | 23.5 | 0.4 | 4.0 | 10.0 | 5.8 | 0.5 | 0.6 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 | 0.3 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 19.9 | 4.4 | 0.1 | 29.9 |
| 19-28 | 1,170 |  | 24.8 | 0.8 | 1.3 | 15.9 | 2.5 | 0.8 | 0.3 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.7 | 0.8 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.6 | 3.9 | 0.0 | 39.8 |

Appendix C30- Percent distribution of Grays Harbor adult equivalent (AEQ) total fishing mortalities and escapement Queets River Fall (QUE) coded-wire tag (CWT) recoveries with terminal adjustments for basin-specific performance.

| Catch Year | Est | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | \# of <br> CWT |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | $N$ Falcon |  | S Falcon |  | WAC <br> N | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 1,700 | 2,3,4,5 | 27.7 | 1.6 | 3.6 | 9.9 | 3.4 | 0.1 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.7 | 3.7 | 0.3 | 35.9 |
| 2010 | 2,695 | 2,3,4,5 | 21.2 | 0.0 | 4.2 | 4.6 | 4.6 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.2 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.2 | 5.8 | 0.0 | 46.4 |
| 2011 | 2,750 | 2,3,4,5 | 23.2 | 0.1 | 3.5 | 5.9 | 4.9 | 0.1 | 0.2 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.3 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.7 | 6.1 | 0.0 | 40.8 |
| 2012 | 2,761 | 2,3,4,5 | 37.9 | 0.2 | 2.8 | 8.7 | 7.3 | 0.9 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.7 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.0 | 6.8 | 0.4 | 24.0 |
| 2013 | 1,795 | 2,3,4,5 | 19.3 | 0.9 | 5.7 | 8.5 | 16.3 | 0.4 | 1.0 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.8 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.1 | 8.1 | 0.0 | 30.9 |
| 2014 | 2,256 | 2,3,4,5 | 24.4 | 1.1 | 3.4 | 7.4 | 6.2 | 0.8 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.6 | 2.6 | 0.0 | 38.1 |
| 2015 | 2,226 | 2,3,4,5 | 19.0 | 0.0 | 5.4 | 7.6 | 8.1 | 0.4 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 17.9 | 6.3 | 0.7 | 33.3 |
| 2016 | 1,520 | 2,3,4,5 | 28.5 | 0.1 | 2.6 | 18.0 | 1.8 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.8 | 7.0 | 0.0 | 35.9 |
| 2017 | 1,286 | 2,3,4,5 | 13.5 | 0.0 | 3.2 | 8.9 | 2.2 | 1.3 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.9 | 7.1 | 0.0 | 51.9 |
| 2018 | 1,454 | 2,3,4,5 | 20.7 | 0.0 | 5.3 | 20.6 | 3.6 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.5 | 6.1 | 0.0 | 37.1 |
| 2019 | 1,372 | 2,3,4,5 | 21.6 | 0.7 | 0.7 | 20.8 | 5.0 | 0.9 | 0.7 | 0.0 | 0.0 | 0.9 | 0.0 | 0.0 | 1.5 | 1.3 | 0.3 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.5 | 4.3 | 0.0 | 35.4 |
| 2020 | 968 | 3,4,5 | 27.9 | 1.0 | 1.9 | 11.1 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.5 | 3.6 | 0.0 | 46.2 |
| 2021 | NA |  |  | - | - | - | - | - |  | - |  | - | - | - | - | - | - | - | - | - | - |  | - | - | - | - | - | - | - | - | - | - |
| 79-84 | 203 |  | 25.0 | 0.8 | 0.0 | 20.1 | 0.9 | 9.1 | 0.0 | 0.0 | 0.4 | 0.4 | 0.0 | 0.5 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.9 | 0.5 | 0.0 | 26.1 |
| 85-95 | 813 |  | 20.5 | 1.2 | 0.8 | 13.0 | 1.3 | 6.7 | 0.0 | 0.6 | 0.2 | 0.0 | 0.0 | 0.2 | 0.2 | 0.1 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 22.1 | 3.9 | 0.0 | 28.0 |
| 96-98 | 826 |  | 27.9 | 0.2 | 1.4 | 9.2 | 0.0 | 0.2 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.5 | 9.6 | 0.0 | 37.5 |
| 99-08 | 1,761 |  | 17.3 | 0.1 | 3.5 | 6.7 | 3.6 | 0.8 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.4 | 5.4 | 1.2 | 50.2 |
| 09-18 | 2,044 |  | 23.5 | 0.4 | 4.0 | 10.0 | 5.8 | 0.5 | 0.6 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 | 0.3 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.9 | 5.9 | 0.1 | 37.4 |
| 19-28 | 1,170 |  | 24.8 | 0.8 | 1.3 | 15.9 | 2.5 | 0.8 | 0.3 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.7 | 0.8 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.5 | 4.0 | 0.0 | 40.8 |

Appendix C31- Percent distribution of Hoh River adult equivalent (AEQ) total fishing mortalities and escapement Queets River Fall (QUE) coded-wire tag (CWT) recoveries with terminal adjustments for basin-specific performance.

| Catch Year | Est <br> \# of <br> CWT | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | N Falcon |  | S Falcon |  | WAC N | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 1,700 | 2,3,4,5 | 27.7 | 1.6 | 3.6 | 9.9 | 3.4 | 0.1 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.2 | 2.5 | 0.3 | 39.6 |
| 2010 | 2,695 | 2,3,4,5 | 21.2 | 0.0 | 4.2 | 4.6 | 4.6 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.2 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.5 | 5.7 | 0.0 | 52.2 |
| 2011 | 2,750 | 2,3,4,5 | 23.2 | 0.1 | 3.5 | 5.9 | 4.9 | 0.1 | 0.2 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.3 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.1 | 10.7 | 0.0 | 36.8 |
| 2012 | 2,761 | 2,3,4,5 | 37.9 | 0.2 | 2.8 | 8.7 | 7.3 | 0.9 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.7 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.3 | 2.9 | 0.4 | 25.5 |
| 2013 | 1,795 | 2,3,4,5 | 19.3 | 0.9 | 5.7 | 8.5 | 16.3 | 0.4 | 1.0 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.8 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 22.1 | 6.2 | 0.0 | 17.8 |
| 2014 | 2,256 | 2,3,4,5 | 24.4 | 1.1 | 3.4 | 7.4 | 6.2 | 0.8 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.5 | 2.7 | 0.0 | 40.0 |
| 2015 | 2,226 | 2,3,4,5 | 19.0 | 0.0 | 5.4 | 7.6 | 8.1 | 0.4 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.9 | 4.3 | 0.7 | 42.3 |
| 2016 | 1,520 | 2,3,4,5 | 28.5 | 0.1 | 2.6 | 18.0 | 1.8 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.7 | 0.0 | 45.8 |
| 2017 | 1,286 | 2,3,4,5 | 13.5 | 0.0 | 3.2 | 8.9 | 2.2 | 1.3 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.1 | 5.9 | 0.0 | 49.0 |
| 2018 | 1,454 | 2,3,4,5 | 20.7 | 0.0 | 5.3 | 20.6 | 3.6 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.4 | 1.6 | 0.0 | 43.7 |
| 2019 | 1,372 | 2,3,4,5 | 21.6 | 0.7 | 0.7 | 20.8 | 5.0 | 0.9 | 0.7 | 0.0 | 0.0 | 0.9 | 0.0 | 0.0 | 1.5 | 1.3 | 0.3 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.0 | 5.1 | 0.0 | 27.2 |
| 2020 | 968 | 3,4,5 | 27.9 | 1.0 | 1.9 | 11.1 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 17.9 | 3.3 | 0.0 | 36.1 |
| 2021 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  |
| 79-84 | 203 |  | 25.0 | 0.8 | 0.0 | 20.1 | 0.9 | 9.1 | 0.0 | 0.0 | 0.4 | 0.4 | 0.0 | 0.5 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.1 | 1.1 | 0.0 | 31.4 |
| 85-95 | 813 |  | 20.5 | 1.2 | 0.8 | 13.0 | 1.3 | 6.7 | 0.0 | 0.6 | 0.2 | 0.0 | 0.0 | 0.2 | 0.2 | 0.1 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.3 | 2.0 | 0.0 | 37.7 |
| 96-98 | 826 |  | 27.9 | 0.2 | 1.4 | 9.2 | 0.0 | 0.2 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.6 | 2.9 | 0.0 | 43.1 |
| 99-08 | 1,761 |  | 17.3 | 0.1 | 3.5 | 6.7 | 3.6 | 0.8 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.3 | 6.2 | 1.2 | 46.5 |
| 09-18 | 2,044 |  | 23.5 | 0.4 | 4.0 | 10.0 | 5.8 | 0.5 | 0.6 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 | 0.3 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.6 | 4.3 | 0.1 | 39.3 |
| 19-28 | 1,170 |  | 24.8 | 0.8 | 1.3 | 15.9 | 2.5 | 0.8 | 0.3 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.7 | 0.8 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 15.5 | 4.2 | 0.0 | 31.6 |

Appendix C32 - Percent distribution of Quinsam River Fall adult equivalent (AEQ) total fishing mortalities and escapement.

| Catch Year | Est <br> \# of <br> CWT | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | N Falcon |  | S Falcon |  | WAC <br> N | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 458 | 2,3,4,5 | 11.8 | 4.4 | 2.2 | 0.9 | 5.2 | 0.0 | 1.5 | 0.0 | 0.0 | 4.4 | 0.0 | 1.5 | 10.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 57.6 |
| 2010 | 477 | 2,3,4,5 | 8.2 | 7.5 | 1.0 | 0.0 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 4.4 | 0.0 | 0.0 | 24.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 51.8 |
| 2011 | 756 | 2,3,4,5 | 10.8 | 7.9 | 0.7 | 0.0 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 | 13.0 | 0.0 | 0.0 | 4.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 60.6 |
| 2012 | 745 | 2,3,4,5 | 19.2 | 7.2 | 2.7 | 0.8 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 10.2 | 0.0 | 0.0 | 7.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 51.3 |
| 2013 | 729 | 2,3,4,5 | 10.8 | 7.4 | 1.0 | 0.4 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 5.2 | 0.0 | 0.0 | 4.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 68.3 |
| 2014 | 498 | 2,3,4,5 | 11.8 | 5.8 | 1.4 | 0.0 | 0.4 | 0.0 | 0.0 | 0.2 | 0.0 | 4.0 | 0.0 | 0.0 | 6.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 69.7 |
| 2015 | 872 | 2,3,4,5 | 9.7 | 5.6 | 1.4 | 0.0 | 0.9 | 0.0 | 0.6 | 0.0 | 0.0 | 10.0 | 0.0 | 0.0 | 17.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 53.2 |
| 2016 | 2,487 | 2,3,4,5 | 11.6 | 5.3 | 2.5 | 0.2 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 | 10.8 | 0.0 | 0.0 | 10.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 56.9 |
| 2017 | 2,563 | 2,3,4,5 | 11.2 | 1.4 | 2.5 | 1.1 | 2.5 | 0.0 | 0.3 | 0.0 | 0.0 | 10.9 | 0.0 | 0.0 | 12.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 57.2 |
| 2018 | 2,007 | 2,3,4,5 | 9.9 | 2.4 | 1.4 | 2.4 | 6.2 | 0.0 | 0.0 | 0.0 | 1.0 | 12.8 | 0.0 | 0.0 | 13.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 50.3 |
| 2019 | 2,347 | 2,3,4,5 | 8.2 | 10.1 | 2.0 | 0.4 | 3.5 | 0.0 | 0.4 | 0.0 | 0.0 | 19.6 | 0.0 | 0.0 | 7.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 48.1 |
| 2020 | 1,801 | 2,3,4,5 | 13.4 | 6.3 | 0.9 | 1.3 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.9 | 0.0 | 0.0 | 8.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.7 | 0.0 | 0.0 | 0.0 | 0.7 | 59.8 |
| 2021 | 2,450 | 2,3,4,5 | 12.9 | 9.8 | 1.5 | 0.7 | 0.7 | 0.1 | 0.0 | 0.0 | 0.0 | 4.3 | 0.0 | 0.0 | 17.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 52.2 |
| 79-84 | 1,504 |  | 15.7 | 4.0 | 2.8 | 9.8 | 0.0 | 0.4 | 0.0 | 10.5 | 15.3 | 2.8 | 1.2 | 6.6 | 7.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 23.5 |
| 85-95 | 1,184 |  | 14.1 | 10.4 | 2.1 | 7.1 | 0.3 | 0.5 | 0.0 | 5.0 | 11.3 | 3.0 | 0.4 | 4.7 | 7.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 33.6 |
| 96-98 | 453 |  | 11.0 | 3.0 | 1.9 | 1.7 | 0.9 | 0.1 | 0.6 | 0.9 | 7.3 | 3.1 | 0.0 | 0.7 | 12.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 56.5 |
| 99-08 | 840 |  | 14.7 | 4.8 | 2.6 | 0.8 | 1.0 | 0.0 | 0.0 | 0.0 | 0.6 | 7.7 | 0.0 | 0.2 | 6.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 61.4 |
| 09-18 | 1,159 |  | 11.5 | 5.5 | 1.7 | 0.6 | 2.3 | 0.0 | 0.2 | 0.0 | 0.1 | 8.6 | 0.0 | 0.2 | 11.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 57.7 |
| 19-28 | 2,199 |  | 11.5 | 8.8 | 1.4 | 0.8 | 1.7 | 0.0 | 0.1 | 0.0 | 0.0 | 10.3 | 0.0 | 0.0 | 11.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.2 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.3 | 53.3 |

Appendix C33- Percent distribution of East Vancouver Island North adult equivalent (AEQ) total fishing mortalities and escapement Quinsam River Fall (QUI) coded-wire tag (CWT) recoveries with terminal adjustments for basin-specific performance.

| Catch Year | Est <br> \# of <br> CWT | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | N Falcon |  | S Falcon |  | $\begin{gathered} \text { WAC } \\ \mathrm{N} \end{gathered}$ | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 458 | 2,3,4,5 | 11.8 | 4.4 | 2.2 | 0.9 | 5.2 | 0.0 | 1.5 | 0.0 | 0.0 | 4.4 | 0.0 | 1.5 | 8.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 59.6 |
| 2010 | 477 | 2,3,4,5 | 8.2 | 7.5 | 1.0 | 0.0 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 4.4 | 0.0 | 0.0 | 17.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 58.3 |
| 2011 | 756 | 2,3,4,5 | 10.8 | 7.9 | 0.7 | 0.0 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 | 13.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 63.5 |
| 2012 | 745 | 2,3,4,5 | 19.2 | 7.2 | 2.7 | 0.8 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 10.2 | 0.0 | 0.0 | 3.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 55.3 |
| 2013 | 729 | 2,3,4,5 | 10.8 | 7.4 | 1.0 | 0.4 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 5.2 | 0.0 | 0.0 | 2.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 70.1 |
| 2014 | 498 | 2,3,4,5 | 11.8 | 5.8 | 1.4 | 0.0 | 0.4 | 0.0 | 0.0 | 0.2 | 0.0 | 4.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 70.9 |
| 2015 | 872 | 2,3,4,5 | 9.7 | 5.6 | 1.4 | 0.0 | 0.9 | 0.0 | 0.6 | 0.0 | 0.0 | 10.0 | 0.0 | 0.0 | 16.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 54.4 |
| 2016 | 2,487 | 2,3,4,5 | 11.6 | 5.3 | 2.5 | 0.2 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 | 10.8 | 0.0 | 0.0 | 6.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 61.3 |
| 2017 | 2,563 | 2,3,4,5 | 11.2 | 1.4 | 2.5 | 1.1 | 2.5 | 0.0 | 0.3 | 0.0 | 0.0 | 10.9 | 0.0 | 0.0 | 9.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 60.7 |
| 2018 | 2,007 | 2,3,4,5 | 9.9 | 2.4 | 1.4 | 2.4 | 6.2 | 0.0 | 0.0 | 0.0 | 1.0 | 12.8 | 0.0 | 0.0 | 10.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 52.7 |
| 2019 | 2,347 | 2,3,4,5 | 8.2 | 10.1 | 2.0 | 0.4 | 3.5 | 0.0 | 0.4 | 0.0 | 0.0 | 19.6 | 0.0 | 0.0 | 6.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 48.8 |
| 2020 | 1,801 | 2,3,4,5 | 13.4 | 6.3 | 0.9 | 1.3 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.9 | 0.0 | 0.0 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 64.5 |
| 2021 | 2,450 | 2,3,4,5 | 12.9 | 9.8 | 1.5 | 0.7 | 0.7 | 0.1 | 0.0 | 0.0 | 0.0 | 4.3 | 0.0 | 0.0 | 16.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 53.8 |
| 79-84 | 1,504 |  | 15.7 | 4.0 | 2.8 | 9.8 | 0.0 | 0.4 | 0.0 | 10.5 | 15.3 | 2.8 | 1.2 | 6.6 | 6.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 24.3 |
| 85-95 | 1,184 |  | 14.1 | 10.4 | 2.1 | 7.1 | 0.3 | 0.5 | 0.0 | 5.0 | 11.3 | 3.0 | 0.4 | 4.7 | 5.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 35.4 |
| 96-98 | 453 |  | 11.0 | 3.0 | 1.9 | 1.7 | 0.9 | 0.1 | 0.6 | 0.9 | 7.3 | 3.1 | 0.0 | 0.7 | 9.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 59.4 |
| 99-08 | 840 |  | 14.7 | 4.8 | 2.6 | 0.8 | 1.0 | 0.0 | 0.0 | 0.0 | 0.6 | 7.7 | 0.0 | 0.2 | 2.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 64.9 |
| 09-18 | 1,159 |  | 11.5 | 5.5 | 1.7 | 0.6 | 2.3 | 0.0 | 0.2 | 0.0 | 0.1 | 8.6 | 0.0 | 0.2 | 8.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 60.7 |
| 19-28 | 2,199 |  | 11.5 | 8.8 | 1.4 | 0.8 | 1.7 | 0.0 | 0.1 | 0.0 | 0.0 | 10.3 | 0.0 | 0.0 | 9.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 55.7 |

Appendix C34- Percent distribution of Robertson Creek Fall adult equivalent (AEQ) total fishing mortalities and escapement.

| Catch Year | Est <br> \# of <br> CWT | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | $N$ Falcon |  | S Falcon |  | WAC N | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 1,419 | 2,3,4,5 | 13.3 | 7.2 | 2.9 | 2.2 | 6.3 | 0.0 | 1.1 | 0.0 | 0.0 | 5.3 | 0.0 | 0.0 | 5.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.4 | 12.4 | 0.0 | 0.0 | 0.0 | 0.0 | 37.0 |
| 2010 | 1,343 | 2,3,4,5 | 7.9 | 0.3 | 4.0 | 3.2 | 4.8 | 0.7 | 2.0 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.4 | 3.1 | 0.0 | 0.1 | 0.0 | 0.0 | 62.2 |
| 2011 | 2,363 | 2,3,4,5 | 14.0 | 2.0 | 1.5 | 3.5 | 3.6 | 0.2 | 3.9 | 0.0 | 0.0 | 3.6 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.0 | 0.1 | 0.0 | 0.0 | 16.9 | 16.1 | 0.0 | 0.0 | 0.0 | 0.0 | 29.9 |
| 2012 | 2,006 | 2,3,4,5 | 13.4 | 3.6 | 1.2 | 2.8 | 2.5 | 0.1 | 2.0 | 0.0 | 0.0 | 3.1 | 0.0 | 0.0 | 5.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.4 | 15.4 | 0.0 | 0.0 | 0.0 | 0.0 | 36.2 |
| 2013 | 1,424 | 2,3,4,5 | 10.8 | 3.9 | 1.5 | 1.0 | 4.4 | 0.0 | 1.1 | 0.0 | 0.0 | 1.6 | 0.0 | 0.0 | 9.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.3 | 0.0 | 0.0 | 0.0 | 0.0 | 64.3 |
| 2014 | 2,366 | 2,3,4,5 | 14.6 | 2.1 | 3.3 | 1.9 | 2.8 | 0.8 | 4.6 | 0.0 | 0.0 | 1.4 | 0.0 | 0.0 | 5.2 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 0.1 | 0.0 | 0.0 | 0.1 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 57.3 |
| 2015 | 3,517 | 2,3,4,5 | 4.1 | 3.3 | 3.1 | 0.4 | 3.7 | 0.3 | 2.8 | 0.0 | 0.1 | 2.2 | 0.0 | 0.0 | 8.8 | 0.3 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 10.3 | 9.2 | 0.0 | 0.0 | 0.0 | 0.3 | 50.4 |
| 2016 | 5,287 | 2,3,4,5 | 14.2 | 5.2 | 4.8 | 2.0 | 3.7 | 0.8 | 0.8 | 0.0 | 0.1 | 3.5 | 0.0 | 0.0 | 6.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.7 | 6.5 | 0.0 | 0.0 | 0.0 | 0.0 | 45.7 |
| 2017 | 7,400 | 2,3,4,5 | 8.2 | 0.7 | 4.2 | 1.7 | 7.2 | 0.6 | 4.2 | 0.0 | 0.0 | 1.6 | 0.0 | 1.1 | 7.4 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 15.4 | 10.1 | 0.0 | 0.1 | 0.0 | 1.2 | 36.3 |
| 2018 | 9,043 | 2,3,4,5 | 5.7 | 0.6 | 1.2 | 4.3 | 6.5 | 1.3 | 4.5 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 7.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 28.9 | 9.7 | 0.0 | 0.0 | 0.0 | 0.3 | 26.9 |
| 2019 | 13,484 | 2,3,4,5 | 4.9 | 5.6 | 2.0 | 2.6 | 5.1 | 0.8 | 2.4 | 0.0 | 0.0 | 3.5 | 0.0 | 0.0 | 6.3 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 34.7 | 9.2 | 0.0 | 0.0 | 0.0 | 0.1 | 22.7 |
| 2020 | 11,198 | 2,3,4,5 | 6.8 | 2.6 | 2.1 | 2.5 | 1.7 | 0.3 | 1.8 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 3.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 39.2 | 7.2 | 0.0 | 0.0 | 0.0 | 1.4 | 27.8 |
| 2021 | 11,361 | 2,3,4,5 | 7.6 | 4.9 | 1.6 | 3.1 | 1.9 | 0.8 | 1.7 | 0.0 | 0.0 | 1.5 | 0.0 | 0.0 | 6.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 32.5 | 6.8 | 0.0 | 0.0 | 0.0 | 0.0 | 31.1 |
| 79-84 | 4,281 |  | 30.3 | 3.0 | 0.8 | 12.3 | 0.0 | 6.7 | 0.1 | 7.9 | 4.4 | 0.1 | 0.2 | 1.2 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 10.4 | 6.3 | 0.0 | 0.1 | 0.0 | 0.0 | 15.1 |
| 85-95 | 5,661 |  | 15.5 | 6.0 | 1.9 | 8.6 | 0.7 | 6.1 | 0.7 | 1.8 | 1.5 | 0.1 | 0.0 | 0.7 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.2 | 0.0 | 0.0 | 0.0 | 6.3 | 14.0 | 0.0 | 0.1 | 0.0 | 0.1 | 33.6 |
| 96-98 | 2,077 |  | 13.6 | 1.8 | 4.7 | 4.3 | 1.7 | 0.3 | 0.5 | 0.8 | 0.2 | 1.1 | 0.0 | 0.0 | 3.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.3 | 11.9 | 0.0 | 0.0 | 0.0 | 0.0 | 52.2 |
| 99-08 | 2,229 |  | 11.9 | 2.1 | 3.3 | 2.6 | 3.3 | 0.1 | 0.9 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.4 | 10.5 | 0.0 | 0.0 | 0.0 | 0.0 | 46.2 |
| 09-18 | 3,617 |  | 10.6 | 2.9 | 2.8 | 2.3 | 4.5 | 0.5 | 2.7 | 0.0 | 0.0 | 2.8 | 0.0 | 0.1 | 6.4 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 10.3 | 9.0 | 0.0 | 0.0 | 0.0 | 0.2 | 44.6 |
| 19-28 | 12,014 |  | 6.4 | 4.3 | 1.9 | 2.7 | 2.9 | 0.6 | 2.0 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 5.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 35.5 | 7.7 | 0.0 | 0.0 | 0.0 | 0.5 | 27.2 |

Appendix C35- Percent distribution of Northwest Vancouver Island adult equivalent (AEQ) total fishing mortalities and escapement Robertson Creek Fall (RBT) coded-wire tag (CWT) recoveries with terminal adjustments for basin-specific performance.

| Catch Year | Est <br> \# of <br> CWT | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | N Falcon |  | S Falcon |  | WAC <br> N | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 1,419 | 2,3,4,5 | 13.3 | 7.2 | 2.9 | 2.2 | 6.3 | 0.0 | 1.1 | 0.0 | 0.0 | 5.3 | 0.0 | 0.0 | 5.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 55.8 |
| 2010 | 1,343 | 2,3,4,5 | 7.9 | 0.3 | 4.0 | 3.2 | 4.8 | 0.7 | 2.0 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 69.6 |
| 2011 | 2,363 | 2,3,4,5 | 14.0 | 2.0 | 1.5 | 3.5 | 3.6 | 0.2 | 3.9 | 0.0 | 0.0 | 3.6 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 63.0 |
| 2012 | 2,006 | 2,3,4,5 | 13.4 | 3.6 | 1.2 | 2.8 | 2.5 | 0.1 | 2.0 | 0.0 | 0.0 | 3.1 | 0.0 | 0.0 | 5.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 66.0 |
| 2013 | 1,424 | 2,3,4,5 | 10.8 | 3.9 | 1.5 | 1.0 | 4.4 | 0.0 | 1.1 | 0.0 | 0.0 | 1.6 | 0.0 | 0.0 | 9.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 66.6 |
| 2014 | 2,366 | 2,3,4,5 | 14.6 | 2.1 | 3.3 | 1.9 | 2.8 | 0.8 | 4.6 | 0.0 | 0.0 | 1.4 | 0.0 | 0.0 | 5.2 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 62.2 |
| 2015 | 3,517 | 2,3,4,5 | 4.1 | 3.3 | 3.1 | 0.4 | 3.7 | 0.3 | 2.8 | 0.0 | 0.1 | 2.2 | 0.0 | 0.0 | 8.8 | 0.3 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 70.0 |
| 2016 | 5,287 | 2,3,4,5 | 14.2 | 5.2 | 4.8 | 2.0 | 3.7 | 0.8 | 0.8 | 0.0 | 0.1 | 3.5 | 0.0 | 0.0 | 6.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 57.9 |
| 2017 | 7,400 | 2,3,4,5 | 8.2 | 0.7 | 4.2 | 1.7 | 7.2 | 0.6 | 4.2 | 0.0 | 0.0 | 1.6 | 0.0 | 1.1 | 7.4 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 1.2 | 61.8 |
| 2018 | 9,043 | 2,3,4,5 | 5.7 | 0.6 | 1.2 | 4.3 | 6.5 | 1.3 | 4.5 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 7.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.3 | 65.5 |
| 2019 | 13,484 | 2,3,4,5 | 4.9 | 5.6 | 2.0 | 2.6 | 5.1 | 0.8 | 2.4 | 0.0 | 0.0 | 3.5 | 0.0 | 0.0 | 6.3 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 66.6 |
| 2020 | 11,198 | 2,3,4,5 | 6.8 | 2.6 | 2.1 | 2.5 | 1.7 | 0.3 | 1.8 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 3.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.4 | 74.2 |
| 2021 | 11,361 | 2,3,4,5 | 7.6 | 4.9 | 1.6 | 3.1 | 1.9 | 0.8 | 1.7 | 0.0 | 0.0 | 1.5 | 0.0 | 0.0 | 6.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 70.4 |
| 79-84 | 4,281 |  | 30.3 | 3.0 | 0.8 | 12.3 | 0.0 | 6.7 | 0.1 | 7.9 | 4.4 | 0.1 | 0.2 | 1.2 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 31.7 |
| 85-95 | 5,661 |  | 15.5 | 6.0 | 1.9 | 8.6 | 0.7 | 6.1 | 0.7 | 1.8 | 1.5 | 0.1 | 0.0 | 0.7 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.1 | 53.8 |
| 96-98 | 2,077 |  | 13.6 | 1.8 | 4.7 | 4.3 | 1.7 | 0.3 | 0.5 | 0.8 | 0.2 | 1.1 | 0.0 | 0.0 | 3.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 67.5 |
| 99-08 | 2,229 |  | 11.9 | 2.1 | 3.3 | 2.6 | 3.3 | 0.1 | 0.9 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 70.0 |
| 09-18 | 3,617 |  | 10.6 | 2.9 | 2.8 | 2.3 | 4.5 | 0.5 | 2.7 | 0.0 | 0.0 | 2.8 | 0.0 | 0.1 | 6.4 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 63.8 |
| 19-28 | 12,014 |  | 6.4 | 4.3 | 1.9 | 2.7 | 2.9 | 0.6 | 2.0 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 5.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 70.4 |

Appendix C36- Percent distribution of Southwest Vancouver Island adult equivalent (AEQ) total fishing mortalities and escapement Robertson Creek Fall (RBT) coded-wire tag (CWT) recoveries with terminal adjustments for basin-specific performance.

| Catch Year | Est <br> \# of <br> CWT | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | N Falcon |  | S Falcon |  | WAC <br> N | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 1,419 | 2,3,4,5 | 13.3 | 7.2 | 2.9 | 2.2 | 6.3 | 0.0 | 1.1 | 0.0 | 0.0 | 5.3 | 0.0 | 0.0 | 5.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 55.8 |
| 2010 | 1,343 | 2,3,4,5 | 7.9 | 0.3 | 4.0 | 3.2 | 4.8 | 0.7 | 2.0 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 69.6 |
| 2011 | 2,363 | 2,3,4,5 | 14.0 | 2.0 | 1.5 | 3.5 | 3.6 | 0.2 | 3.9 | 0.0 | 0.0 | 3.6 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 63.0 |
| 2012 | 2,006 | 2,3,4,5 | 13.4 | 3.6 | 1.2 | 2.8 | 2.5 | 0.1 | 2.0 | 0.0 | 0.0 | 3.1 | 0.0 | 0.0 | 5.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 66.0 |
| 2013 | 1,424 | 2,3,4,5 | 10.8 | 3.9 | 1.5 | 1.0 | 4.4 | 0.0 | 1.1 | 0.0 | 0.0 | 1.6 | 0.0 | 0.0 | 9.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 66.6 |
| 2014 | 2,366 | 2,3,4,5 | 14.6 | 2.1 | 3.3 | 1.9 | 2.8 | 0.8 | 4.6 | 0.0 | 0.0 | 1.4 | 0.0 | 0.0 | 5.2 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 62.2 |
| 2015 | 3,517 | 2,3,4,5 | 4.1 | 3.3 | 3.1 | 0.4 | 3.7 | 0.3 | 2.8 | 0.0 | 0.1 | 2.2 | 0.0 | 0.0 | 8.8 | 0.3 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 70.0 |
| 2016 | 5,287 | 2,3,4,5 | 14.2 | 5.2 | 4.8 | 2.0 | 3.7 | 0.8 | 0.8 | 0.0 | 0.1 | 3.5 | 0.0 | 0.0 | 6.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 57.9 |
| 2017 | 7,400 | 2,3,4,5 | 8.2 | 0.7 | 4.2 | 1.7 | 7.2 | 0.6 | 4.2 | 0.0 | 0.0 | 1.6 | 0.0 | 1.1 | 7.4 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 1.2 | 61.8 |
| 2018 | 9,043 | 2,3,4,5 | 5.7 | 0.6 | 1.2 | 4.3 | 6.5 | 1.3 | 4.5 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 7.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.3 | 65.5 |
| 2019 | 13,484 | 2,3,4,5 | 4.9 | 5.6 | 2.0 | 2.6 | 5.1 | 0.8 | 2.4 | 0.0 | 0.0 | 3.5 | 0.0 | 0.0 | 6.3 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 66.6 |
| 2020 | 11,198 | 2,3,4,5 | 6.8 | 2.6 | 2.1 | 2.5 | 1.7 | 0.3 | 1.8 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 3.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.4 | 74.2 |
| 2021 | 11,361 | 2,3,4,5 | 7.6 | 4.9 | 1.6 | 3.1 | 1.9 | 0.8 | 1.7 | 0.0 | 0.0 | 1.5 | 0.0 | 0.0 | 6.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 70.4 |
| 79-84 | 4,281 |  | 30.3 | 3.0 | 0.8 | 12.3 | 0.0 | 6.7 | 0.1 | 7.9 | 4.4 | 0.1 | 0.2 | 1.2 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 31.7 |
| 85-95 | 5,661 |  | 15.5 | 6.0 | 1.9 | 8.6 | 0.7 | 6.1 | 0.7 | 1.8 | 1.5 | 0.1 | 0.0 | 0.7 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.1 | 53.8 |
| 96-98 | 2,077 |  | 13.6 | 1.8 | 4.7 | 4.3 | 1.7 | 0.3 | 0.5 | 0.8 | 0.2 | 1.1 | 0.0 | 0.0 | 3.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 67.5 |
| 99-08 | 2,229 |  | 11.9 | 2.1 | 3.3 | 2.6 | 3.3 | 0.1 | 0.9 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 70.0 |
| 09-18 | 3,617 |  | 10.6 | 2.9 | 2.8 | 2.3 | 4.5 | 0.5 | 2.7 | 0.0 | 0.0 | 2.8 | 0.0 | 0.1 | 6.4 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 63.8 |
| 19-28 | 12,014 |  | 6.4 | 4.3 | 1.9 | 2.7 | 2.9 | 0.6 | 2.0 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 5.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 70.4 |

Appendix C37- Percent distribution of Samish Fall Fingerling adult equivalent (AEQ) total fishing mortalities and escapement.

| Catch Year | Est <br> \# of <br> CWT | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | $N$ Falcon |  | S Falcon |  | WAC N | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 1,621 | 2,3,4,5 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 3.3 | 4.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.9 | 3.5 | 0.4 | 0.0 | 0.0 | 0.0 | 0.1 | 13.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 31.0 | 0.0 | 0.0 | 38.9 |
| 2010 | 1,792 | 2,3,4,5 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 7.1 | 6.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.7 | 10.4 | 0.7 | 0.3 | 0.0 | 0.0 | 0.2 | 9.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 29.9 | 0.0 | 1.0 | 28.3 |
| 2011 | 1,324 | 2,3,4,5 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 5.1 | 5.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.6 | 3.2 | 0.3 | 0.0 | 0.0 | 0.0 | 0.2 | 8.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 35.6 | 0.0 | 0.5 | 31.6 |
| 2012 | 1,839 | 2,3,4,5 | 0.0 | 0.2 | 0.1 | 0.5 | 0.0 | 2.2 | 4.5 | 0.0 | 0.0 | 0.2 | 0.0 | 0.4 | 6.7 | 6.6 | 1.0 | 0.3 | 0.0 | 0.0 | 0.0 | 6.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 51.9 | 0.0 | 0.2 | 18.4 |
| 2013 | 1,785 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.6 | 3.5 | 0.2 | 0.0 | 0.0 | 0.0 | 1.7 | 10.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 43.0 | 0.0 | 0.2 | 26.9 |
| 2014 | 1,570 | 2,3,4,5 | 0.6 | 0.1 | 0.0 | 0.4 | 0.3 | 5.8 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.1 | 5.9 | 0.9 | 0.3 | 0.0 | 0.0 | 0.0 | 11.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 25.0 | 0.0 | 0.3 | 33.4 |
| 2015 | 888 | 2,3,4,5 | 0.6 | 0.0 | 0.0 | 0.3 | 0.0 | 2.5 | 2.9 | 0.0 | 0.0 | 0.8 | 0.0 | 0.0 | 13.2 | 10.4 | 1.4 | 0.0 | 0.0 | 0.0 | 0.1 | 5.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 31.2 | 0.0 | 0.1 | 30.7 |
| 2016 | 785 | 2,3,4,5 | 0.8 | 0.1 | 0.0 | 0.0 | 0.6 | 1.3 | 3.4 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 20.0 | 1.5 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 9.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 32.7 | 0.0 | 0.0 | 27.8 |
| 2017 | 1,383 | 2,3,4,5 | 0.5 | 0.4 | 0.0 | 0.0 | 0.0 | 4.3 | 3.1 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 23.9 | 3.8 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 6.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 36.9 | 0.0 | 0.1 | 19.2 |
| 2018 | 1,020 | 2,3,4,5 | 0.0 | 0.2 | 0.0 | 1.4 | 0.0 | 2.7 | 2.9 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 21.3 | 5.4 | 1.8 | 0.2 | 0.0 | 0.0 | 0.1 | 6.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 23.7 | 0.0 | 0.2 | 33.4 |
| 2019 | 790 | 2,3,4,5 | 0.5 | 0.5 | 0.0 | 0.0 | 0.0 | 1.4 | 5.6 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 11.1 | 1.8 | 0.8 | 0.0 | 0.0 | 0.0 | 0.1 | 12.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 33.2 | 0.0 | 0.4 | 32.0 |
| 2020 | 730 | 2,3,4,5 | 3.2 | 0.7 | 0.0 | 0.0 | 0.0 | 1.0 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 21.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 32.1 | 0.0 | 0.4 | 27.8 |
| 2021 | NA |  | - | - | - | - | - | - |  | - | - | - | - | - | - | - | - | - |  | - | - |  | - | - | - | - | - |  | - |  |  |  |
| 79-84 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  |
| 85-95 | 1,329 |  | 0.1 | 0.0 | 0.0 | 0.2 | 0.0 | 12.9 | 3.0 | 0.1 | 0.4 | 0.0 | 2.0 | 1.9 | 14.2 | 6.4 | 0.2 | 0.2 | 0.0 | 0.0 | 2.2 | 13.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 21.5 | 0.6 | 0.1 | 21.0 |
| 96-98 | 1,126 |  | 1.4 | 0.1 | 0.0 | 0.1 | 0.0 | 1.8 | 1.3 | 0.2 | 0.4 | 0.0 | 0.0 | 0.2 | 12.3 | 1.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.8 | 10.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 33.7 | 4.6 | 0.1 | 31.1 |
| 99-08 | 1,121 |  | 0.8 | 0.0 | 0.0 | 0.3 | 0.0 | 8.2 | 6.1 | 0.0 | 0.1 | 0.3 | 0.0 | 0.0 | 10.3 | 4.7 | 0.4 | 0.1 | 0.0 | 0.0 | 0.3 | 7.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 34.5 | 1.9 | 0.2 | 24.6 |
| 09-18 | 1,401 |  | 0.3 | 0.1 | 0.0 | 0.3 | 0.1 | 3.6 | 4.2 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 12.5 | 5.4 | 0.8 | 0.1 | 0.0 | 0.0 | 0.2 | 8.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 34.1 | 0.0 | 0.3 | 28.9 |
| 19-28 | 760 |  | 1.8 | 0.6 | 0.0 | 0.0 | 0.0 | 1.2 | 3.6 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 11.3 | 0.9 | 0.4 | 0.0 | 0.0 | 0.0 | 0.1 | 17.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 32.6 | 0.0 | 0.4 | 29.9 |

Appendix C38- Percent distribution of Lower Shuswap River Summer adult equivalent (AEQ) total fishing mortalities and escapement.

|  | Est |  | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Catch | \# |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | N Falcon |  | S Falcon |  | WAC <br> N | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
| Year | CWT | Ages | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 1,691 | 2,3,4,5 | 9.2 | 0.0 | 1.3 | 6.4 | 3.4 | 0.8 | 2.3 | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 | 8.9 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 10.0 | 6.2 | 0.0 | 0.0 | 0.0 | 0.2 | 50.4 |
| 2010 | 2,026 | 2,3,4,5 | 9.8 | 0.0 | 1.5 | 10.5 | 3.1 | 0.0 | 0.5 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 9.4 | 0.2 | 0.1 | 0.1 | 0.0 | 0.0 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 9.4 | 1.9 | 0.0 | 0.3 | 0.0 | 1.2 | 50.4 |
| 2011 | 1,852 | 2,3,4,5 | 8.2 | 0.1 | 1.8 | 7.6 | 4.5 | 1.3 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 8.2 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.5 | 0.0 | 0.0 | 0.0 | 9.3 | 2.9 | 0.0 | 0.0 | 0.0 | 0.1 | 53.0 |
| 2012 | 1,945 | 2,3,4,5 | 6.8 | 0.0 | 2.6 | 7.5 | 4.4 | 1.1 | 1.2 | 0.0 | 0.0 | 0.8 | 0.0 | 0.4 | 10.1 | 0.2 | 0.4 | 0.2 | 0.0 | 0.0 | 0.1 | 2.3 | 0.0 | 0.0 | 0.0 | 4.5 | 4.9 | 0.0 | 0.0 | 0.0 | 0.0 | 52.7 |
| 2013 | 8,225 | 2,3,4,5 | 7.4 | 0.1 | 0.5 | 7.5 | 3.5 | 0.2 | 1.0 | 0.0 | 0.0 | 0.3 | 0.0 | 1.6 | 10.3 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.7 | 0.0 | 0.0 | 0.0 | 2.5 | 2.0 | 0.0 | 0.0 | 0.0 | 0.9 | 60.5 |
| 2014 | 4,670 | 2,3,4,5 | 10.9 | 0.2 | 1.0 | 7.1 | 2.7 | 3.3 | 1.6 | 0.0 | 0.0 | 0.2 | 0.0 | 3.0 | 5.4 | 1.9 | 0.4 | 0.1 | 0.0 | 0.0 | 0.5 | 0.9 | 0.0 | 0.0 | 0.0 | 8.0 | 1.8 | 0.0 | 0.0 | 0.0 | 0.9 | 50.1 |
| 2015 | 5,012 | 2,3,4,5 | 6.7 | 0.2 | 0.3 | 3.7 | 1.5 | 0.6 | 1.2 | 0.0 | 0.0 | 0.7 | 0.0 | 0.5 | 8.0 | 2.4 | 0.5 | 0.0 | 0.0 | 0.0 | 0.8 | 1.1 | 0.0 | 0.0 | 0.0 | 2.9 | 3.1 | 0.0 | 0.1 | 0.0 | 1.4 | 64.5 |
| 2016 | 2,153 | 2,3,4,5 | 9.9 | 0.6 | 1.6 | 9.0 | 2.7 | 1.8 | 1.0 | 0.0 | 0.0 | 0.6 | 0.0 | 0.4 | 5.8 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 2.6 | 1.9 | 0.0 | 0.3 | 0.0 | 0.0 | 61.2 |
| 2017 | 3,047 | 2,3,4,5 | 12.3 | 0.0 | 1.7 | 7.5 | 3.6 | 1.5 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 10.9 | 0.2 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 0.0 | 0.0 | 0.0 | 2.5 | 1.7 | 0.0 | 0.1 | 0.0 | 0.5 | 54.0 |
| 2018 | 5,092 | 2,3,4,5 | 4.5 | 0.0 | 0.6 | 3.3 | 2.6 | 0.9 | 1.9 | 0.0 | 0.0 | 0.1 | 0.0 | 1.4 | 9.9 | 0.2 | 0.2 | 0.0 | 0.0 | 0.0 | 0.5 | 0.9 | 0.0 | 0.0 | 0.0 | 4.9 | 2.6 | 0.0 | 0.0 | 0.0 | 0.2 | 65.4 |
| 2019 | 6,933 | 2,3,4,5 | 1.8 | 1.2 | 0.3 | 0.2 | 1.3 | 0.4 | 0.3 | 0.0 | 0.0 | 1.0 | 0.0 | 0.5 | 3.9 | 0.3 | 0.1 | 0.0 | 0.0 | 0.0 | 0.2 | 0.8 | 0.0 | 0.0 | 0.0 | 3.4 | 2.9 | 0.0 | 0.0 | 0.0 | 0.9 | 80.6 |
| 2020 | 6,866 | 2,3,4,5 | 4.8 | 0.1 | 0.5 | 0.1 | 0.4 | 0.3 | 0.8 | 0.0 | 0.0 | 0.3 | 0.0 | 0.9 | 2.9 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 9.1 | 5.3 | 0.0 | 0.0 | 0.0 | 1.1 | 72.8 |
| 2021 | 6,796 | 2,3,4,5 | 3.6 | 0.2 | 1.4 | 0.2 | 0.9 | 0.8 | 0.4 | 0.0 | 0.0 | 1.0 | 0.0 | 0.7 | 2.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 4.9 | 3.2 | 0.0 | 0.1 | 0.0 | 2.5 | 77.3 |
| 79-84 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - | - |
| 85-95 | 998 |  | 15.1 | 0.7 | 0.8 | 14.8 | 0.9 | 4.8 | 0.4 | 2.9 | 0.9 | 0.3 | 0.1 | 5.7 | 2.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 0.4 | 0.5 | 0.0 | 0.0 | 5.8 | 1.5 | 0.0 | 0.2 | 0.0 | 0.3 | 40.3 |
| 96-98 | 702 |  | 17.0 | 0.4 | 3.1 | 5.4 | 5.6 | 0.3 | 0.3 | 0.1 | 0.1 | 1.1 | 0.0 | 1.5 | 5.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 9.8 | 0.7 | 0.0 | 0.1 | 0.0 | 0.4 | 47.5 |
| 99-08 | 1,173 |  | 12.4 | 0.2 | 3.7 | 6.8 | 5.1 | 0.3 | 0.7 | 0.2 | 0.0 | 1.1 | 0.0 | 0.1 | 6.8 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 6.1 | 2.4 | 0.0 | 0.0 | 0.0 | 0.2 | 53.5 |
| 09-18 | 3,571 |  | 8.6 | 0.1 | 1.3 | 7.0 | 3.2 | 1.1 | 1.3 | 0.0 | 0.0 | 0.4 | 0.0 | 0.9 | 8.7 | 0.7 | 0.2 | 0.0 | 0.0 | 0.0 | 0.4 | 0.8 | 0.0 | 0.0 | 0.0 | 5.7 | 2.9 | 0.0 | 0.1 | 0.0 | 0.5 | 56.2 |
| 19-28 | 6,865 |  | 3.4 | 0.5 | 0.7 | 0.2 | 0.9 | 0.5 | 0.5 | 0.0 | 0.0 | 0.8 | 0.0 | 0.7 | 3.2 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.4 | 0.0 | 0.0 | 0.0 | 5.8 | 3.8 | 0.0 | 0.0 | 0.0 | 1.5 | 76.9 |

Appendix C39- Percent distribution of Skagit Spring Fingerling adult equivalent (AEQ) total fishing mortalities and escapement.

|  | Est |  | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Catch | \# of |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | $N$ Falcon |  | S Falcon |  | WAC <br> N | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
| Year | CWT | Ages | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 906 | 2,3,4,5 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 3.0 | 4.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.2 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 17.3 | 0.0 | 0.4 | 58.1 |
| 2010 | 1,462 | 2,3,4,5 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 2.3 | 2.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.8 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 2.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 19.6 | 0.0 | 0.2 | 63.7 |
| 2011 | 1,301 | 2,3,4,5 | 0.4 | 0.1 | 0.0 | 0.0 | 0.0 | 1.4 | 3.6 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 5.5 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.1 | 5.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 18.7 | 0.0 | 0.5 | 63.9 |
| 2012 | 1,612 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.1 | 2.8 | 0.0 | 0.0 | 0.7 | 0.0 | 0.0 | 10.9 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 18.0 | 0.0 | 0.2 | 55.4 |
| 2013 | 1,275 | 2,3,4,5 | 0.6 | 0.5 | 0.0 | 0.0 | 0.0 | 2.7 | 3.4 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 7.5 | 0.3 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 24.5 | 0.0 | 0.2 | 55.0 |
| 2014 | 1,045 | 2,3,4,5 | 2.1 | 0.2 | 0.0 | 1.1 | 0.0 | 3.2 | 4.8 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 8.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 25.9 | 0.0 | 0.1 | 45.8 |
| 2015 | 975 | 2,3,4,5 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 1.5 | 1.1 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 5.4 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 8.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.8 | 0.0 | 0.5 | 69.6 |
| 2016 | 1,673 | 2,3,4,5 | 0.8 | 0.8 | 0.0 | 0.2 | 0.0 | 2.6 | 1.8 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 9.9 | 0.6 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 8.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.8 | 0.0 | 0.3 | 61.1 |
| 2017 | 1,844 | 2,3,4,5 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 3.1 | 4.9 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 9.8 | 0.1 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 18.7 | 0.0 | 0.1 | 56.7 |
| 2018 | 1,215 | 2,3,4,5 | 0.7 | 0.1 | 0.0 | 0.2 | 0.0 | 3.3 | 3.0 | 0.0 | 0.0 | 1.3 | 0.0 | 0.0 | 12.5 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 5.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 23.5 | 0.0 | 0.4 | 48.6 |
| 2019 | 1,069 | 2,3,4,5 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 2.6 | 0.0 | 0.0 | 0.6 | 0.0 | 0.3 | 4.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 31.4 | 0.0 | 0.0 | 47.3 |
| 2020 | 1,230 | 2,3,4,5 | 0.3 | 0.4 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.8 | 0.0 | 0.1 | 10.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 17.7 | 0.0 | 0.2 | 64.6 |
| 2021 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - |
| 79-84 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 85-95 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 96-98 | 790 |  | 2.0 | 0.0 | 0.0 | 0.1 | 0.0 | 1.1 | 3.5 | 0.2 | 1.2 | 0.6 | 0.0 | 0.7 | 15.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 8.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 0.0 | 0.3 | 64.8 |
| 99-08 | 1,498 |  | 1.3 | 0.1 | 0.2 | 0.3 | 0.0 | 8.6 | 4.2 | 0.0 | 0.1 | 0.4 | 0.0 | 0.0 | 9.1 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.3 | 0.0 | 0.3 | 67.8 |
| 09-18 | 1,331 |  | 0.7 | 0.2 | 0.0 | 0.2 | 0.0 | 2.6 | 3.3 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 8.5 | 0.4 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 6.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 19.1 | 0.0 | 0.3 | 57.8 |
| 19-28 | 1,150 |  | 0.8 | 0.2 | 0.0 | 0.1 | 0.0 | 0.3 | 1.3 | 0.0 | 0.0 | 1.7 | 0.0 | 0.2 | 7.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 24.6 | 0.0 | 0.1 | 55.9 |

Appendix C40- Percent distribution of Skykomish Fall Fingerling adult equivalent (AEQ) total fishing mortalities and escapement.

| Catch Year | $\begin{gathered} \hline \text { Est } \\ \text { \# of } \\ \text { CWT } \\ \hline \end{gathered}$ | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | $N$ Falcon |  | S Falcon |  | WAC <br> N | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 365 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.8 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 15.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 72.3 |
| 2010 | 414 | 2,3,4,5 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 2.7 | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.3 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 1.7 | 8.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.1 | 0.0 | 77.1 |
| 2011 | 495 | 2,3,4,5 | 0.2 | 0.4 | 0.0 | 0.0 | 0.0 | 1.8 | 3.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.3 | 1.6 | 0.6 | 0.0 | 0.0 | 0.4 | 0.4 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.5 | 0.2 | 56.0 |
| 2012 | 1,026 | 2,3,4,5 | 0.3 | 0.0 | 0.0 | 0.0 | 0.2 | 3.9 | 2.5 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 16.3 | 2.9 | 0.0 | 0.0 | 0.0 | 0.2 | 0.4 | 10.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 1.3 | 0.6 | 59.9 |
| 2013 | 632 | 2,3,4,5 | 0.3 | 0.0 | 0.3 | 0.0 | 0.0 | 6.8 | 6.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.2 | 1.7 | 0.6 | 0.0 | 0.0 | 0.0 | 0.6 | 9.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 61.4 |
| 2014 | 486 | 2,3,4,5 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 1.4 | 2.1 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 13.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 66.7 |
| 2015 | 616 | 2,3,4,5 | 0.8 | 1.0 | 0.0 | 0.0 | 0.0 | 1.5 | 3.7 | 0.0 | 0.0 | 0.8 | 0.0 | 0.0 | 5.2 | 3.6 | 0.6 | 0.0 | 0.0 | 0.3 | 1.6 | 18.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 62.5 |
| 2016 | 1,543 | 2,3,4,5 | 0.6 | 1.7 | 0.0 | 0.3 | 0.0 | 2.6 | 2.1 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 14.5 | 1.4 | 0.3 | 0.2 | 0.0 | 0.0 | 0.1 | 10.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 64.2 |
| 2017 | 1,345 | 2,3,4,5 | 1.3 | 0.0 | 0.0 | 0.3 | 0.0 | 4.9 | 1.4 | 0.0 | 0.0 | 1.6 | 0.0 | 0.0 | 8.5 | 0.5 | 0.5 | 0.0 | 0.0 | 0.0 | 0.3 | 8.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 72.6 |
| 2018 | 729 | 2,3,4,5 | 0.3 | 0.1 | 0.0 | 0.0 | 0.0 | 1.2 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 15.5 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 10.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 70.4 |
| 2019 | 747 | 2,3,4,5 | 0.1 | 0.8 | 0.0 | 0.0 | 0.0 | 0.3 | 1.2 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 7.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 4.3 | 74.7 |
| 2020 | 661 | 2,3,4,5 | 2.3 | 0.2 | 0.0 | 0.0 | 0.0 | 0.5 | 0.6 | 0.0 | 0.0 | 2.7 | 0.0 | 0.0 | 7.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.3 | 7.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.5 | 75.2 |
| 2021 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 79-84 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - |  | - | - |
| 85-95 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 96-98 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 99-08 | 1,015 |  | 0.6 | 0.0 | 0.0 | 0.2 | 0.0 | 15.0 | 3.5 | 0.0 | 0.2 | 0.3 | 0.0 | 0.0 | 6.3 | 2.5 | 0.1 | 0.0 | 0.0 | 0.0 | 0.6 | 6.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.5 | 63.3 |
| 09-18 | 765 |  | 0.5 | 0.4 | 0.0 | 0.1 | 0.0 | 2.9 | 2.9 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 9.9 | 1.5 | 0.3 | 0.0 | 0.0 | 0.1 | 0.6 | 12.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 1.3 | 0.3 | 66.3 |
| 19-28 | 704 |  | 1.2 | 0.5 | 0.0 | 0.0 | 0.0 | 0.4 | 0.9 | 0.0 | 0.0 | 1.6 | 0.0 | 0.0 | 7.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 8.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 2.9 | 74.9 |

Appendix C41- Percent distribution of Similkameen Summer Yearling adult equivalent (AEQ) total fishing mortalities and escapement.

| Catch Year | Est <br> \# of <br> CWT | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | N Falcon |  | S Falcon |  | WAC <br> N | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 8,477 | 3,4,5,6 | 7.5 | 0.1 | 0.7 | 2.9 | 2.5 | 3.0 | 1.6 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.5 | 0.8 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.6 | 5.1 | 0.3 | 59.5 |
| 2010 | 7,383 | 3,4,5,6 | 9.8 | 0.3 | 1.6 | 3.3 | 1.4 | 4.8 | 0.7 | 0.0 | 0.0 | 1.2 | 0.0 | 0.0 | 0.2 | 2.8 | 1.1 | 0.9 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 16.5 | 5.5 | 0.5 | 49.3 |
| 2011 | 12,378 | 3,4,5,6 | 7.1 | 0.1 | 0.8 | 2.6 | 1.2 | 1.9 | 1.3 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.2 | 0.6 | 1.1 | 1.1 | 0.2 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 17.3 | 9.3 | 0.4 | 54.2 |
| 2012 | 9,795 | 3,4,5,6 | 12.9 | 0.5 | 0.7 | 3.0 | 1.2 | 4.7 | 2.5 | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 | 0.9 | 4.5 | 3.2 | 3.4 | 1.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.8 | 7.1 | 0.3 | 46.5 |
| 2013 | 8,100 | 3,4,5,6 | 6.7 | 0.3 | 0.6 | 3.6 | 2.4 | 2.6 | 1.2 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.4 | 3.2 | 1.2 | 2.5 | 0.3 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.1 | 4.9 | 0.0 | 57.5 |
| 2014 | 10,683 | 3,4,5,6 | 10.6 | 0.4 | 0.7 | 0.9 | 0.8 | 4.1 | 0.5 | 0.0 | 0.0 | 0.4 | 0.1 | 0.0 | 0.1 | 3.8 | 1.5 | 2.3 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.5 | 3.7 | 0.1 | 58.4 |
| 2015 | 18,544 | 3,4,5,6 | 8.5 | 0.1 | 0.8 | 1.3 | 0.6 | 1.1 | 0.6 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 3.4 | 2.4 | 1.3 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 15.7 | 5.0 | 0.2 | 58.8 |
| 2016 | 16,540 | 3,4,5,6 | 14.0 | 0.4 | 1.2 | 3.0 | 1.9 | 4.0 | 0.9 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.3 | 1.3 | 0.6 | 2.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.5 | 3.3 | 0.0 | 53.8 |
| 2017 | 7,222 | 3,4,5,6 | 6.1 | 0.2 | 1.4 | 2.6 | 3.3 | 3.9 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.1 | 1.5 | 0.8 | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.6 | 5.6 | 0.2 | 57.2 |
| 2018 | 5,149 | 3,4,5,6 | 7.0 | 0.1 | 1.0 | 2.5 | 1.0 | 2.8 | 0.7 | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 | 0.3 | 4.8 | 0.7 | 0.5 | 0.3 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 16.3 | 4.2 | 0.1 | 57.0 |
| 2019 | 8,268 | 3,4,5,6 | 3.9 | 0.4 | 0.2 | 0.8 | 0.3 | 0.2 | 0.3 | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 | 0.1 | 1.0 | 1.1 | 0.4 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.5 | 7.5 | 0.4 | 78.1 |
| 2020 | 6,840 | 3,4,5,6 | 6.8 | 0.2 | 0.2 | 0.4 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.5 | 0.6 | 0.4 | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.2 | 4.0 | 0.2 | 80.0 |
| 2021 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  |  | - |
| 79-84 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 85-95 | 3,081 |  | 9.8 | 2.0 | 2.0 | 3.1 | 1.5 | 3.4 | 0.3 | 0.3 | 0.6 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 0.2 | 0.1 | 75.6 |
| 96-98 | 2,485 |  | 8.5 | 0.2 | 0.5 | 1.2 | 0.2 | 0.6 | 0.1 | 0.0 | 0.1 | 0.3 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.4 | 0.2 | 2.4 | 84.2 |
| 99-08 | 5,155 |  | 10.2 | 0.5 | 1.5 | 4.0 | 2.6 | 3.7 | 0.5 | 0.0 | 0.2 | 0.3 | 0.0 | 0.0 | 0.2 | 1.5 | 0.6 | 1.1 | 0.2 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.4 | 4.5 | 0.6 | 61.5 |
| 09-18 | 10,427 |  | 9.0 | 0.2 | 0.9 | 2.6 | 1.6 | 3.3 | 1.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.3 | 2.7 | 1.4 | 1.5 | 0.2 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.8 | 5.4 | 0.2 | 55.2 |
| 19-28 | 7,554 |  | 5.4 | 0.3 | 0.2 | 0.6 | 0.2 | 0.1 | 0.1 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.1 | 0.7 | 0.9 | 0.4 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.4 | 5.8 | 0.3 | 79.0 |

Appendix C42- Percent distribution of Tsoo-Yess Fall Fingerling adult equivalent (AEQ) total fishing mortalities and escapement.

| Catch Year | Est <br> \# of <br> CWT | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | $N$ Falcon |  | S Falcon |  | $\begin{gathered} \text { WAC } \\ \mathrm{N} \end{gathered}$ | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 557 | 2,3,4,5 | 11.7 | 1.3 | 1.1 | 8.1 | 2.3 | 0.0 | 4.7 | 0.0 | 0.0 | 1.4 | 0.0 | 0.0 | 1.6 | 2.5 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.2 | 64.5 |
| 2010 | 441 | 2,3,4,5 | 4.3 | 0.0 | 2.0 | 5.7 | 1.4 | 0.9 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.1 | 0.2 | 3.4 | 0.0 | 0.0 | 0.2 | 0.0 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 74.8 |
| 2011 | 1,128 | 2,3,4,5 | 10.1 | 0.4 | 0.9 | 4.7 | 1.4 | 1.8 | 2.0 | 0.0 | 0.0 | 1.2 | 0.0 | 0.0 | 1.9 | 0.4 | 1.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 72.7 |
| 2012 | 588 | 2,3,4,5 | 13.6 | 0.0 | 1.4 | 10.7 | 4.8 | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.4 | 0.7 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 0.0 | 0.0 | 63.3 |
| 2013 | 554 | 2,3,4,5 | 6.0 | 0.0 | 0.5 | 1.3 | 2.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.1 | 0.5 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.5 | 82.5 |
| 2014 | 716 | 2,3,4,5 | 4.7 | 0.0 | 0.7 | 6.3 | 0.3 | 2.8 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 83.9 |
| 2015 | 1,346 | 2,3,4,5 | 6.2 | 0.0 | 0.9 | 4.3 | 0.7 | 0.4 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 0.7 | 3.6 | 0.0 | 0.0 | 0.0 | 0.0 | 3.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 77.6 |
| 2016 | 751 | 2,3,4,5 | 7.6 | 0.3 | 2.3 | 8.1 | 3.9 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.5 | 0.7 | 1.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.7 | 0.0 | 0.0 | 65.1 |
| 2017 | 271 | 2,3,4,5 | 10.3 | 0.0 | 0.0 | 15.5 | 0.0 | 1.5 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.3 | 0.4 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 66.1 |
| 2018 | 632 | 2,3,4,5 | 4.0 | 0.0 | 0.0 | 10.4 | 2.8 | 0.6 | 0.3 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 7.9 | 0.3 | 0.5 | 0.0 | 0.0 | 0.0 | 0.3 | 2.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 69.9 |
| 2019 | 279 | 2,3,4,5 | 12.2 | 0.0 | 0.0 | 0.0 | 3.9 | 10.8 | 9.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 0.7 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 6.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 55.2 |
| 2020 | 309 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 98.7 |
| 2021 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - | - | - | - | - | - |  | - |  | - |
| 79-84 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 85-95 | 251 |  | 11.7 | 5.1 | 1.3 | 9.5 | 0.4 | 12.4 | 1.1 | 1.0 | 1.2 | 0.0 | 0.0 | 1.2 | 1.1 | 0.3 | 0.4 | 0.0 | 0.1 | 0.0 | 0.0 | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 51.5 |
| 96-98 | 269 |  | 12.1 | 0.0 | 2.6 | 8.7 | 0.0 | 0.1 | 0.0 | 0.2 | 0.3 | 0.0 | 0.0 | 0.1 | 1.3 | 0.0 | 0.0 | 0.3 | 0.1 | 0.0 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.7 | 0.0 | 0.0 | 66.5 |
| 99-08 | 465 |  | 16.1 | 0.6 | 3.1 | 12.2 | 3.3 | 0.5 | 2.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 1.5 | 0.5 | 0.6 | 0.0 | 0.0 | 0.0 | 0.1 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.1 | 0.0 | 0.8 | 55.0 |
| 09-18 | 698 |  | 7.9 | 0.2 | 1.0 | 7.5 | 2.0 | 0.9 | 1.1 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 2.6 | 0.8 | 1.5 | 0.1 | 0.0 | 0.0 | 0.0 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 0.0 | 0.1 | 72.0 |
| 19-28 | 294 |  | 6.1 | 0.0 | 0.0 | 0.6 | 2.0 | 5.4 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.4 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 77.0 |

Appendix C43- Percent distribution of Spring Creek Tule adult equivalent (AEQ) total fishing mortalities and escapement.

| Catch Year | Est | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | \# of <br> CWT |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | N Falcon |  | S Falcon |  | WAC N | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 2,573 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 2.6 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.2 | 1.7 | 4.2 | 0.0 | 0.0 | 0.0 | 0.0 | 6.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 35.1 | 2.3 | 0.2 | 45.9 |
| 2010 | 4,141 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.9 | 3.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 12.0 | 5.2 | 4.2 | 0.3 | 0.1 | 0.0 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 34.4 | 1.4 | 0.1 | 32.6 |
| 2011 | 2,245 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.9 | 6.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 5.9 | 6.5 | 2.2 | 0.2 | 0.7 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 41.4 | 1.3 | 0.3 | 28.4 |
| 2012 | 2,514 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.5 | 3.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.5 | 9.5 | 8.9 | 4.8 | 0.6 | 0.4 | 0.0 | 3.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 33.7 | 2.5 | 0.2 | 26.7 |
| 2013 | 2,850 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.1 | 3.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.4 | 5.5 | 4.0 | 1.5 | 1.0 | 0.2 | 0.0 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 39.8 | 5.7 | 0.0 | 32.2 |
| 2014 | 5,070 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 2.9 | 1.8 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.4 | 11.1 | 7.1 | 5.8 | 0.2 | 0.4 | 0.0 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 42.2 | 3.5 | 0.2 | 23.2 |
| 2015 | 6,874 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 2.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 14.6 | 5.5 | 5.9 | 0.0 | 0.0 | 0.0 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 42.9 | 3.0 | 0.4 | 22.1 |
| 2016 | 2,320 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.3 | 2.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 5.7 | 6.0 | 1.0 | 0.4 | 0.0 | 0.0 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 45.7 | 6.5 | 0.4 | 24.2 |
| 2017 | 2,673 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.9 | 5.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 16.7 | 8.0 | 4.9 | 0.1 | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 28.4 | 6.7 | 0.3 | 23.3 |
| 2018 | 1,841 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.5 | 3.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 12.2 | 5.5 | 3.3 | 1.1 | 0.0 | 0.1 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 28.0 | 8.2 | 0.0 | 33.9 |
| 2019 | 1,795 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 2.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.0 | 4.3 | 5.1 | 2.3 | 0.8 | 0.0 | 0.0 | 4.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 29.4 | 5.3 | 2.6 | 38.6 |
| 2020 | 2,186 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 3.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 3.9 | 0.8 | 0.9 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 35.8 | 2.4 | 0.5 | 42.5 |
| 2021 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - |
| 79-84 | 4,267 |  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 26.2 | 0.2 | 0.8 | 0.1 | 0.0 | 0.1 | 1.1 | 1.2 | 16.0 | 5.7 | 1.8 | 0.4 | 0.5 | 0.5 | 5.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 21.4 | 0.5 | 0.2 | 17.7 |
| 85-95 | 1,482 |  | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 18.0 | 2.2 | 0.4 | 0.0 | 0.0 | 0.1 | 0.6 | 0.8 | 11.8 | 3.1 | 3.5 | 0.6 | 0.0 | 1.7 | 3.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 25.3 | 2.5 | 1.4 | 24.4 |
| 96-98 | 754 |  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.2 | 2.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.8 | 1.0 | 4.4 | 0.5 | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 30.8 | 6.4 | 0.8 | 45.3 |
| 99-08 | 3,253 |  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.6 | 3.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 6.6 | 2.9 | 4.2 | 0.5 | 0.0 | 0.0 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 27.5 | 2.7 | 0.2 | 40.5 |
| 09-18 | 3,310 |  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.7 | 3.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 9.5 | 6.1 | 3.4 | 0.4 | 0.2 | 0.0 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 37.2 | 4.1 | 0.2 | 29.3 |
| 19-28 | 1,990 |  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 3.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.5 | 4.7 | 4.5 | 1.6 | 0.8 | 0.0 | 0.0 | 4.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 32.6 | 3.9 | 1.5 | 40.5 |

Appendix C44- Percent distribution of South Puget Sound Fall Fingerling adult equivalent (AEQ) total fishing mortalities and escapement.

| Catch Year | Est <br> \# of <br> CWT | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | $N$ Falcon |  | S Falcon |  | WAC N | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 2,907 | 2,3,4,5 | 0.1 | 0.0 | 0.0 | 0.2 | 0.0 | 5.2 | 8.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.1 | 2.9 | 0.3 | 0.0 | 0.0 | 0.0 | 2.4 | 13.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.2 | 0.2 | 0.3 | 50.8 |
| 2010 | 2,920 | 2,3,4,5 | 0.1 | 0.0 | 0.0 | 0.1 | 0.1 | 5.5 | 5.5 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 2.3 | 2.9 | 1.4 | 0.1 | 0.0 | 0.1 | 0.9 | 11.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 0.0 | 0.0 | 68.1 |
| 2011 | 2,821 | 2,3,4,5 | 0.3 | 0.1 | 0.0 | 0.0 | 0.0 | 3.5 | 5.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.8 | 3.1 | 0.4 | 0.1 | 0.0 | 0.0 | 1.5 | 15.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.0 | 0.0 | 0.0 | 60.3 |
| 2012 | 2,774 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 4.4 | 4.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.5 | 5.4 | 0.7 | 0.7 | 0.0 | 0.0 | 1.3 | 19.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.5 | 0.0 | 0.1 | 56.1 |
| 2013 | 2,907 | 2,3,4,5 | 0.2 | 0.4 | 0.0 | 0.1 | 0.0 | 3.0 | 2.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.8 | 3.4 | 0.7 | 0.0 | 0.0 | 0.0 | 1.5 | 12.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 0.0 | 0.0 | 70.5 |
| 2014 | 2,049 | 2,3,4,5 | 1.2 | 0.6 | 0.0 | 0.2 | 0.0 | 6.0 | 3.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.8 | 4.1 | 2.0 | 0.5 | 0.0 | 0.0 | 0.4 | 14.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 0.0 | 0.5 | 57.9 |
| 2015 | 2,016 | 2,3,4,5 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 2.7 | 2.9 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 12.5 | 9.9 | 0.8 | 0.3 | 0.0 | 0.1 | 1.9 | 18.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 2.3 | 47.0 |
| 2016 | 3,014 | 2,3,4,5 | 0.0 | 0.1 | 0.0 | 0.3 | 0.0 | 1.8 | 3.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 8.5 | 2.5 | 0.4 | 0.1 | 0.0 | 0.0 | 1.4 | 17.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.6 | 62.8 |
| 2017 | 4,556 | 2,3,4,5 | 0.2 | 0.0 | 0.1 | 0.1 | 0.0 | 3.6 | 4.1 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 4.1 | 3.9 | 1.4 | 0.4 | 0.0 | 0.0 | 0.7 | 9.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.4 | 0.0 | 0.2 | 67.4 |
| 2018 | 3,950 | 2,3,4,5 | 0.5 | 0.1 | 0.1 | 0.2 | 0.2 | 2.1 | 4.3 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 9.9 | 5.7 | 0.9 | 0.0 | 0.0 | 0.0 | 1.0 | 19.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.3 | 0.0 | 0.1 | 45.9 |
| 2019 | 2,038 | 2,3,4,5 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 1.5 | 3.7 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 3.8 | 2.9 | 0.4 | 0.0 | 0.0 | 0.0 | 4.1 | 23.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.3 | 58.2 |
| 2020 | 1,344 | 2,3,4,5 | 0.1 | 0.4 | 0.0 | 0.0 | 0.0 | 1.2 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 1.3 | 0.1 | 0.4 | 0.0 | 0.0 | 0.0 | 3.4 | 29.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 1.0 | 62.0 |
| 2021 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 79-84 | 3,947 |  | 0.2 | 0.1 | 0.0 | 0.5 | 0.0 | 20.8 | 0.1 | 1.4 | 0.3 | 0.0 | 1.2 | 1.6 | 7.4 | 1.9 | 0.1 | 0.1 | 0.0 | 0.1 | 13.8 | 29.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.3 | 0.1 | 0.2 | 12.5 |
| 85-95 | 2,501 |  | 0.2 | 0.1 | 0.0 | 0.1 | 0.0 | 15.4 | 1.6 | 0.3 | 0.4 | 0.0 | 0.2 | 2.3 | 6.0 | 6.4 | 0.3 | 0.2 | 0.0 | 0.1 | 10.5 | 19.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.0 | 0.1 | 0.6 | 29.8 |
| 96-98 | 3,262 |  | 0.7 | 0.0 | 0.0 | 0.4 | 0.0 | 2.7 | 1.6 | 0.0 | 0.3 | 0.0 | 0.0 | 0.2 | 2.7 | 1.6 | 0.0 | 0.2 | 0.0 | 0.0 | 3.1 | 15.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 2.2 | 0.2 | 0.2 | 68.5 |
| 99-08 | 2,908 |  | 0.3 | 0.0 | 0.0 | 0.4 | 0.0 | 10.7 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.6 | 4.5 | 0.5 | 0.5 | 0.0 | 0.0 | 4.4 | 12.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.7 | 0.0 | 0.2 | 50.8 |
| 09-18 | 2,991 |  | 0.3 | 0.1 | 0.0 | 0.1 | 0.0 | 3.8 | 4.5 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 6.1 | 4.4 | 0.9 | 0.2 | 0.0 | 0.0 | 1.3 | 15.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.7 | 0.0 | 0.4 | 58.7 |
| 19-28 | 1,691 |  | 0.4 | 0.2 | 0.0 | 0.0 | 0.0 | 1.4 | 1.9 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 2.6 | 1.5 | 0.4 | 0.0 | 0.0 | 0.0 | 3.8 | 26.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.7 | 60.1 |

Appendix C45- Percent distribution of Salmon River adult equivalent (AEQ) total fishing mortalities and escapement.

| Catch <br> Year | Est <br> \# of <br> CWT | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | N Falcon |  | S Falcon |  | WAC N | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 2,584 | 2,3,4,5 | 18.5 | 1.0 | 1.9 | 13.4 | 3.7 | 0.3 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.3 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 24.5 | 0.0 | 34.9 |
| 2010 | 4,015 | 2,3,4,5 | 13.0 | 0.0 | 1.4 | 7.0 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.3 | 0.3 | 0.2 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 41.7 | 0.1 | 33.7 |
| 2011 | 5,395 | 2,3,4,5 | 11.0 | 0.0 | 0.7 | 5.8 | 2.4 | 2.1 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.5 | 0.6 | 0.3 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 29.2 | 0.0 | 43.9 |
| 2012 | 4,145 | 2,3,4,5 | 17.2 | 0.3 | 0.6 | 9.6 | 2.6 | 1.9 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 4.2 | 0.5 | 0.1 | 2.8 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 22.0 | 0.1 | 35.7 |
| 2013 | 8,404 | 2,3,4,5 | 5.8 | 0.2 | 0.7 | 8.2 | 3.9 | 0.5 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 2.1 | 0.7 | 0.4 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 21.9 | 0.0 | 53.2 |
| 2014 | 11,703 | 2,3,4,5 | 9.5 | 0.1 | 0.8 | 5.6 | 2.0 | 1.6 | 0.1 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 1.4 | 0.3 | 0.5 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 20.9 | 0.0 | 56.2 |
| 2015 | 14,034 | 2,3,4,5 | 7.7 | 0.1 | 0.6 | 3.8 | 2.2 | 0.7 | 0.4 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 1.9 | 0.8 | 0.5 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 22.3 | 0.2 | 57.1 |
| 2016 | 9,627 | 2,3,4,5 | 15.7 | 0.0 | 1.1 | 14.6 | 1.9 | 1.3 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.2 | 0.2 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.3 | 0.0 | 51.8 |
| 2017 | 3,893 | 2,3,4,5 | 10.9 | 0.0 | 0.7 | 15.8 | 3.5 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 1.3 | 0.0 | 0.1 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.0 | 0.1 | 53.6 |
| 2018 | 1,159 | 2,3,4,5 | 26.4 | 0.0 | 1.6 | 27.2 | 8.3 | 2.2 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.7 | 0.5 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.9 | 0.1 | 21.6 |
| 2019 | 1,541 | 2,3,4,5 | 6.4 | 0.0 | 1.4 | 12.0 | 2.9 | 1.8 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 0.2 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 29.1 | 0.0 | 43.3 |
| 2020 | 3,232 | 2,3,4,5 | 14.9 | 0.0 | 0.6 | 5.2 | 0.1 | 1.9 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 1.2 | 0.0 | 0.1 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.0 | 0.0 | 60.5 |
| 2021 | NA |  | - | - | - |  | - | - |  | - | - | - | - | - | - |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - |
| 79-84 | 758 |  | 19.6 | 0.3 | 0.4 | 16.5 | 0.0 | 5.6 | 0.0 | 1.3 | 0.9 | 0.0 | 0.0 | 0.2 | 0.1 | 0.0 | 0.3 | 0.5 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 18.7 | 0.0 | 35.2 |
| 85-95 | 2,070 |  | 15.7 | 0.8 | 0.2 | 14.0 | 0.7 | 6.4 | 0.0 | 0.8 | 0.2 | 0.0 | 0.0 | 0.4 | 0.0 | 0.2 | 0.1 | 1.1 | 0.5 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.8 | 0.0 | 37.9 |
| 96-98 | 3,366 |  | 19.4 | 0.2 | 0.6 | 5.0 | 0.8 | 0.3 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.1 | 0.0 | 1.7 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 29.6 | 0.0 | 40.3 |
| 99-08 | 3,374 |  | 18.6 | 0.3 | 1.4 | 7.0 | 4.0 | 0.8 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.2 | 0.2 | 0.8 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 24.6 | 0.1 | 40.0 |
| 09-18 | 6,496 |  | 13.6 | 0.2 | 1.0 | 11.1 | 3.2 | 1.1 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 1.4 | 0.4 | 0.3 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 21.5 | 0.1 | 44.2 |
| 19-28 | 2,386 |  | 10.7 | 0.0 | 1.0 | 8.6 | 1.5 | 1.8 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 1.2 | 0.1 | 0.0 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 21.1 | 0.0 | 51.9 |

Appendix C46- Percent distribution of Siletz River adult equivalent (AEQ) total fishing mortalities and escapement based on Salmon River (SRH) coded-wire tag (CWT) recoveries with terminal adjustments for basin-specific performance.

| Catch <br> Year | Est <br> \# of <br> CWT | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | N Falcon |  | S Falcon |  | WAC N | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 2,584 | 2,3,4,5 | 18.5 | 1.0 | 1.9 | 13.4 | 3.7 | 0.3 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.3 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 10.2 | 0.0 | 49.2 |
| 2010 | 4,015 | 2,3,4,5 | 13.0 | 0.0 | 1.4 | 7.0 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.3 | 0.3 | 0.2 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.5 | 0.1 | 69.9 |
| 2011 | 5,395 | 2,3,4,5 | 11.0 | 0.0 | 0.7 | 5.8 | 2.4 | 2.1 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.5 | 0.6 | 0.3 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 26.7 | 0.0 | 46.5 |
| 2012 | 4,145 | 2,3,4,5 | 17.2 | 0.3 | 0.6 | 9.6 | 2.6 | 1.9 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 4.2 | 0.5 | 0.1 | 2.8 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.6 | 0.1 | 47.1 |
| 2013 | 8,404 | 2,3,4,5 | 5.8 | 0.2 | 0.7 | 8.2 | 3.9 | 0.5 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 2.1 | 0.7 | 0.4 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 15.0 | 0.0 | 60.1 |
| 2014 | 11,703 | 2,3,4,5 | 9.5 | 0.1 | 0.8 | 5.6 | 2.0 | 1.6 | 0.1 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 1.4 | 0.3 | 0.5 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 15.3 | 0.0 | 61.8 |
| 2015 | 14,034 | 2,3,4,5 | 7.7 | 0.1 | 0.6 | 3.8 | 2.2 | 0.7 | 0.4 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 1.9 | 0.8 | 0.5 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 32.9 | 0.2 | 46.5 |
| 2016 | 9,627 | 2,3,4,5 | 15.7 | 0.0 | 1.1 | 14.6 | 1.9 | 1.3 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.2 | 0.2 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.5 | 0.0 | 49.6 |
| 2017 | 3,893 | 2,3,4,5 | 10.9 | 0.0 | 0.7 | 15.8 | 3.5 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 1.3 | 0.0 | 0.1 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 19.8 | 0.1 | 45.8 |
| 2018 | 1,159 | 2,3,4,5 | 26.4 | 0.0 | 1.6 | 27.2 | 8.3 | 2.2 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.7 | 0.5 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.9 | 0.1 | 21.5 |
| 2019 | 1,541 | 2,3,4,5 | 6.4 | 0.0 | 1.4 | 12.0 | 2.9 | 1.8 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 0.2 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 24.9 | 0.0 | 47.6 |
| 2020 | 3,232 | 2,3,4,5 | 14.9 | 0.0 | 0.6 | 5.2 | 0.1 | 1.9 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 1.2 | 0.0 | 0.1 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.1 | 0.0 | 63.4 |
| 2021 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 79-84 | 758 |  | 19.6 | 0.3 | 0.4 | 16.5 | 0.0 | 5.6 | 0.0 | 1.3 | 0.9 | 0.0 | 0.0 | 0.2 | 0.1 | 0.0 | 0.3 | 0.5 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 6.3 | 0.0 | 47.6 |
| 85-95 | 2,070 |  | 15.7 | 0.8 | 0.2 | 14.0 | 0.7 | 6.4 | 0.0 | 0.8 | 0.2 | 0.0 | 0.0 | 0.4 | 0.0 | 0.2 | 0.1 | 1.1 | 0.5 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.4 | 0.0 | 52.3 |
| 96-98 | 3,366 |  | 19.4 | 0.2 | 0.6 | 5.0 | 0.8 | 0.3 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.1 | 0.0 | 1.7 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.6 | 0.0 | 61.4 |
| 99-08 | 3,374 |  | 18.6 | 0.3 | 1.4 | 7.0 | 4.0 | 0.8 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.2 | 0.2 | 0.8 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.7 | 0.1 | 51.9 |
| 09-18 | 6,496 |  | 13.6 | 0.2 | 1.0 | 11.1 | 3.2 | 1.1 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 1.4 | 0.4 | 0.3 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 15.8 | 0.1 | 49.8 |
| 19-28 | 2,386 |  | 10.7 | 0.0 | 1.0 | 8.6 | 1.5 | 1.8 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 1.2 | 0.1 | 0.0 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 17.5 | 0.0 | 55.5 |

Appendix C47- Percent distribution of Siuslaw River adult equivalent (AEQ) total fishing mortalities and escapement based on Salmon River (SRH) coded-wire tag (CWT) recoveries with terminal adjustments for basin-specific performance.

| Catch Year | Est <br> \# of <br> CWT | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | $N$ Falcon |  | S Falcon |  | WAC N | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 2,584 | 2,3,4,5 | 18.5 | 1.0 | 1.9 | 13.4 | 3.7 | 0.3 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.3 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 13.1 | 0.0 | 46.2 |
| 2010 | 4,015 | 2,3,4,5 | 13.0 | 0.0 | 1.4 | 7.0 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.3 | 0.3 | 0.2 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 16.9 | 0.1 | 58.5 |
| 2011 | 5,395 | 2,3,4,5 | 11.0 | 0.0 | 0.7 | 5.8 | 2.4 | 2.1 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.5 | 0.6 | 0.3 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 23.9 | 0.0 | 49.2 |
| 2012 | 4,145 | 2,3,4,5 | 17.2 | 0.3 | 0.6 | 9.6 | 2.6 | 1.9 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 4.2 | 0.5 | 0.1 | 2.8 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.6 | 0.1 | 46.0 |
| 2013 | 8,404 | 2,3,4,5 | 5.8 | 0.2 | 0.7 | 8.2 | 3.9 | 0.5 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 2.1 | 0.7 | 0.4 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 27.2 | 0.0 | 47.9 |
| 2014 | 11,703 | 2,3,4,5 | 9.5 | 0.1 | 0.8 | 5.6 | 2.0 | 1.6 | 0.1 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 1.4 | 0.3 | 0.5 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 20.7 | 0.0 | 56.5 |
| 2015 | 14,034 | 2,3,4,5 | 7.7 | 0.1 | 0.6 | 3.8 | 2.2 | 0.7 | 0.4 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 1.9 | 0.8 | 0.5 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 28.4 | 0.2 | 50.9 |
| 2016 | 9,627 | 2,3,4,5 | 15.7 | 0.0 | 1.1 | 14.6 | 1.9 | 1.3 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.2 | 0.2 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 24.5 | 0.0 | 38.6 |
| 2017 | 3,893 | 2,3,4,5 | 10.9 | 0.0 | 0.7 | 15.8 | 3.5 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 1.3 | 0.0 | 0.1 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 23.7 | 0.1 | 41.8 |
| 2018 | 1,159 | 2,3,4,5 | 26.4 | 0.0 | 1.6 | 27.2 | 8.3 | 2.2 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.7 | 0.5 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.8 | 0.1 | 16.7 |
| 2019 | 1,541 | 2,3,4,5 | 6.4 | 0.0 | 1.4 | 12.0 | 2.9 | 1.8 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 0.2 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 36.8 | 0.0 | 35.7 |
| 2020 | 3,232 | 2,3,4,5 | 14.9 | 0.0 | 0.6 | 5.2 | 0.1 | 1.9 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 1.2 | 0.0 | 0.1 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 18.1 | 0.0 | 55.3 |
| 2021 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - |  |
| 79-84 | 758 |  | 19.6 | 0.3 | 0.4 | 16.5 | 0.0 | 5.6 | 0.0 | 1.3 | 0.9 | 0.0 | 0.0 | 0.2 | 0.1 | 0.0 | 0.3 | 0.5 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 11.0 | 0.0 | 43.0 |
| 85-95 | 2,070 |  | 15.7 | 0.8 | 0.2 | 14.0 | 0.7 | 6.4 | 0.0 | 0.8 | 0.2 | 0.0 | 0.0 | 0.4 | 0.0 | 0.2 | 0.1 | 1.1 | 0.5 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.5 | 0.0 | 47.2 |
| 96-98 | 3,366 |  | 19.4 | 0.2 | 0.6 | 5.0 | 0.8 | 0.3 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.1 | 0.0 | 1.7 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.7 | 0.0 | 49.2 |
| 99-08 | 3,374 |  | 18.6 | 0.3 | 1.4 | 7.0 | 4.0 | 0.8 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.2 | 0.2 | 0.8 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 16.0 | 0.1 | 48.6 |
| 09-18 | 6,496 |  | 13.6 | 0.2 | 1.0 | 11.1 | 3.2 | 1.1 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 1.4 | 0.4 | 0.3 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 20.4 | 0.1 | 45.2 |
| 19-28 | 2,386 |  | 10.7 | 0.0 | 1.0 | 8.6 | 1.5 | 1.8 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 1.2 | 0.1 | 0.0 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 27.4 | 0.0 | 45.5 |

Appendix C48- Percent distribution of Nehalem River adult equivalent (AEQ) total fishing mortalities and escapement based on Salmon River (SRH) coded-wire tag (CWT) recoveries with terminal adjustments for basin-specific performance.

| Catch <br> Year | Est <br> \# of <br> CWT | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | N Falcon |  | S Falcon |  | WAC <br> N | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 2,584 | 2,3,4,5 | 18.5 | 1.0 | 1.9 | 13.4 | 3.7 | 0.3 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.3 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.8 | 0.0 | 58.5 |
| 2010 | 4,015 | 2,3,4,5 | 13.0 | 0.0 | 1.4 | 7.0 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.3 | 0.3 | 0.2 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.8 | 0.1 | 68.6 |
| 2011 | 5,395 | 2,3,4,5 | 11.0 | 0.0 | 0.7 | 5.8 | 2.4 | 2.1 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.5 | 0.6 | 0.3 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 11.6 | 0.0 | 61.5 |
| 2012 | 4,145 | 2,3,4,5 | 17.2 | 0.3 | 0.6 | 9.6 | 2.6 | 1.9 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 4.2 | 0.5 | 0.1 | 2.8 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.9 | 0.1 | 49.8 |
| 2013 | 8,404 | 2,3,4,5 | 5.8 | 0.2 | 0.7 | 8.2 | 3.9 | 0.5 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 2.1 | 0.7 | 0.4 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.4 | 0.0 | 60.8 |
| 2014 | 11,703 | 2,3,4,5 | 9.5 | 0.1 | 0.8 | 5.6 | 2.0 | 1.6 | 0.1 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 1.4 | 0.3 | 0.5 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 18.3 | 0.0 | 58.8 |
| 2015 | 14,034 | 2,3,4,5 | 7.7 | 0.1 | 0.6 | 3.8 | 2.2 | 0.7 | 0.4 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 1.9 | 0.8 | 0.5 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 22.0 | 0.2 | 57.4 |
| 2016 | 9,627 | 2,3,4,5 | 15.7 | 0.0 | 1.1 | 14.6 | 1.9 | 1.3 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.2 | 0.2 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.8 | 0.0 | 52.2 |
| 2017 | 3,893 | 2,3,4,5 | 10.9 | 0.0 | 0.7 | 15.8 | 3.5 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 1.3 | 0.0 | 0.1 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.5 | 0.1 | 53.0 |
| 2018 | 1,159 | 2,3,4,5 | 26.4 | 0.0 | 1.6 | 27.2 | 8.3 | 2.2 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.7 | 0.5 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.5 | 0.1 | 24.0 |
| 2019 | 1,541 | 2,3,4,5 | 6.4 | 0.0 | 1.4 | 12.0 | 2.9 | 1.8 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 0.2 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.2 | 0.0 | 68.2 |
| 2020 | 3,232 | 2,3,4,5 | 14.9 | 0.0 | 0.6 | 5.2 | 0.1 | 1.9 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 1.2 | 0.0 | 0.1 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 68.6 |
| 2021 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - | - | - | - | - |  | - |  |  | - |
| 79-84 | 758 |  | 19.6 | 0.3 | 0.4 | 16.5 | 0.0 | 5.6 | 0.0 | 1.3 | 0.9 | 0.0 | 0.0 | 0.2 | 0.1 | 0.0 | 0.3 | 0.5 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 4.3 | 0.0 | 49.6 |
| 85-95 | 2,070 |  | 15.7 | 0.8 | 0.2 | 14.0 | 0.7 | 6.4 | 0.0 | 0.8 | 0.2 | 0.0 | 0.0 | 0.4 | 0.0 | 0.2 | 0.1 | 1.1 | 0.5 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.2 | 0.0 | 46.5 |
| 96-98 | 3,366 |  | 19.4 | 0.2 | 0.6 | 5.0 | 0.8 | 0.3 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.1 | 0.0 | 1.7 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.8 | 0.0 | 56.1 |
| 99-08 | 3,374 |  | 18.6 | 0.3 | 1.4 | 7.0 | 4.0 | 0.8 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.2 | 0.2 | 0.8 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.5 | 0.1 | 54.1 |
| 09-18 | 6,496 |  | 13.6 | 0.2 | 1.0 | 11.1 | 3.2 | 1.1 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 1.4 | 0.4 | 0.3 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 11.2 | 0.1 | 54.5 |
| 19-28 | 2,386 |  | 10.7 | 0.0 | 1.0 | 8.6 | 1.5 | 1.8 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 1.2 | 0.1 | 0.0 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.5 | 0.0 | 68.4 |

Appendix C49- Percent distribution of Southern Southeast Alaska Spring adult equivalent (AEQ) total fishing mortalities and escapement.

| Catch <br> Year | Est <br> \# of <br> CWT | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | $N$ Falcon |  | S Falcon |  | WAC N | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 7,803 | 3,4,5,6 | 16.7 | 4.0 | 2.6 | 0.5 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.4 | 0.8 | 1.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 63.8 |
| 2010 | 5,926 | 3,4,5,6 | 18.1 | 3.8 | 7.2 | 0.2 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.1 | 1.5 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 57.2 |
| 2011 | 6,111 | 3,4,5,6 | 13.1 | 8.3 | 3.6 | 0.4 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.7 | 2.0 | 1.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 57.6 |
| 2012 | 3,792 | 3,4,5,6 | 27.3 | 9.3 | 4.3 | 0.5 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.8 | 5.1 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.5 | 34.8 |
| 2013 | 5,874 | 3,4,5,6 | 15.7 | 13.4 | 2.4 | 0.2 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.5 | 5.9 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.3 | 45.0 |
| 2014 | 4,838 | 3,4,5,6 | 24.7 | 7.6 | 2.6 | 0.4 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.7 | 1.4 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.4 | 53.6 |
| 2015 | 5,453 | 3,4,5,6 | 26.8 | 11.8 | 2.8 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.8 | 1.8 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.8 | 38.8 |
| 2016 | 3,567 | 3,4,5,6 | 26.5 | 8.2 | 3.5 | 0.4 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 18.6 | 0.4 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.3 | 37.3 |
| 2017 | 4,146 | 3,4,5,6 | 21.1 | 8.9 | 3.8 | 0.0 | 0.8 | 0.0 | 0.0 | 0.0 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.6 | 0.8 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.4 | 54.0 |
| 2018 | 2,572 | 3,4,5,6 | 8.3 | 8.5 | 2.4 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.8 | 5.4 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.9 | 65.2 |
| 2019 | 2,309 | 3,4,5,6 | 4.8 | 21.5 | 0.2 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.3 | 0.7 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.5 | 63.6 |
| 2020 | 3,252 | 3,4,5,6 | 8.8 | 7.2 | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.3 | 1.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 76.6 |
| 2021 | 4,338 | 3,4,5,6 | 9.7 | 14.7 | 2.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.3 | 5.4 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.4 | 61.0 |
| 79-84 | 4,738 |  | 34.2 | 2.6 | 8.7 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.6 | 0.0 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 46.9 |
| 85-95 | 12,220 |  | 26.8 | 13.2 | 8.2 | 0.8 | 0.1 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.9 | 1.9 | 2.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 39.5 |
| 96-98 | 4,902 |  | 26.8 | 7.1 | 10.6 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 15.3 | 4.7 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 28.7 |
| 99-08 | 8,060 |  | 22.2 | 3.9 | 9.0 | 0.4 | 0.4 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.7 | 1.7 | 5.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 45.6 |
| 09-18 | 5,008 |  | 19.8 | 8.4 | 3.5 | 0.3 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.9 | 2.5 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 50.7 |
| 19-28 | 3,300 |  | 7.8 | 14.5 | 1.3 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 | 2.4 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.4 | 67.1 |

Appendix C50- Percent distribution of Skagit Summer Fingerling adult equivalent (AEQ) total fishing mortalities and escapement.

| Catch <br> Year | Est <br> \# of <br> CWT | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | $N$ Falcon |  | S Falcon |  | $\begin{gathered} \text { WAC } \\ \mathrm{N} \end{gathered}$ | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 834 | 2,3,4,5 | 7.7 | 1.0 | 0.8 | 1.7 | 0.0 | 3.6 | 6.0 | 0.0 | 0.0 | 1.3 | 0.0 | 0.0 | 7.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 3.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 33.7 | 0.0 | 1.2 | 32.6 |
| 2010 | 568 | 2,3,4,5 | 8.5 | 0.5 | 0.2 | 1.6 | 0.0 | 4.6 | 4.2 | 0.0 | 0.5 | 4.8 | 0.0 | 0.0 | 2.8 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 3.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.0 | 0.9 | 3.7 | 56.3 |
| 2011 | 570 | 2,3,4,5 | 4.9 | 0.0 | 0.5 | 0.0 | 0.0 | 6.7 | 5.4 | 0.0 | 0.0 | 0.7 | 0.0 | 0.0 | 6.0 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 6.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 18.2 | 0.0 | 2.1 | 46.8 |
| 2012 | 533 | 2,3,4,5 | 8.6 | 1.7 | 0.0 | 1.9 | 0.4 | 2.6 | 2.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.8 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.8 | 0.0 | 3.2 | 72.4 |
| 2013 | 329 | 2,3,4,5 | 4.6 | 1.8 | 0.0 | 2.1 | 0.0 | 0.9 | 9.7 | 0.0 | 0.0 | 1.5 | 0.0 | 0.0 | 6.7 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.6 | 0.0 | 6.1 | 47.1 |
| 2014 | 366 | 2,3,4,5 | 16.1 | 2.2 | 0.0 | 0.0 | 0.0 | 7.1 | 1.6 | 0.0 | 0.0 | 1.9 | 0.0 | 0.0 | 16.7 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.3 | 0.0 | 4.1 | 38.3 |
| 2015 | 653 | 2,3,4,5 | 14.2 | 0.5 | 0.8 | 0.9 | 0.9 | 1.2 | 6.9 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 10.9 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.3 | 0.0 | 0.0 | 52.7 |
| 2016 | 931 | 2,3,4,5 | 7.9 | 1.4 | 0.0 | 0.4 | 1.8 | 3.1 | 6.3 | 0.0 | 0.0 | 2.4 | 0.0 | 0.0 | 19.9 | 0.9 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 4.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.4 | 0.0 | 4.1 | 42.3 |
| 2017 | 918 | 2,3,4,5 | 5.6 | 1.9 | 0.7 | 0.4 | 2.6 | 6.8 | 24.1 | 0.0 | 0.0 | 2.1 | 0.0 | 0.0 | 15.5 | 0.4 | 0.7 | 0.0 | 0.0 | 0.0 | 1.5 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.4 | 0.0 | 0.1 | 29.7 |
| 2018 | 1,342 | 2,3,4,5 | 4.5 | 1.0 | 0.3 | 1.3 | 0.8 | 2.4 | 12.6 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 11.9 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 10.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.1 | 0.0 | 0.8 | 49.6 |
| 2019 | 1,139 | 2,3,4,5 | 1.1 | 0.3 | 0.0 | 0.3 | 0.2 | 0.0 | 9.2 | 0.0 | 0.0 | 1.1 | 0.0 | 0.3 | 3.5 | 0.4 | 0.3 | 0.0 | 0.0 | 0.0 | 0.3 | 7.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.4 | 0.0 | 1.5 | 69.6 |
| 2020 | 449 | 2,3,4,5 | 4.0 | 1.6 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.7 | 0.0 | 0.2 | 8.9 | 0.0 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.3 | 0.0 | 0.0 | 78.2 |
| 2021 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 79-84 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 85-95 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 96-98 | 182 |  | 3.8 | 0.0 | 0.0 | 0.0 | 0.0 | 1.6 | 3.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 83.0 |
| 99-08 | 1,016 |  | 8.1 | 0.6 | 0.2 | 1.4 | 0.7 | 6.6 | 5.5 | 0.0 | 0.1 | 0.2 | 0.0 | 0.3 | 5.9 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.0 | 0.0 | 2.0 | 63.0 |
| 09-18 | 704 |  | 8.3 | 1.2 | 0.3 | 1.0 | 0.7 | 3.9 | 7.9 | 0.0 | 0.1 | 1.7 | 0.0 | 0.0 | 10.0 | 0.8 | 0.2 | 0.0 | 0.0 | 0.0 | 0.4 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.4 | 0.1 | 2.5 | 46.8 |
| 19-28 | 794 |  | 2.5 | 0.9 | 0.0 | 0.1 | 0.1 | 0.2 | 4.6 | 0.0 | 0.0 | 0.9 | 0.0 | 0.2 | 6.2 | 0.2 | 0.5 | 0.0 | 0.0 | 0.0 | 0.1 | 3.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.9 | 0.0 | 0.7 | 73.9 |

Appendix C51- Percent distribution of Stikine River adult equivalent (AEQ) total fishing mortalities and escapement.

| Catch <br> Year | Est <br> \# of <br> CWT | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | N Falcon |  | S Falcon |  | WAC N | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 226 | 3,4,5,6 | 11.9 | 3.5 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.8 | 2.7 | 11.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 57.1 |
| 2010 | 248 | 3,4,5,6 | 13.7 | 2.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.6 | 2.8 | 1.2 | 15.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 62.5 |
| 2011 | 386 | 3,4,5,6 | 4.7 | 5.7 | 1.8 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 8.3 | 0.5 | 12.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 65.8 |
| 2012 | 621 | 3,4,5,6 | 8.9 | 3.2 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.7 | 0.2 | 15.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 68.8 |
| 2013 | 485 | 3,4,5,6 | 4.1 | 3.5 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 1.9 | 1.0 | 12.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 75.9 |
| 2014 | 559 | 3,4,5,6 | 3.9 | 3.6 | 0.0 | 0.0 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 3.6 | 0.2 | 9.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 77.8 |
| 2015 | 762 | 3,4,5,6 | 3.9 | 1.6 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 0.0 | 17.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 74.7 |
| 2016 | 603 | 3,4,5,6 | 3.5 | 0.2 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.5 | 0.5 | 14.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 78.9 |
| 2017 | 321 | 3,4,5,6 | 6.2 | 0.6 | 1.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 15.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 75.7 |
| 2018 | 190 | 3,4,5,6 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 6.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 92.1 |
| 2019 | 373 | 3,4,5,6 | 4.0 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 91.4 |
| 2020 | 354 | 3,4,5,6 | 1.4 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 85.6 |
| 2021 | 356 | 4,5,6 | 3.7 | 5.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 89.6 |
| 79-84 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 85-95 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 96-98 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 99-08 | 360 |  | 7.5 | 0.8 | 5.3 | 1.9 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.4 | 12.9 | 4.6 | 17.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 46.6 |
| 09-18 | 440 |  | 6.1 | 2.5 | 0.7 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 3.5 | 0.6 | 13.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 72.9 |
| 19-28 | 361 |  | 3.0 | 2.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 88.9 |

Appendix C52 - Percent distribution of Stillaguamish Fall Fingerling adult equivalent (AEQ) total fishing mortalities and escapement.

| Catch Year | Est | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | \# of <br> CWT |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | $N$ Falcon |  | S Falcon |  | WAC <br> N | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 977 | 2,3,4,5 | 1.2 | 0.1 | 0.3 | 0.3 | 0.6 | 2.4 | 4.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.7 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 12.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.8 | 0.0 | 5.1 | 60.4 |
| 2010 | 885 | 2,3,4,5 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.0 | 7.7 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 8.9 | 2.4 | 0.5 | 0.0 | 0.0 | 0.0 | 2.8 | 8.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 1.2 | 56.3 |
| 2011 | 1,412 | 2,3,4,5 | 1.3 | 0.2 | 0.0 | 0.0 | 0.0 | 4.6 | 7.0 | 0.0 | 0.0 | 2.9 | 0.0 | 0.0 | 7.3 | 0.6 | 0.2 | 0.0 | 0.0 | 0.0 | 1.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 0.1 | 2.6 | 65.8 |
| 2012 | 1,004 | 2,3,4,5 | 1.7 | 0.3 | 0.0 | 0.3 | 0.0 | 4.2 | 2.1 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 7.9 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 0.0 | 8.7 | 67.6 |
| 2013 | 475 | 2,3,4,5 | 1.3 | 1.9 | 0.6 | 0.0 | 0.0 | 6.5 | 7.8 | 0.0 | 0.0 | 1.1 | 0.0 | 0.0 | 11.6 | 4.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 17.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.4 | 0.0 | 1.7 | 41.5 |
| 2014 | 943 | 2,3,4,5 | 3.7 | 0.7 | 0.0 | 0.6 | 0.4 | 8.1 | 8.4 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 19.4 | 1.5 | 0.5 | 0.0 | 0.4 | 0.0 | 1.1 | 21.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.5 | 0.0 | 1.7 | 28.6 |
| 2015 | 458 | 2,3,4,5 | 3.3 | 0.2 | 0.0 | 0.0 | 0.0 | 5.9 | 3.7 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 14.4 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 3.5 | 11.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 9.0 | 45.6 |
| 2016 | 560 | 2,3,4,5 | 0.9 | 0.5 | 0.0 | 0.0 | 0.0 | 6.2 | 3.9 | 0.0 | 0.0 | 3.9 | 0.0 | 0.0 | 14.3 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 3.8 | 11.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.3 | 0.0 | 1.4 | 48.2 |
| 2017 | 968 | 2,3,4,5 | 1.2 | 0.5 | 0.2 | 0.0 | 0.7 | 8.0 | 4.9 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 9.3 | 1.4 | 0.1 | 0.0 | 0.0 | 0.0 | 2.4 | 10.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 0.0 | 9.8 | 49.2 |
| 2018 | 1,460 | 2,3,4,5 | 1.7 | 0.2 | 0.0 | 0.3 | 0.0 | 3.4 | 5.3 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 12.9 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 3.2 | 9.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.4 | 0.0 | 3.2 | 56.2 |
| 2019 | 1,247 | 2,3,4,5 | 1.3 | 1.9 | 0.0 | 0.0 | 0.0 | 1.0 | 4.3 | 0.0 | 0.0 | 1.8 | 0.0 | 0.2 | 12.1 | 0.2 | 0.2 | 0.0 | 0.0 | 0.0 | 2.6 | 11.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.0 | 6.6 | 51.9 |
| 2020 | 1,042 | 2,3,4,5 | 3.8 | 0.3 | 0.4 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 6.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 6.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.2 | 0.0 | 5.5 | 73.1 |
| 2021 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - |  | - | - | - | - | - | - | - | - | - | - |
| 79-84 | 106 |  | 0.9 | 0.0 | 0.0 | 3.8 | 0.0 | 10.4 | 0.0 | 17.0 | 1.9 | 0.0 | 0.0 | 19.8 | 16.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.8 | 26.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85-95 | 646 |  | 2.0 | 0.0 | 0.0 | 0.9 | 0.0 | 13.7 | 4.5 | 1.2 | 3.2 | 0.2 | 0.2 | 3.1 | 8.5 | 3.3 | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 | 18.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 0.0 | 0.7 | 35.3 |
| 96-98 | 1,082 |  | 6.0 | 0.2 | 0.1 | 0.6 | 0.0 | 2.6 | 3.8 | 0.0 | 2.8 | 0.4 | 0.0 | 0.4 | 4.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 13.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 4.9 | 58.6 |
| 99-08 | 749 |  | 2.4 | 0.4 | 0.0 | 0.0 | 0.0 | 7.4 | 3.3 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 6.8 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 7.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 0.0 | 6.7 | 62.7 |
| 09-18 | 914 |  | 1.7 | 0.5 | 0.1 | 0.2 | 0.2 | 5.7 | 5.5 | 0.0 | 0.0 | 1.3 | 0.0 | 0.0 | 11.4 | 1.3 | 0.1 | 0.0 | 0.0 | 0.0 | 2.0 | 11.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.0 | 4.4 | 51.9 |
| 19-28 | 1,144 |  | 2.6 | 1.1 | 0.2 | 0.0 | 0.0 | 0.6 | 2.1 | 0.0 | 0.0 | 1.1 | 0.0 | 0.1 | 9.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 1.6 | 8.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.1 | 0.0 | 6.0 | 62.5 |

Appendix C53- Percent distribution of Columbia River Summers adult equivalent (AEQ) total fishing mortalities and escapement.

| Catch Year | Est | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | \# of CWT |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | N Falcon |  | S Falcon |  | WAC N | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 4,365 | 2,3,4,5 | 8.3 | 0.3 | 0.5 | 1.4 | 0.6 | 5.5 | 6.4 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 1.6 | 1.5 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 15.8 | 3.3 | 0.0 | 53.7 |
| 2010 | 6,057 | 2,3,4,5 | 7.8 | 0.0 | 1.0 | 1.7 | 1.1 | 6.0 | 0.7 | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 | 0.9 | 4.9 | 0.4 | 2.2 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 21.5 | 4.0 | 0.0 | 47.0 |
| 2011 | 4,957 | 2,3,4,5 | 9.8 | 0.1 | 0.4 | 1.3 | 0.8 | 2.9 | 1.9 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.5 | 1.2 | 1.2 | 2.4 | 0.3 | 0.0 | 0.0 | 0.4 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 21.8 | 6.4 | 0.0 | 48.2 |
| 2012 | 5,680 | 2,3,4,5 | 13.3 | 0.7 | 0.6 | 3.2 | 0.8 | 5.3 | 2.3 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.7 | 5.9 | 2.5 | 4.0 | 0.7 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.6 | 5.9 | 0.0 | 43.7 |
| 2013 | 5,974 | 2,3,4,5 | 6.5 | 0.6 | 0.4 | 2.1 | 1.2 | 3.6 | 1.9 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.4 | 4.7 | 0.6 | 3.3 | 0.5 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.7 | 6.8 | 0.2 | 54.0 |
| 2014 | 6,808 | 2,3,4,5 | 10.1 | 0.6 | 0.4 | 1.5 | 0.5 | 7.7 | 0.4 | 0.0 | 0.0 | 0.5 | 0.1 | 0.0 | 0.1 | 4.9 | 1.0 | 4.0 | 0.2 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 18.0 | 5.9 | 0.0 | 43.9 |
| 2015 | 10,446 | 2,3,4,5 | 11.7 | 0.4 | 0.7 | 1.1 | 0.6 | 2.0 | 0.4 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 6.3 | 1.3 | 3.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 21.6 | 4.3 | 0.0 | 46.2 |
| 2016 | 12,216 | 2,3,4,5 | 19.7 | 0.5 | 0.5 | 2.8 | 0.6 | 8.7 | 0.5 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.1 | 2.2 | 0.0 | 3.5 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.8 | 4.7 | 0.0 | 44.6 |
| 2017 | 7,235 | 2,3,4,5 | 7.6 | 0.2 | 0.6 | 1.8 | 1.2 | 6.9 | 0.2 | 0.0 | 0.0 | 0.7 | 0.0 | 0.0 | 0.0 | 3.9 | 0.3 | 0.9 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.8 | 7.7 | 0.0 | 54.0 |
| 2018 | 6,233 | 2,3,4,5 | 8.1 | 0.2 | 0.7 | 3.0 | 1.0 | 3.1 | 0.4 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.4 | 3.7 | 0.2 | 0.5 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 16.8 | 5.3 | 0.0 | 56.5 |
| 2019 | 5,538 | 2,3,4,5 | 3.8 | 1.0 | 0.2 | 0.4 | 0.2 | 0.2 | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.1 | 1.5 | 0.3 | 0.2 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.3 | 0.2 | 0.0 | 82.8 |
| 2020 | 7,403 | 3,4,5 | 12.2 | 0.2 | 0.7 | 0.3 | 0.1 | 0.3 | 0.2 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.5 | 0.6 | 0.3 | 0.1 | 0.0 | 0.1 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.5 | 3.0 | 0.0 | 70.3 |
| 2021 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - |  |
| 79-84 | 282 |  | 23.0 | 0.0 | 0.9 | 7.8 | 0.0 | 16.8 | 0.0 | 3.7 | 4.7 | 0.7 | 1.2 | 0.7 | 2.0 | 0.8 | 1.2 | 0.0 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.5 | 31.2 |
| 85-95 | 441 |  | 7.9 | 0.8 | 0.1 | 4.4 | 0.3 | 16.0 | 1.4 | 0.6 | 2.2 | 0.1 | 0.0 | 0.9 | 0.5 | 4.2 | 1.1 | 2.0 | 0.2 | 0.0 | 0.2 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.1 | 0.4 | 0.4 | 50.2 |
| 96-98 | 1,085 |  | 10.4 | 0.4 | 1.7 | 0.9 | 1.1 | 1.8 | 0.1 | 0.0 | 1.4 | 0.1 | 0.0 | 0.1 | 0.9 | 0.4 | 0.0 | 2.5 | 0.3 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.4 | 1.0 | 0.1 | 76.4 |
| 99-08 | 5,574 |  | 16.4 | 0.8 | 1.5 | 4.8 | 1.5 | 9.5 | 2.0 | 0.0 | 0.2 | 0.5 | 0.0 | 0.0 | 0.5 | 3.9 | 1.0 | 3.6 | 0.4 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.2 | 2.7 | 0.2 | 44.0 |
| 09-18 | 6,997 |  | 10.3 | 0.4 | 0.6 | 2.0 | 0.8 | 5.2 | 1.5 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.5 | 3.9 | 0.8 | 2.4 | 0.2 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 16.2 | 5.4 | 0.0 | 49.2 |
| 19-28 | 6,470 |  | 8.0 | 0.6 | 0.4 | 0.3 | 0.1 | 0.2 | 0.1 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.3 | 1.1 | 0.3 | 0.2 | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.4 | 1.6 | 0.0 | 76.5 |

Appendix C54- Percent distribution of Taku River adult equivalent (AEQ) total fishing mortalities and escapement.

| Catch <br> Year | Est | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | \# of <br> CWT |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | N Falcon |  | S Falcon |  | WAC <br> N | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 344 | 3,4,5,6 | 8.7 | 0.0 | 2.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.5 | 0.0 | 15.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 60.8 |
| 2010 | 225 | 3,4,5,6 | 4.0 | 0.0 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 0.0 | 13.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 79.1 |
| 2011 | 336 | 3,4,5,6 | 6.8 | 0.9 | 2.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.2 | 0.0 | 7.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 77.7 |
| 2012 | 273 | 3,4,5,6 | 10.3 | 0.4 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 0.0 | 10.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 77.3 |
| 2013 | 350 | 3,4,5,6 | 3.4 | 1.1 | 1.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 1.1 | 0.0 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 88.6 |
| 2014 | 357 | 3,4,5,6 | 2.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.0 | 9.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 86.8 |
| 2015 | 398 | 3,4,5,6 | 7.5 | 1.8 | 3.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.5 | 0.0 | 7.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 78.6 |
| 2016 | 228 | 3,4,5,6 | 0.9 | 0.0 | 3.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 11.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 84.2 |
| 2017 | 186 | 3,4,5,6 | 4.3 | 2.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 90.3 |
| 2018 | 143 | 3,4,5,6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 95.8 |
| 2019 | 556 | 3,4,5,6 | 0.0 | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.6 | 0.0 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 96.0 |
| 2020 | 619 | 3,4,5,6 | 0.3 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.7 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 95.8 |
| 2021 | 613 | 4,5,6 | 2.0 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.9 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 93.3 |
| 79-84 | 311 |  | 5.2 | 0.2 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.4 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 90.4 |
| 85-95 | 344 |  | 2.9 | 0.0 | 8.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 87.2 |
| 96-98 | 485 |  | 0.9 | 0.0 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 3.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 90.7 |
| 99-08 | 1,062 |  | 3.3 | 0.1 | 4.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.6 | 0.1 | 6.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 78.2 |
| 09-18 | 284 |  | 4.9 | 0.7 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.1 | 8.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 81.9 |
| 19-28 | 596 |  | 0.8 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.4 | 0.0 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 95.1 |

Appendix C55- Percent distribution of Taku and Stikine Rivers adult equivalent (AEQ) total fishing mortalities and escapement.

| Catch Year | Est <br> \# of <br> CWT | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | N Falcon |  | S Falcon |  | WAC N | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 573 | 3,4,5,6 | 9.9 | 1.4 | 1.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.1 | 1.0 | 13.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 59.0 |
| 2010 | 474 | 3,4,5,6 | 9.1 | 1.7 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 2.1 | 0.6 | 14.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 70.3 |
| 2011 | 723 | 3,4,5,6 | 5.9 | 3.5 | 2.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 6.4 | 0.3 | 10.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 71.2 |
| 2012 | 899 | 3,4,5,6 | 9.5 | 2.6 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.1 | 14.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 71.0 |
| 2013 | 836 | 3,4,5,6 | 3.8 | 2.6 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 1.7 | 0.6 | 8.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 81.1 |
| 2014 | 917 | 3,4,5,6 | 3.5 | 2.2 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 2.5 | 0.1 | 9.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 81.2 |
| 2015 | 1,158 | 3,4,5,6 | 5.1 | 1.6 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.7 | 0.0 | 13.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 76.2 |
| 2016 | 832 | 3,4,5,6 | 2.9 | 0.1 | 1.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.4 | 0.6 | 13.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 80.3 |
| 2017 | 508 | 3,4,5,6 | 5.7 | 1.4 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 80.9 |
| 2018 | 333 | 3,4,5,6 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 5.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 93.7 |
| 2019 | 929 | 3,4,5,6 | 1.8 | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 0.0 | 1.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 94.2 |
| 2020 | 976 | 3,4,5,6 | 0.9 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.7 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 91.8 |
| 2021 | 969 | 4,5,6 | 2.6 | 2.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.9 | 0.0 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 92.0 |
| 79-84 | 311 |  | 5.2 | 0.2 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.4 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 90.4 |
| 85-95 | 344 |  | 2.9 | 0.0 | 8.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 87.2 |
| 96-98 | 485 |  | 0.9 | 0.0 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 3.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 90.7 |
| 99-08 | 1,284 |  | 3.8 | 0.2 | 5.1 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 7.7 | 1.0 | 8.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 72.7 |
| 09-18 | 725 |  | 5.6 | 1.7 | 1.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 3.0 | 0.3 | 11.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 76.5 |
| 19-28 | 958 |  | 1.8 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.5 | 0.0 | 2.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 92.6 |

Appendix C56- Percent distribution of Unuk River adult equivalent (AEQ) total fishing mortalities and escapement.

| Catch <br> Year | Est <br> \# of <br> CWT | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | $N$ Falcon |  | S Falcon |  | WAC <br> N | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 402 | 3,4,5,6 | 14.4 | 1.7 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 77.4 |
| 2010 | 427 | 3,4,5,6 | 18.0 | 0.9 | 6.3 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.2 | 69.6 |
| 2011 | 284 | 3,4,5,6 | 20.4 | 4.2 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 71.8 |
| 2012 | 208 | 3,4,5,6 | 35.1 | 7.7 | 6.7 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.9 | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 40.9 |
| 2013 | 189 | 3,4,5,6 | 18.0 | 13.8 | 2.1 | 0.0 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 60.3 |
| 2014 | 201 | 3,4,5,6 | 27.4 | 6.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 59.7 |
| 2015 | 215 | 3,4,5,6 | 25.6 | 7.4 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 3.3 | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 61.4 |
| 2016 | 153 | 3,4,5,6 | 22.2 | 14.4 | 5.2 | 0.0 | 3.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 54.2 |
| 2017 | 133 | 3,4,5,6 | 9.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 85.0 |
| 2018 | 284 | 3,4,5,6 | 10.2 | 9.5 | 2.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 8.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 68.7 |
| 2019 | 462 | 3,4,5,6 | 4.1 | 4.1 | 1.1 | 0.0 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 2.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 3.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 83.1 |
| 2020 | 347 | 3,4,5,6 | 7.5 | 3.5 | 2.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 5.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 79.3 |
| 2021 | 690 | 4,5,6 | 4.2 | 14.1 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 78.7 |
| 79-84 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 85-95 | 293 |  | 15.1 | 1.3 | 4.0 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 77.5 |
| 96-98 | 318 |  | 10.9 | 4.4 | 3.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 80.8 |
| 99-08 | 855 |  | 11.3 | 3.9 | 7.4 | 0.4 | 0.6 | 0.0 | 0.0 | 0.0 | 0.4 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 72.9 |
| 09-18 | 250 |  | 20.0 | 6.6 | 3.0 | 0.1 | 0.6 | 0.0 | 0.0 | 0.0 | 0.2 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 2.8 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 64.9 |
| 19-28 | 500 |  | 5.3 | 7.2 | 1.6 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 3.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 80.4 |

Appendix C57- Percent distribution of Columbia River Upriver Bright adult equivalent (AEQ) total fishing mortalities and escapement.

|  | Est |  | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Catch | \# |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | N Falcon |  | S Falcon |  | $\begin{gathered} \text { WAC } \\ \mathrm{N} \end{gathered}$ | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
| Year | CWT | Ages | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 1,339 | 2,3,4,5 | 22.0 | 1.7 | 1.8 | 9.3 | 1.3 | 0.6 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.7 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 19.5 | 5.3 | 0.0 | 33.8 |
| 2010 | 1,736 | 2,3,4,5 | 5.1 | 0.4 | 2.5 | 1.7 | 1.3 | 0.9 | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.4 | 2.2 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 18.6 | 4.1 | 0.0 | 59.2 |
| 2011 | 3,024 | 2,3,4,5 | 10.9 | 0.2 | 0.9 | 3.0 | 2.4 | 1.7 | 2.5 | 0.0 | 0.0 | 0.9 | 0.0 | 0.0 | 0.3 | 1.4 | 0.9 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 24.0 | 4.8 | 0.0 | 45.8 |
| 2012 | 5,093 | 2,3,4,5 | 7.1 | 0.6 | 0.5 | 2.7 | 0.7 | 0.9 | 1.5 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.3 | 2.0 | 0.9 | 0.3 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.1 | 5.8 | 0.0 | 64.2 |
| 2013 | 14,463 | 2,3,4,5 | 5.3 | 0.0 | 0.4 | 2.4 | 1.9 | 0.8 | 1.5 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.5 | 1.8 | 0.9 | 0.8 | 0.1 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 24.4 | 5.9 | 0.0 | 52.9 |
| 2014 | 16,368 | 2,3,4,5 | 14.7 | 0.3 | 1.1 | 5.2 | 1.0 | 2.4 | 0.3 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.2 | 1.3 | 0.5 | 0.4 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 18.8 | 3.2 | 0.0 | 50.2 |
| 2015 | 13,250 | 2,3,4,5 | 8.9 | 0.8 | 0.9 | 2.3 | 1.5 | 0.5 | 0.7 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 | 1.2 | 0.9 | 0.3 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.0 | 4.9 | 0.0 | 62.9 |
| 2016 | 8,739 | 2,3,4,5 | 13.5 | 1.4 | 1.8 | 8.5 | 1.4 | 2.1 | 0.6 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.3 | 0.8 | 0.6 | 0.5 | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 16.0 | 4.6 | 0.0 | 47.2 |
| 2017 | 4,788 | 2,3,4,5 | 9.6 | 0.4 | 1.1 | 7.0 | 2.5 | 1.8 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.8 | 0.2 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 17.7 | 6.9 | 0.0 | 50.7 |
| 2018 | 2,418 | 2,3,4,5 | 6.0 | 0.0 | 0.3 | 5.5 | 3.3 | 0.5 | 0.4 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.8 | 0.6 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.8 | 3.9 | 0.0 | 65.9 |
| 2019 | 3,243 | 2,3,4,5 | 6.8 | 0.7 | 0.8 | 7.0 | 2.1 | 1.1 | 0.6 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.4 | 0.7 | 0.7 | 0.0 | 0.1 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.7 | 3.1 | 0.1 | 62.4 |
| 2020 | 8,664 | 2,3,4,5 | 7.7 | 0.4 | 0.4 | 3.0 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.2 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.1 | 1.7 | 0.1 | 71.4 |
| 2021 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 79-84 | 2,507 |  | 19.1 | 0.5 | 0.4 | 8.1 | 0.0 | 7.3 | 0.0 | 2.0 | 2.2 | 0.1 | 0.2 | 0.4 | 0.3 | 0.7 | 0.6 | 0.1 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.8 | 0.3 | 0.4 | 47.2 |
| 85-95 | 1,557 |  | 11.7 | 1.2 | 0.7 | 8.3 | 0.2 | 10.2 | 0.1 | 0.5 | 0.9 | 0.0 | 0.0 | 0.3 | 0.2 | 0.6 | 0.4 | 0.4 | 0.1 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 24.8 | 2.6 | 0.1 | 36.4 |
| 96-98 | 857 |  | 9.5 | 1.4 | 2.0 | 3.0 | 0.1 | 0.5 | 0.0 | 0.2 | 0.1 | 0.2 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 18.5 | 3.9 | 0.0 | 59.7 |
| 99-08 | 1,635 |  | 13.9 | 0.7 | 1.9 | 4.3 | 1.5 | 1.5 | 1.2 | 0.0 | 0.0 | 0.2 | 0.0 | 0.1 | 0.4 | 0.8 | 0.7 | 0.3 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.5 | 3.4 | 0.1 | 54.2 |
| 09-18 | 7,122 |  | 10.3 | 0.6 | 1.1 | 4.8 | 1.7 | 1.2 | 1.1 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.4 | 1.3 | 0.9 | 0.3 | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 17.7 | 4.9 | 0.0 | 53.3 |
| 19-28 | 5,954 |  | 7.2 | 0.5 | 0.6 | 5.0 | 1.1 | 0.9 | 0.3 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.2 | 0.4 | 0.4 | 0.1 | 0.1 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.4 | 2.4 | 0.1 | 66.9 |

Appendix C58- Percent distribution of Willamette Spring adult equivalent (AEQ) total fishing mortalities and escapement.

| Catch <br> Year | Est <br> \# of <br> CWT | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | N Falcon |  | S Falcon |  | WAC$N$ | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | S | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | S | N | S | T | N | S |  |  |
| 2009 | 3,530 | 3,4,5,6 | 3.9 | 0.1 | 0.0 | 0.3 | 0.1 | 0.7 | 2.1 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.9 | 0.3 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.6 | 22.0 | 0.0 | 60.4 |
| 2010 | 10,376 | 3,4,5,6 | 3.2 | 0.0 | 0.1 | 0.5 | 0.2 | 0.5 | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 1.8 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 | 35.3 | 0.0 | 53.7 |
| 2011 | 7,422 | 3,4,5,6 | 4.3 | 0.0 | 0.2 | 0.7 | 0.2 | 1.1 | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 | 0.9 | 0.2 | 0.2 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.3 | 43.0 | 0.2 | 43.3 |
| 2012 | 5,860 | 3,4,5,6 | 6.5 | 0.0 | 0.3 | 0.3 | 0.2 | 3.3 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.5 | 0.8 | 0.4 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.9 | 37.3 | 0.6 | 43.4 |
| 2013 | 6,289 | 3,4,5,6 | 2.4 | 0.0 | 0.6 | 0.4 | 0.3 | 0.7 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 1.0 | 0.3 | 0.3 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.5 | 29.8 | 0.0 | 58.8 |
| 2014 | 14,285 | 3,4,5,6 | 4.6 | 0.2 | 0.2 | 0.7 | 0.1 | 3.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 1.6 | 0.5 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.0 | 21.8 | 0.0 | 63.6 |
| 2015 | 16,807 | 3,4,5,6 | 5.1 | 0.1 | 0.1 | 0.6 | 0.1 | 0.4 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 4.0 | 0.5 | 1.3 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.9 | 25.5 | 0.5 | 56.3 |
| 2016 | 5,818 | 3,4,5,6 | 13.8 | 0.1 | 0.3 | 0.8 | 0.4 | 4.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 2.1 | 0.1 | 0.7 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.3 | 22.6 | 0.0 | 50.5 |
| 2017 | 6,475 | 3,4,5,6 | 2.5 | 0.0 | 0.1 | 0.5 | 0.5 | 3.2 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 4.3 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.5 | 23.2 | 0.0 | 61.9 |
| 2018 | 5,473 | 3,4,5,6 | 1.3 | 0.1 | 0.0 | 0.7 | 0.4 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.9 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 24.4 | 0.0 | 67.1 |
| 2019 | 2,101 | 3,4,5,6 | 3.8 | 0.2 | 0.1 | 0.2 | 0.5 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.2 | 14.8 | 0.0 | 73.8 |
| 2020 | 3,868 | 3,4,5,6 | 4.8 | 0.2 | 0.0 | 0.3 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.3 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 14.1 | 0.0 | 77.7 |
| 2021 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 79-84 | 4,860 |  | 7.2 | 0.3 | 0.2 | 6.1 | 0.0 | 2.3 | 0.0 | 0.2 | 0.2 | 0.0 | 0.1 | 0.0 | 0.1 | 0.9 | 0.5 | 0.1 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.2 | 18.3 | 0.0 | 59.2 |
| 85-95 | 2,817 |  | 7.4 | 0.8 | 0.3 | 3.2 | 0.0 | 1.7 | 0.3 | 0.3 | 0.3 | 0.0 | 0.0 | 0.0 | 0.1 | 1.0 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.7 | 30.6 | 0.1 | 45.8 |
| 96-98 | 2,475 |  | 3.9 | 0.1 | 0.1 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 22.1 | 0.2 | 72.4 |
| 99-08 | 7,900 |  | 5.0 | 0.1 | 0.2 | 0.4 | 0.2 | 2.3 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.5 | 0.1 | 0.2 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.5 | 21.4 | 0.1 | 61.8 |
| 09-18 | 8,234 |  | 4.8 | 0.1 | 0.2 | 0.6 | 0.3 | 1.8 | 0.3 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.2 | 2.0 | 0.3 | 0.3 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.4 | 28.5 | 0.2 | 55.9 |
| 19-28 | 2,984 |  | 4.3 | 0.2 | 0.1 | 0.2 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.9 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.0 | 14.5 | 0.0 | 75.7 |

## Appendix D: Brood Year Exploitation Rate Plots

The brood year exploitation rate metric provides a measure of the cumulative impact of fisheries upon all age classes of a stock and brood. The BYER is computed for each stock as the ratio of AEQ total fishing mortality to AEQ total fishing mortality plus escapement.

$$
\operatorname{BYER}_{B Y, f}=\frac{\sum_{a=\text { Minage }}^{\text {Maxae }}\left(\sum_{f \in\{F\}} \text { TotMorts }_{B Y, a, f} * A E Q_{B Y, a, f}\right)}{\sum_{a=\text { Minage }}^{\text {Maxage }}\left(\sum_{f=1}^{\text {Numisheries }} \text { TotMorts }_{B Y, a, f} * A E Q_{B Y, a, f}+E s c_{B Y, a}\right)} \quad \text { Equation D. } 1
$$

All terms are defined in Appendix B. The AEQ factor represents the proportion of fish of a given age that would, in the absence of fishing, leave the ocean to return to the terminal area.

The AEQ factor is calculated as

$$
\begin{aligned}
& A E Q_{B Y, a-1, f}=\text { MatRte }_{a-1, B Y}+\left(1-\text { MatRte }_{a-1, B Y}\right) * \text { Surv }_{a} * A E Q_{B Y, a, f} \\
& A E Q_{B Y, M a x a g e, f} \equiv 1.0
\end{aligned}
$$

Equation D. 2
The AEQ factor is equal to 1 for the oldest age of maturation and for all ages in terminal fisheries. The BYER can be partitioned into AEQ reported catch and AEQ IM. BYERs are not computed for incomplete BYs.

If a hatchery indicator stock is subject to directed terminal fisheries, its BYER will differ from the corresponding wild stock. In these circumstances, this issue is addressed by reporting the BYER in the ocean fisheries (i.e., excludes the terminal fishery impacts). The BYER statistic reported for each exploitation rate indicator stock is given in Table 2.2.

## LIST OF APPENDIX D TABLES

Appendix D1- Brood year exploitation rates for Southeast Alaska hatchery indicator stocks. Catch and incidental mortality are shown. Only completed brood years are included. ..... 148
Appendix D2- Brood year exploitation rate for Southeast Alaska and transboundary wild indicator stocks. Catch and incidental mortality are shown. Only completed brood years are included. ..... 149
Appendix D3- Total brood year exploitation rate for North and Central British Columbia stocks. Catch and incidental mortality are shown. Only completed brood years are included. ..... 151
Appendix D4— Brood year ocean exploitation rates for Robertson Creek Fall. Catch and incidental mortality are shown. Only completed brood years are included. ..... 152
Appendix D5- Total brood year exploitation rate for the Strait of Georgia indicator stocks. Catch and incidental mortality are shown. Only completed brood years are included. ..... 153
Appendix D6 - Total brood year exploitation rate for Fraser fall-run stocks. Catch and incidental mortality are shown. Only completed brood years are included. ..... 155
Appendix D7- Total brood year exploitation rate for Fraser spring- and summer-run stocks. Catch and incidental mortality are shown. Only completed brood years are included. ..... 156
Appendix D8— Brood year exploitation rate in terms of landed catch and incidental mortality for Washington Coast indicator stocks. ..... 157
Appendix D9—Brood year exploitation rate in terms of landed catch and incidental mortality for Northern Puget Sound coded-wire tag indicator stocks ..... 158
Appendix D10-Brood year exploitation rate in terms of landed catch and incidental mortality for Central Puget Sound coded-wire tag indicator stocks Stillaguamish Fall and Skykomish Summer Fingerling. ..... 159
Appendix D11 - Brood year exploitation rate in terms of landed catch and incidental mortality for Southern Puget Sound coded-wire tag indicator stocks. ..... 160
Appendix D12- Brood year exploitation rate in terms of landed catch and incidental mortality for Juan de Fuca and Hood Canal coded-wire tag indicator stocks Elwha and George Adams (Skokomish River) Fall Fingerling. ..... 161
Appendix D13-Brood year exploitation rate for summer and fall Columbia River coded- wire tag indicator stocks, including Willamette and Snake River Chinook. Catch and incidental mortality are shown. Only completed brood years are included. ..... 162
Appendix D14-Brood year exploitation rate (ocean only) for Oregon Coast coded-wire tag indicator stocks. Catch and incidental mortality are shown. Only completed brood years are included. ..... 165

Appendix D1- Brood year exploitation rates for Southeast Alaska hatchery indicator stocks. Catch and incidental mortality are shown. Only completed brood years are included.


Appendix D2- Brood year exploitation rate for Southeast Alaska and transboundary wild indicator stocks. Catch and incidental mortality are shown. Only completed brood years are included.


## Appendix D2 continued.



Appendix D3- Total brood year exploitation rate for North and Central British Columbia stocks. Catch and incidental mortality are shown. Only completed brood years are included.



Appendix D4—Brood year ocean exploitation rates for Robertson Creek Fall. Catch and incidental mortality are shown. Only completed brood years are included.


Appendix D5- Total brood year exploitation rate for the Strait of Georgia indicator stocks. Catch and incidental mortality are shown. Only completed brood years are included.


## Appendix D5 continued.



Appendix D6- Total brood year exploitation rate for Fraser fall-run stocks. Catch and incidental mortality are shown. Only completed brood years are included.


## Chilliwack River Fall

$■$ landed catch $\quad$ incidental mortality

Harrison River Total Exploitation Rates
landed catch $\quad$ incidental mortality

Appendix D7- Total brood year exploitation rate for Fraser spring- and summer-run stocks. Catch and incidental mortality are shown. Only completed brood years are included.


Middle Shuswap River Summer Total Exploitation Rates


Appendix D8- Brood year exploitation rate in terms of landed catch and incidental mortality for Washington Coast indicator stocks.


Appendix D9— Brood year exploitation rate in terms of landed catch and incidental mortality for Northern Puget Sound coded-wire tag indicator stocks.


Appendix D10- Brood year exploitation rate in terms of landed catch and incidental mortality for Central Puget Sound coded-wire tag indicator stocks Stillaguamish Fall and Skykomish Summer Fingerling.

$\square$ landed catch $\quad$ incidental mortality

$\square$ landed catch $\quad$ incidental mortality

Appendix D11- Brood year exploitation rate in terms of landed catch and incidental mortality for Southern Puget Sound coded-wire tag indicator stocks.


Appendix D12- Brood year exploitation rate in terms of landed catch and incidental mortality for Juan de Fuca and Hood Canal coded-wire tag indicator stocks Elwha and George Adams (Skokomish River) Fall Fingerling.


Appendix D13- Brood year exploitation rate for summer and fall Columbia River coded-wire tag indicator stocks, including Willamette and Snake River Chinook. Catch and incidental mortality are shown. Only completed brood years are included.


$\square$ landed catch $\quad$ incidental mortality


$\square$ landed catch $\quad$ incidental mortality


## Appendix D13 continued.






## Appendix D13 continued.


 Total Exploitation Rates

Appendix D14-Brood year exploitation rate (ocean only) for Oregon Coast coded-wire tag indicator stocks. Catch and incidental mortality are shown. Only completed brood years are included.

$\square$ landed catch $\quad$ incidental mortality
$■$ landed catch $\quad$ incidental mortality

## Appendix E: Survival Rate Plots

The BY smolt-to-age 2 or 3 survival of CWT-tagged juveniles after release is calculated for most exploitation rate indicator stocks (Table 2.2). This survival rate is frequently referred to as the early marine survival of the tag group and is calculated using the youngest age's cohort size before fishing and maturation or escapement mortality processes begin; for subyearling stocks, this is age 2 and for yearling stocks this is age 3 . The CWT-based estimate is our most direct measure of early marine survival and is not final until all ages from that brood have returned to spawn. Preliminary estimates are generated and are displayed in Appendix E1-Appendix E14 by using available CWT data and average maturation rates but are not reported in average survival estimates.

The BY survival rate for a fingerling stock is the estimated age 2 cohort (determined from the cohort analysis) divided by the number of CWT fish released; for yearling stocks, rate is calculated using the estimated age 3 cohort:

$$
\text { CohSurv }_{B Y, a=2 o r 3}=\frac{\text { Cohort }_{B Y, a=2 o r 3}}{\text { TotCWTRelease }_{B Y}}
$$

where Cohort ${ }_{\mathrm{Br}, \mathrm{a}}$ is calculated recursively from the oldest age to the youngest age using:

$$
\text { Cohort }_{B Y, a}=\frac{\sum_{f=1}^{\text {Numfisheries }} \text { TotMorts }_{B Y, a, f}+E s c_{B Y, a}+\text { Cohort }_{B Y, a+1}}{1-N M_{a}} \quad \text { Equation E. } 2
$$

If there are no CWT recoveries for the oldest ocean age of a stock, the next youngest cohort size is estimated using:
Cohort $_{B Y, \text { Maxage }-1}=\frac{\sum_{f \in \text { Preterminal } \text { TotMorts }_{B Y, M a x a g e-1, f}+} \frac{\text { Esc }_{B Y, M a x a g e-1}+\sum_{f \in \text { Terminal }} \text { TotMorts }_{B Y, \text { Maxage }-1, f}}{\text { AvgMatRte }}{ }_{\text {Maxage }-1}}{1-N M_{\text {Maxage }-1}}$
Equation E. 3

## LIST OF APPENDIX E TABLES

Appendix E1- Smolt-to-youngest age survival rates for the Southeast Alaska hatchery indicator stocks. ..... 168
Appendix E2- Smolt-to-youngest age survival rates for Southeast Alaska and transboundary wild indicator stocks. ..... 169
Appendix E3- Smolt-to-age 3 survival rates for Northern and Central British Columbia stocks. ..... 171
Appendix E4- Smolt-to-age 2 survival rates for Robertson Creek Fall. ..... 172
Appendix E5- Smolt-to-age 2 survival rates for Strait of Georgia stocks. ..... 173
Appendix E6- Smolt-to-youngest age survival rates for Fraser fall-run stocks. ..... 175
Appendix E7- Smolt-to-youngest age survival rates for Fraser spring- and summer-run stocks. ..... 176
Appendix E8- Smolt-to-youngest age survival rates for Washington Coast coded-wire tag indicator stocks of Hoko, Queets, and Tsoo-Yess Fall Fingerling. ..... 177
Appendix E9— Smolt-to-youngest age survival rates for Northern Puget Sound coded-wire tag indicator stocks. ..... 178
Appendix E10 - Smolt-to-youngest age survival rates for Central Puget Sound coded-wire tag indicator stocks Stillaguamish Fall Fingerling and Skykomish Fall Fingerling ..... 179
Appendix E11- Smolt-to-youngest age survival rates for Southern Puget Sound coded- wire tag indicator stocks. ..... 180
Appendix E12-Smolt-to-youngest age survival rates for Juan de Fuca and Hood Canal coded-wire tag indicator stocks Elwha River and George Adams (Skokomish River) Fall Fingerling. ..... 181
Appendix E13-Smolt-to-youngest age survival rates for summer and fall Columbia River, including Willamette Spring, Chinook coded-wire tag indicator stocks. ..... 182
Appendix E14— Smolt-to-youngest age survival rates for North Oregon Coast coded-wire tag indicator stocks. ..... 185

Appendix E1 - Smolt-to-youngest age survival rates for the Southeast Alaska hatchery indicator stocks.


Appendix E2-Smolt-to-youngest age survival rates for Southeast Alaska and transboundary wild indicator stocks.


## Appendix E2 continued.



Appendix E3-Smolt-to-age 3 survival rates for Northern and Central British Columbia stocks.


Appendix E4-Smolt-to-age 2 survival rates for Robertson Creek Fall.
Robertson Creek


Appendix E5-Smolt-to-age 2 survival rates for Strait of Georgia stocks.


## Appendix E5 continued.



Appendix E6— Smolt-to-youngest age survival rates for Fraser fall-run stocks.


Appendix E7— Smolt-to-youngest age survival rates for Fraser spring- and summer-run stocks.


Appendix E8-Smolt-to-youngest age survival rates for Washington Coast coded-wire tag indicator stocks of Hoko, Queets, and Tsoo-Yess Fall Fingerling.


Appendix E9— Smolt-to-youngest age survival rates for Northern Puget Sound coded-wire tag indicator stocks.


Appendix E10— Smolt-to-youngest age survival rates for Central Puget Sound coded-wire tag indicator stocks Stillaguamish Fall Fingerling and Skykomish Fall Fingerling.



Appendix E11- Smolt-to-youngest age survival rates for Southern Puget Sound coded-wire tag indicator stocks.


Appendix E12- Smolt-to-youngest age survival rates for Juan de Fuca and Hood Canal codedwire tag indicator stocks Elwha River and George Adams (Skokomish River) Fall Fingerling.


Appendix E13-Smolt-to-youngest age survival rates for summer and fall Columbia River, including Willamette Spring, Chinook coded-wire tag indicator stocks.


## Appendix E13 continued.



## Appendix E13 continued.



Appendix E14— Smolt-to-youngest age survival rates for North Oregon Coast coded-wire tag indicator stocks.


## Appendix F: Terminal Area Adjustment Data

Attachment I of Chapter 3 of the 2019 PST Agreement identifies 11 escapement indicator stocks that require adjustments to CWT recovery rates in terminal fisheries for corresponding exploitation rate indicator stocks in order to accurately represent the fishery impacts on the associated escapement indicator stock. Details of terminal adjustment methodologies are available in CYER WG (2021).

Each table in this appendix presents the terminal harvest rates for a given exploitation rate indicator stock (left-most stock in the table) and the corresponding escapement indicator stocks. Terminal harvest rates are defined as terminal catch in a given terminal fishery divided by the sum of all terminal catch and escapement. For exploitation rate indicator stocks the terminal harvest rates are derived directly from results of the CWT cohort analysis. For escapement indicator stocks, terminal harvest rates are derived externally and provided by the relevant management entities.

| Fishery Acronym | ERA Fishery |
| :--- | :--- |
| TWCVI TERM N | West Coast Vancouver Island Terminal Net |
| TWCVI TERM S | West Coast Vancouver Island Terminal Sport |
| TWCVI FS | West Coast Vancouver Island Terminal Freshwater Sport |
| TJNST TERM S | Johnstone Strait Terminal Sport |
| TGS FS | Strait of Georgia Terminal Freshwater Sport |
| WA CST N | Washington Coast Net |
| TWAC FN | Washington Coast Terminal Freshwater Net |
| TNF TERM S | North of Falcon Terminal Sport |
| TSF TERM FS | South of Falcon Terminal Freshwater Sport |
| TOR TERM FS | Oregon Terminal Freshwater Sport |

## LIST OF APPENDIX F TABLES

Appendix F1- Robertson Creek Fall (RBT) harvest rate and terminally adjusted harvest
rates for the Northwest Vancouver Island (NWVI) and Southwest Vancouver
Island (SWVI) escapement indicator stocks, 1979-2021. ..... 187

Appendix F2- Quinsam Hatchery (QUI) harvest rate and terminally adjusted harvest
rates for the East Vancouver Island North (EVIN) escapement indicator stock,
1979-2021. ..... 188
Appendix F3- Queets River Fall (QUE) harvest rate and terminally adjusted harvest rates for the Grays Harbor, Hoh River, and Quillayute River escapement indicator stocks, 1979-2020 ..... 189
Appendix F4-Salmon River Hatchery (SRH) harvest rate and terminally adjusted harvest rates for Nehalem, Siletz, and Siuslaw escapement indicator stocks, 1979- 2020. ..... 190
Appendix F5- Elk River Hatchery (ELK) harvest rate and terminally adjusted harvest rates for South Umpqua and Coquille escapement indicator stocks, 1979-2020. ..... 191

Appendix F1 - Robertson Creek Fall (RBT) harvest rate and terminally adjusted harvest rates for the Northwest Vancouver Island (NWVI) and Southwest Vancouver Island (SWVI) escapement indicator stocks, 1979-2021.

| Year | Robertson Creek Fall |  |  | Northwest Vancouver Island |  |  | Southwest Vancouver Island |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | TWCVI TERM N | TWCVI TERM S | TWCVI FS | TWCVI TERM N | TWCVI TERM S | TWCVI FS | TWCVI TERM N | TWCVI TERM S | TWCVI FS |
| 1979 | 0\% | 14\% | 1\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 1980 | 28\% | 9\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 1981 | 36\% | 15\% | 1\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 1982 | 42\% | 19\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 1983 | 55\% | 17\% | 1\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 1984 | 41\% | 39\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 1985 | 3\% | 37\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 1986 | 1\% | 54\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 1987 | 0\% | 29\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 1988 | 11\% | 21\% | 1\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 1989 | 26\% | 26\% | 1\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 1990 | 14\% | 14\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 1991 | 25\% | 24\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 1992 | 1\% | 13\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 1993 | 14\% | 24\% | 1\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 1994 | 22\% | 31\% | 1\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 1995 | 9\% | 12\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 1996 | 0\% | 3\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 1997 | 9\% | 27\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 1998 | 7\% | 27\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 1999 | 10\% | 29\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 2000 | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 2001 | 0\% | 1\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 2002 | 10\% | 21\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 2003 | 11\% | 22\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 2004 | 18\% | 20\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 2005 | 51\% | 10\% | 1\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 2006 | 36\% | 15\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 2007 | 45\% | 21\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 2008 | 27\% | 17\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 2009 | 11\% | 21\% | 2\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 2010 | 6\% | 3\% | 1\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 2011 | 27\% | 26\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 2012 | 22\% | 23\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 2013 | 0\% | 3\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 2014 | 0\% | 8\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 2015 | 15\% | 13\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 2016 | 10\% | 11\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 2017 | 25\% | 16\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 2018 | 44\% | 15\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 2019 | 52\% | 14\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 2020 | 53\% | 9\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 2021 | 46\% | 10\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |

Appendix F2- Quinsam Hatchery (QUI) harvest rate and terminally adjusted harvest rates for the East Vancouver Island North (EVIN) escapement indicator stock, 1979-2021.

| Year | Quinsam Hatchery |  | East Vancouver Island North |  |
| :---: | :---: | :---: | :---: | :---: |
|  | TJNST TERM S | TGS FS | TJNST TERM S | TGS FS |
| 1979 | 1\% | 0\% | 0\% | 0\% |
| 1980 | 8\% | 0\% | 0\% | 0\% |
| 1981 | 0\% | 0\% | 0\% | 0\% |
| 1982 | 2\% | 0\% | 0\% | 0\% |
| 1983 | 4\% | 0\% | 0\% | 0\% |
| 1984 | 7\% | 0\% | 0\% | 0\% |
| 1985 | 1\% | 1\% | 0\% | 0\% |
| 1986 | 4\% | 0\% | 0\% | 0\% |
| 1987 | 9\% | 0\% | 0\% | 0\% |
| 1988 | 3\% | 0\% | 0\% | 0\% |
| 1989 | 1\% | 0\% | 0\% | 0\% |
| 1990 | 13\% | 0\% | 0\% | 0\% |
| 1991 | 8\% | 0\% | 0\% | 0\% |
| 1992 | 1\% | 0\% | 0\% | 0\% |
| 1993 | 6\% | 0\% | 0\% | 0\% |
| 1994 | 2\% | 0\% | 0\% | 0\% |
| 1995 | 5\% | 0\% | 0\% | 0\% |
| 1996 | 4\% | 0\% | 0\% | 0\% |
| 1997 | 6\% | 0\% | 0\% | 0\% |
| 1998 | 5\% | 0\% | 0\% | 0\% |
| 1999 | 16\% | 0\% | 0\% | 0\% |
| 2000 | 2\% | 0\% | 0\% | 0\% |
| 2001 | 0\% | 0\% | 0\% | 0\% |
| 2002 | 5\% | 0\% | 0\% | 0\% |
| 2003 | 7\% | 0\% | 0\% | 0\% |
| 2004 | 5\% | 0\% | 0\% | 0\% |
| 2005 | 12\% | 0\% | 0\% | 0\% |
| 2006 | 2\% | 0\% | 0\% | 0\% |
| 2007 | 5\% | 0\% | 0\% | 0\% |
| 2008 | 1\% | 0\% | 0\% | 0\% |
| 2009 | 3\% | 0\% | 0\% | 0\% |
| 2010 | 11\% | 0\% | 0\% | 0\% |
| 2011 | 5\% | 0\% | 0\% | 0\% |
| 2012 | 7\% | 0\% | 0\% | 0\% |
| 2013 | 3\% | 0\% | 0\% | 0\% |
| 2014 | 2\% | 0\% | 0\% | 0\% |
| 2015 | 2\% | 0\% | 0\% | 0\% |
| 2016 | 7\% | 0\% | 0\% | 0\% |
| 2017 | 6\% | 0\% | 0\% | 0\% |
| 2018 | 5\% | 0\% | 0\% | 0\% |
| 2019 | 1\% | 0\% | 0\% | 0\% |
| 2020 | 6\% | 1\% | 0\% | 0\% |
| 2021 | 3\% | 0\% | 0\% | 0\% |

Appendix F3- Queets River Fall (QUE) harvest rate and terminally adjusted harvest rates for the Grays Harbor, Hoh River, and Quillayute River escapement indicator stocks, 1979-2020.

|  | Queets River Fall |  |  | Grays Harbor |  |  | Hoh |  |  | Quillayute |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Year | $\begin{aligned} & \text { WA } \\ & \text { CST N } \end{aligned}$ | TWAC FN | TNF TERM S | $\begin{gathered} \text { WA } \\ \text { CST N } \end{gathered}$ | TWAC FN | TNF TERM $\mathbf{S}$ | $\begin{gathered} \text { WA } \\ \text { CST N } \end{gathered}$ | TWAC FN | TNF TERM S | $\begin{gathered} \text { WA } \\ \text { CST N } \end{gathered}$ | TWAC FN | TNF TERM S |
| 1979 | NA | NA | NA | 0\% | 19\% | 0\% | 0\% | 21\% | 1\% | 0\% | 38\% | 3\% |
| 1980 | NA | NA | NA | 0\% | 48\% | 0\% | 0\% | 21\% | 1\% | 0\% | 10\% | 2\% |
| 1981 | 0\% | 57\% | 0\% | 0\% | 42\% | 1\% | 0\% | 22\% | 0\% | 0\% | 15\% | 1\% |
| 1982 | 0\% | 53\% | 0\% | 0\% | 58\% | 1\% | 0\% | 22\% | 0\% | 0\% | 26\% | 1\% |
| 1983 | 0\% | 48\% | 0\% | 0\% | 39\% | 1\% | 0\% | 19\% | 5\% | 0\% | 42\% | 2\% |
| 1984 | 0\% | 60\% | 0\% | 0\% | 7\% | 2\% | 0\% | 24\% | 3\% | 0\% | 12\% | 1\% |
| 1985 | 0\% | 32\% | 0\% | 0\% | 35\% | 3\% | 0\% | 36\% | 1\% | 0\% | 24\% | 2\% |
| 1986 | 0\% | 13\% | 0\% | 0\% | 34\% | 2\% | 0\% | 14\% | 3\% | 0\% | 21\% | 4\% |
| 1987 | 0\% | 38\% | 0\% | 0\% | 38\% | 1\% | 0\% | 30\% | 5\% | 0\% | 38\% | 2\% |
| 1988 | 0\% | 24\% | 0\% | 0\% | 24\% | 5\% | 0\% | 37\% | 3\% | 0\% | 27\% | 4\% |
| 1989 | 0\% | 42\% | 0\% | 0\% | 50\% | 4\% | 0\% | 38\% | 3\% | 0\% | 40\% | 2\% |
| 1990 | 0\% | 19\% | 0\% | 0\% | 52\% | 5\% | 0\% | 31\% | 3\% | 0\% | 17\% | 2\% |
| 1991 | 0\% | 26\% | 0\% | 0\% | 44\% | 11\% | 0\% | 41\% | 5\% | 0\% | 13\% | 5\% |
| 1992 | 0\% | 33\% | 0\% | 0\% | 40\% | 8\% | 0\% | 19\% | 4\% | 0\% | 16\% | 2\% |
| 1993 | 0\% | 31\% | 0\% | 0\% | 46\% | 11\% | 0\% | 17\% | 6\% | 0\% | 8\% | 0\% |
| 1994 | 0\% | 41\% | 0\% | 0\% | 40\% | 12\% | 0\% | 6\% | 2\% | 0\% | 9\% | 5\% |
| 1995 | 0\% | 41\% | 1\% | 0\% | 41\% | 17\% | 0\% | 18\% | 6\% | 0\% | 9\% | 9\% |
| 1996 | 0\% | 22\% | 0\% | 0\% | 17\% | 22\% | 0\% | 21\% | 5\% | 0\% | 16\% | 5\% |
| 1997 | 0\% | 36\% | 0\% | 0\% | 31\% | 9\% | 0\% | 36\% | 5\% | 0\% | 6\% | 5\% |
| 1998 | 0\% | 18\% | 7\% | 0\% | 21\% | 14\% | 0\% | 16\% | 5\% | 0\% | 11\% | 4\% |
| 1999 | 0\% | 10\% | 0\% | 0\% | 16\% | 1\% | 0\% | 21\% | 14\% | 0\% | 26\% | 4\% |
| 2000 | 0\% | 4\% | 0\% | 0\% | 29\% | 11\% | 0\% | 16\% | 18\% | 0\% | 15\% | 8\% |
| 2001 | 0\% | 18\% | 0\% | 0\% | 33\% | 17\% | 0\% | 23\% | 14\% | 0\% | 23\% | 9\% |
| 2002 | 0\% | 30\% | 0\% | 0\% | 6\% | 18\% | 0\% | 20\% | 2\% | 0\% | 33\% | 3\% |
| 2003 | 0\% | 17\% | 0\% | 0\% | 5\% | 4\% | 0\% | 21\% | 8\% | 0\% | 15\% | 7\% |
| 2004 | 0\% | 14\% | 0\% | 0\% | 9\% | 14\% | 0\% | 18\% | 8\% | 0\% | 18\% | 20\% |
| 2005 | 0\% | 22\% | 0\% | 0\% | 11\% | 1\% | 0\% | 17\% | 4\% | 0\% | 17\% | 6\% |
| 2006 | 0\% | 22\% | 0\% | 0\% | 16\% | 6\% | 0\% | 26\% | 8\% | 0\% | 26\% | 0\% |
| 2007 | 1\% | 35\% | 0\% | 0\% | 16\% | 9\% | 0\% | 28\% | 8\% | 0\% | 22\% | 4\% |
| 2008 | 0\% | 29\% | 0\% | 0\% | 14\% | 2\% | 0\% | 16\% | 7\% | 0\% | 27\% | 4\% |
| 2009 | 0\% | 33\% | 0\% | 0\% | 24\% | 7\% | 0\% | 20\% | 5\% | 0\% | 41\% | 6\% |
| 2010 | 0\% | 22\% | 0\% | 0\% | 19\% | 9\% | 0\% | 10\% | 9\% | 0\% | 26\% | 8\% |
| 2011 | 0\% | 33\% | 0\% | 0\% | 24\% | 10\% | 0\% | 23\% | 17\% | 0\% | 29\% | 13\% |
| 2012 | 0\% | 50\% | 0\% | 0\% | 23\% | 17\% | 0\% | 28\% | 7\% | 0\% | 42\% | 5\% |
| 2013 | 0\% | 42\% | 0\% | 0\% | 15\% | 18\% | 0\% | 48\% | 14\% | 0\% | 29\% | 15\% |
| 2014 | 0\% | 24\% | 0\% | 0\% | 26\% | 5\% | 0\% | 23\% | 5\% | 0\% | 56\% | 6\% |
| 2015 | 0\% | 12\% | 0\% | 0\% | 31\% | 11\% | 0\% | 19\% | 7\% | 0\% | 36\% | 13\% |
| 2016 | 0\% | 21\% | 0\% | 0\% | 12\% | 14\% | 0\% | 4\% | 2\% | 0\% | 26\% | 1\% |
| 2017 | 0\% | 35\% | 0\% | 0\% | 14\% | 10\% | 0\% | 20\% | 8\% | 0\% | 50\% | 5\% |
| 2018 | 0\% | 29\% | 0\% | 0\% | 10\% | 13\% | 0\% | 5\% | 3\% | 0\% | 30\% | 11\% |
| 2019 | 0\% | 40\% | 0\% | 0\% | 12\% | 10\% | 0\% | 29\% | 11\% | 0\% | 15\% | 8\% |
| 2020 | 0\% | 48\% | 0\% | 0\% | 13\% | 6\% | 0\% | 31\% | 6\% | 0\% | 15\% | 7\% |

Appendix F4— Salmon River Hatchery (SRH) harvest rate and terminally adjusted harvest rates for Nehalem, Siletz, and Siuslaw escapement indicator stocks, 1979-2020.

|  | Salmon River Hatchery | Nehalem | Siletz | Siuslaw |
| :---: | :---: | :---: | :---: | :---: |
| Year | TSF TERM FS | TSF TERM FS | TSF TERM FS | TSF TERM FS |
| 1979 | 28\% | 5\% | 9\% | 18\% |
| 1980 | 32\% | 11\% | 10\% | 10\% |
| 1981 | 36\% | 4\% | 15\% | 14\% |
| 1982 | 36\% | 10\% | 10\% | 15\% |
| 1983 | 36\% | 9\% | 14\% | 35\% |
| 1984 | 33\% | 6\% | 10\% | 25\% |
| 1985 | 27\% | 4\% | 6\% | 13\% |
| 1986 | 68\% | 10\% | 7\% | 15\% |
| 1987 | 38\% | 14\% | 14\% | 22\% |
| 1988 | 19\% | 13\% | 8\% | 14\% |
| 1989 | 35\% | 11\% | 13\% | 18\% |
| 1990 | 39\% | 21\% | 8\% | 14\% |
| 1991 | 43\% | 25\% | 9\% | 17\% |
| 1992 | 22\% | 22\% | 9\% | 12\% |
| 1993 | 45\% | 40\% | 22\% | 52\% |
| 1994 | 27\% | 27\% | 6\% | 16\% |
| 1995 | 37\% | 35\% | 16\% | 24\% |
| 1996 | 62\% | 24\% | 11\% | 22\% |
| 1997 | 30\% | 18\% | 19\% | 32\% |
| 1998 | 33\% | 18\% | 9\% | 35\% |
| 1999 | 44\% | 15\% | 15\% | 16\% |
| 2000 | 25\% | 14\% | 15\% | 40\% |
| 2001 | 33\% | 19\% | 11\% | 29\% |
| 2002 | 48\% | 12\% | 10\% | 19\% |
| 2003 | 45\% | 11\% | 13\% | 17\% |
| 2004 | 37\% | 25\% | 45\% | 18\% |
| 2005 | 50\% | 18\% | 22\% | 23\% |
| 2006 | 58\% | 21\% | 17\% | 20\% |
| 2007 | 31\% | 18\% | 27\% | 44\% |
| 2008 | 20\% | 14\% | 25\% | 20\% |
| 2009 | 41\% | 1\% | 17\% | 22\% |
| 2010 | 55\% | 9\% | 7\% | 22\% |
| 2011 | 40\% | 16\% | 36\% | 33\% |
| 2012 | 38\% | 14\% | 18\% | 20\% |
| 2013 | 29\% | 19\% | 20\% | 36\% |
| 2014 | 27\% | 24\% | 20\% | 27\% |
| 2015 | 28\% | 28\% | 41\% | 36\% |
| 2016 | 18\% | 17\% | 21\% | 39\% |
| 2017 | 18\% | 19\% | 30\% | 36\% |
| 2018 | 29\% | 21\% | 29\% | 45\% |
| 2019 | 40\% | 6\% | 34\% | 51\% |
| 2020 | 18\% | 7\% | 14\% | 25\% |

Appendix F5— Elk River Hatchery (ELK) harvest rate and terminally adjusted harvest rates for South Umpqua and Coquille escapement indicator stocks, 1979-2020.

| Year | Elk River |  | South Umpqua |  | Coquille |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | TOR TERM T | TSF TERM FS | TOR TERM T | TSF TERM FS | TOR TERM T | TSF TERM FS |
| 1979 | NA | NA | 0\% | 20\% | 0\% | 16\% |
| 1980 | NA | NA | 0\% | 22\% | 0\% | 12\% |
| 1981 | NA | NA | 0\% | 19\% | 0\% | 13\% |
| 1982 | 7\% | 76\% | 0\% | 21\% | 0\% | 8\% |
| 1983 | 8\% | 39\% | 0\% | 9\% | 0\% | 36\% |
| 1984 | 7\% | 24\% | 0\% | 9\% | 0\% | 11\% |
| 1985 | 4\% | 35\% | 0\% | 7\% | 0\% | 14\% |
| 1986 | 15\% | 25\% | 0\% | 16\% | 0\% | 11\% |
| 1987 | 8\% | 35\% | 0\% | 12\% | 0\% | 16\% |
| 1988 | 0\% | 47\% | 0\% | 10\% | 0\% | 13\% |
| 1989 | 15\% | 41\% | 0\% | 6\% | 0\% | 15\% |
| 1990 | 6\% | 45\% | 0\% | 11\% | 0\% | 13\% |
| 1991 | 0\% | 32\% | 0\% | 13\% | 0\% | 20\% |
| 1992 | 5\% | 45\% | 0\% | 10\% | 0\% | 13\% |
| 1993 | 15\% | 27\% | 0\% | 28\% | 0\% | 27\% |
| 1994 | 12\% | 41\% | 0\% | 11\% | 0\% | 24\% |
| 1995 | 9\% | 37\% | 0\% | 11\% | 0\% | 13\% |
| 1996 | 19\% | 14\% | 0\% | 13\% | 0\% | 18\% |
| 1997 | 16\% | 25\% | 0\% | 6\% | 0\% | 14\% |
| 1998 | 9\% | 12\% | 0\% | 43\% | 0\% | 19\% |
| 1999 | 19\% | 23\% | 0\% | 29\% | 0\% | 14\% |
| 2000 | 25\% | 23\% | 0\% | 27\% | 0\% | 20\% |
| 2001 | 11\% | 18\% | 0\% | 24\% | 0\% | 18\% |
| 2002 | 15\% | 15\% | 0\% | 14\% | 0\% | 17\% |
| 2003 | 23\% | 25\% | 0\% | 20\% | 0\% | 17\% |
| 2004 | 24\% | 9\% | 0\% | 20\% | 0\% | 19\% |
| 2005 | 25\% | 17\% | 0\% | 55\% | 0\% | 26\% |
| 2006 | 26\% | 16\% | 0\% | 38\% | 0\% | 23\% |
| 2007 | 23\% | 23\% | 0\% | 22\% | 0\% | 29\% |
| 2008 | 2\% | 24\% | 0\% | 20\% | 0\% | 15\% |
| 2009 | 2\% | 21\% | 0\% | 25\% | 0\% | 7\% |
| 2010 | 7\% | 14\% | 0\% | 31\% | 0\% | 10\% |
| 2011 | 21\% | 23\% | 0\% | 38\% | 0\% | 24\% |
| 2012 | 16\% | 21\% | 0\% | 35\% | 0\% | 29\% |
| 2013 | 23\% | 19\% | 0\% | 33\% | 0\% | 40\% |
| 2014 | 16\% | 18\% | 0\% | 30\% | 0\% | 25\% |
| 2015 | 22\% | 18\% | 0\% | 20\% | 0\% | 31\% |
| 2016 | 6\% | 19\% | 0\% | 36\% | 0\% | 20\% |
| 2017 | 11\% | 19\% | 0\% | 25\% | 0\% | 22\% |
| 2018 | 20\% | 18\% | 0\% | 25\% | 0\% | 60\% |
| 2019 | 13\% | 11\% | 0\% | 36\% | 0\% | 57\% |
| 2020 | 14\% | 18\% | 0\% | 28\% | 0\% | 6\% |

## APPENDIX G: FISHERY EXPLOITATION RATE INDICES BY STOCK, AGE AND FISHERY, based on Coded-Wire Tag data

## Fishery Indices

When the PST was originally signed in 1985, catch ceilings and increases in stock abundance were expected to reduce harvest rates in fisheries. Fishery indices (FI) provide a means to assess performance against this expectation. Relative to the 1979-1982 base period, an index less than 1.0 represents a decrease from base period harvest rates, whereas an index greater than 1.0 represents an increase. Fishery indices are used to measure relative changes in fishery harvest rates because it is not possible to directly estimate the fishery harvest rates.

Indices are presented for the AABM troll fisheries only, although ACLs also apply to sport and net fisheries in SEAK, and sport fisheries in NBC and WCVI. CWT recoveries from the troll fisheries are used because they represent the majority of the catch and have the most reliable CWT sampling. In addition, there are data limitations in the base period for the sport fisheries (e.g., few observed recoveries in NBC due to small fishery size). Because the allocation of the catch among gear types has changed in some fisheries (e.g., the proportion of the catch harvested by the sport fishery has increased in all AABM fisheries), the indices may not represent the harvest impact of all gear types.

## Ratio of Means

Fishery indices are computed in AEQs for both reported catch and total mortality (reported catch plus IM). The total mortality AEQ exploitation rate is estimated as (see Appendix B2 for a description of notation):

$$
E R_{S, a, f, C Y}=\frac{\text { TotMorts }_{S, a, f, C Y} * A E Q_{S, B Y=C Y-a, a, f}}{\text { Cohort }_{S, B Y=C Y-a, a} *\left(1-N M_{a}\right)}
$$

whereas the reported catch AEQ exploitation rate is estimated as

$$
E R_{S, a, f, C Y}=\frac{\text { RepMorts }_{s, a, f, C Y} * A E Q_{s, B Y=C Y-a, a, f}}{\text { Cohort }_{s, B Y=C Y-a, a^{*}}\left(1-N M_{a}\right)}
$$

and a ratio of means (ROM) estimator is used to calculate the FI

$$
\left.F I_{f, C Y}=\frac{\sum_{s \in\{S, a \in\{A\}} \sum_{s, a, f, C Y} E R^{\frac{\sum_{B P Y}^{82}=79}{} \sum_{s \in\{\{S} \sum_{a \in\{A\}} E R_{s, a, f, B P Y R}}}{4}\right)
$$

Equation G. 3

The ROM estimator of the fishery index constrains inclusion of stocks to those with adequate tagging during the base period. However, fishing patterns for some fisheries have changed
substantially since the base period and some stocks included in the index are no longer tagged (e.g., University of Washington Accelerated).

## Stratified Proportional Fishery Index

To account for changes in stock composition and to include stocks without base period data, the CTC created alternative fishery indices (CTC 1996). The CTC determined that a useful FI should have the following characteristics:

1. The index should measure changes in fishery harvest rates if the distribution of stocks is assumed to be unchanged from the base period.
2. The index should have an expected value of 1.0 for random variation around the base period fishery harvest rate, cohort size, and stock distributions.
3. The index should weight changes in stock distribution by abundance.

After exploring several alternatives, the CTC concluded that the best estimate for a fishery index consisted of the product of a fishery harvest rate index and an index of stock abundance weighted by average distribution (i.e., the proportion of a cohort vulnerable to the fishery). To that effect, a report by the CTC (2009) stated that for all AABM fisheries, the stratified proportional fishery index (SPFI) was the most accurate and precise index for estimating the harvest rate occurring in a fishery. However, the SPFI was never fully implemented for the NBC and WCVI Troll fisheries for reasons described in CTC 2021a.

For computation of the SPFI, the CWT harvest rate ( $h_{t, C y}$ ) must initially be set to an arbitrary value between 0 and 1. Then, the distribution parameter ( $d_{t, s, a}$ ) is calculated (Equation G.4), and the result is substituted into Equation $G .5$ to recursively recalculate $h_{t, c y}$ and subsequently $d_{t, s, a}$. The largest stock-age distribution parameter in a stratum is then set to 1 to create a unique solution. See Appendix B for a description of notation.

$$
\begin{aligned}
& d_{t, s, a}=\sum_{C Y} r_{t, C Y, s, a} / \sum_{C Y}\left(h_{t, C Y} * n_{C Y, s, a}\right) \\
& h_{t, C Y}=\sum_{s} \sum_{a} r_{t, C Y, s, a} / \sum_{s} \sum_{a}\left(d_{t, s, a} * n_{C Y, s, a}\right)
\end{aligned}
$$

Equation G .4

Equation G. 5
The resulting unique solution is inserted into the following equations to compute the yearly harvest rates for each stratum (Equation G.8) and the overall fishery (Equation G.9).

$$
\begin{gathered}
H_{t, C Y}=\left[\left(\sum_{\sum_{s}^{s} \sum_{a} c_{t, C Y, s, a}}^{\sum_{a} r_{t, C Y, s, a}}\right) *\left(C_{t, C Y}-A_{t, C Y}\right)\right] /\left(\left(C_{t, C Y}-A_{t, C Y}\right) / h_{t, C Y}\right] \\
H_{t, C Y}=\left[\left(\frac{\sum_{s} \sum_{a} c_{t, C Y, s, a}}{\sum_{s} \sum_{a} r_{t, C Y, s, a}}\right) *\left(C_{t, C Y}-A_{t, C Y}\right)\right] /\left[\left(C_{t, C Y}-A_{t, C Y}\right) / h_{t, C Y}\right]
\end{gathered}
$$

Equation G. 6

Equation G. 7

$$
\begin{aligned}
& S_{t, C Y}=H_{t, C Y} / \sum_{C Y=1979}^{1982} H_{t, C Y} \\
& S_{. C Y}=H_{. C Y} / \sum_{C Y=1979}^{1982} H_{. C Y}
\end{aligned}
$$

## LIST OF APPENDIX G TABLES

Appendix G1- Alaska troll Stratified Proportion Fishery Index (SPFI) values as landed catch, based on CWT data. OUT = outside waters, $I N=$ inside waters. ..... 195
Appendix G2- Alaska troll Stratified Proportion Fishery Index (SPFI) values as total mortality, based on CWT data. OUT = outside waters, IN = inside waters. ..... 197
Appendix G3- List of stock acronyms used in landed catch and total mortality exploitation rate tables. ..... 199
Appendix G4- Landed catch exploitation rate indices by stock and age in the Northern British Columbia troll fishery, based on coded-wire tag (CWT) data. Values shaded in gray are averages across years. ..... 200
Appendix G5- Total mortality exploitation rate indices by stock and age in the Northern British Columbia troll fishery, based on coded-wire tag (CWT) data. Values shaded in gray are averages across years. ..... 201
Appendix G6-Landed Catch exploitation rate indices by stock and age in the West Coast Vancouver Island (WCVI) troll fishery, based on coded-wire tag (CWT) data. Values shaded in gray are averages across years. ..... 202
Appendix G7- Total mortality exploitation rate indices by stock and age in the West Coast Vancouver Island (WCVI) troll fishery, based on coded-wire tag (CWT) data. Values shaded in gray are averages across years. ..... 203

Appendix G1- Alaska troll Stratified Proportion Fishery Index (SPFI) values as landed catch, based on CWT data. OUT = outside waters, IN = inside waters.

| YEAR | SPFI | WIN/SPR | JUNE OUT | JUNE IN | JULY OUT | JULY IN | FALL |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1979 | 0.81 | 1.24 | 1.07 | 0.63 | 0.72 | 0.38 | 0.72 |
| 1980 | 1.27 | 0.63 | 0.94 | 1.43 | 1.59 | 1.81 | 1.59 |
| 1981 | 1.13 | 1.18 | 1.13 | 0.94 | 1.06 | 0.91 | 1.06 |
| 1982 | 0.79 | 0.96 | 0.86 | 1.00 | 0.64 | 0.91 | 0.64 |
| 1983 | 0.98 | 1.07 | 0.61 | 0.71 | 1.22 | 1.04 | 1.22 |
| 1984 | 0.62 | 0.40 | 0.96 | 0.99 | 0.50 | 0.25 | 0.50 |
| 1985 | 0.67 | 0.45 | 0.58 | 0.80 | 0.79 | 0.72 | 0.79 |
| 1986 | 0.43 | 0.45 | 0.16 | 0.39 | 1.28 | 0.59 | 1.28 |
| 1987 | 0.43 | 0.62 | 0.18 | 0.50 | 0.58 | 1.20 | 0.58 |
| 1988 | 0.35 | 1.30 | 0.00 | 0.13 | 0.63 | 1.20 | 0.63 |
| 1989 | 0.48 | 0.83 | 0.18 | 0.40 | 0.49 | 0.49 | 0.49 |
| 1990 | 0.66 | 0.62 | 0.11 | 0.83 | 1.13 | 1.09 | 1.13 |
| 1991 | 0.60 | 1.34 | 0.21 | 0.89 | 0.81 | 0.56 | 0.81 |
| 1992 | 0.39 | 1.11 | 0.06 | 0.47 | 0.40 | 0.22 | 0.40 |
| 1993 | 0.46 | 0.78 | 0.02 | 0.26 | 0.86 | 0.27 | 0.86 |
| 1994 | 0.40 | 0.72 | 0.03 | 0.11 | 0.64 | 0.16 | 0.64 |
| 1995 | 0.41 | 0.45 | 0.04 | 0.30 | 0.75 | 0.87 | 0.75 |
| 1996 | 0.37 | 0.52 | 0.08 | 0.53 | 0.55 | 0.45 | 0.55 |
| 1997 | 0.67 | 0.63 | 0.13 | 0.53 | 1.40 | 0.09 | 1.40 |
| 1998 | 0.45 | 0.79 | 0.05 | 0.18 | 0.96 | 0.45 | 0.96 |
| 1999 | 0.56 | 0.86 | 0.10 | 0.24 | 0.92 | 0.10 | 0.92 |
| 2000 | 0.49 | 1.04 | 0.09 | 0.10 | 1.38 | 0.06 | 1.38 |
| 2001 | 0.38 | 0.59 | 0.06 | 0.14 | 0.76 | 0.11 | 0.76 |
| 2002 | 0.52 | 0.78 | 0.06 | 0.13 | 1.36 | 0.17 | 1.36 |
| 2003 | 0.49 | 1.25 | 0.07 | 0.14 | 0.89 | 0.32 | 0.89 |
| 2004 | 0.37 | 0.80 | 0.06 | 0.16 | 0.89 | 0.32 | 0.89 |
| 2005 | 0.47 | 0.77 | 0.10 | 0.21 | 1.10 | 0.47 | 1.10 |
| 2006 | 0.61 | 1.30 | 0.10 | 0.61 | 1.19 | 0.13 | 1.19 |
| 2007 | 0.66 | 1.09 | 0.13 | 0.79 | 1.20 | 0.23 | 1.20 |
| 2008 | 0.39 | 0.77 | 0.07 | 0.68 | 0.74 | 0.09 | 0.74 |
| 2009 | 0.54 | 0.81 | 0.13 | 0.32 | 0.99 | 0.16 | 0.99 |
| 2010 | 0.38 | 1.14 | 0.05 | 0.28 | 0.77 | 0.08 | 0.77 |
| 2011 | 0.37 | 1.07 | 0.04 | 0.27 | 0.86 | 0.22 | 0.86 |
| 2012 | 0.69 | 1.55 | 0.09 | 0.21 | 1.33 | 0.11 | 1.33 |
| 2013 | 0.38 | 0.73 | 0.11 | 0.55 | 0.55 | 0.13 | 0.55 |
| 2014 | 0.53 | 1.30 | 0.09 | 0.48 | 0.95 | 0.13 | 0.95 |
| 2015 | 0.48 | 1.21 | 0.09 | 1.22 | 0.67 | 0.47 | 0.67 |
| 2016 | 0.61 | 2.00 | 0.11 | 0.61 | 1.09 | 0.15 | 1.09 |
| 2017 | 0.37 | 1.25 | 0.10 | 0.33 | 0.46 | 0.35 | 0.46 |
| 2018 | 0.26 | 0.46 | 0.04 | 0.01 | 0.76 | 0.30 | 0.76 |


| Exploitation Rate Stock Identifiers |  |  |  |
| :--- | :--- | :--- | :--- |
| Atnarko | Age 4 | Age 5 |  |
| Elk | Age 4 | Age 5 |  |
| Kitsumkalum | Age 5 |  |  |
| Northern Southeast Alaska | Age 5 | Age 6 |  |
| Queets | Age 4 | Age 5 |  |
| Quinsam | Age 4 | Age 5 |  |
| Robertson Creek | Age 3 | Age 4 | Age 5 |
| Shuswap | Age 3 | Age 4 |  |
| Salmon River Hatchery | Age 3 | Age 4 | Age 5 |
| Southern Southeast Alaska | Age 4 | Age 5 | Age 6 |
| Skagit Summer Fingerling | Age 4 |  |  |
| Columbia River Summers | Age 4 | Age 5 |  |
| Columbia Upriver Brights | Age 4 | Age 5 |  |
| Willamette Spring Hatchery | Age 4 | Age 5 |  |

Appendix G2- Alaska troll Stratified Proportion Fishery Index (SPFI) values as total mortality, based on CWT data. OUT = outside waters, IN = inside waters.

| YEAR | SPFI | WIN/SPR | JUNE OUT | JUNE IN | JULY OUT | JULY IN | FALL |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1979 | 0.82 | 1.28 | 1.11 | 0.61 | 0.70 | 0.37 | 0.70 |
| 1980 | 1.20 | 0.61 | 0.90 | 1.48 | 1.43 | 1.74 | 1.43 |
| 1981 | 1.13 | 1.16 | 1.13 | 0.90 | 1.10 | 0.86 | 1.10 |
| 1982 | 0.86 | 0.95 | 0.86 | 1.01 | 0.78 | 1.03 | 0.78 |
| 1983 | 1.07 | 1.03 | 0.59 | 0.71 | 1.54 | 0.97 | 1.54 |
| 1984 | 0.66 | 0.39 | 0.95 | 1.00 | 0.58 | 0.38 | 0.58 |
| 1985 | 0.76 | 0.42 | 0.58 | 0.79 | 1.01 | 0.68 | 1.01 |
| 1986 | 0.47 | 0.43 | 0.15 | 0.40 | 1.46 | 0.62 | 1.46 |
| 1987 | 0.50 | 0.60 | 0.17 | 0.49 | 0.71 | 1.58 | 0.71 |
| 1988 | 0.36 | 1.27 | 0.00 | 0.14 | 0.63 | 1.30 | 0.63 |
| 1989 | 0.52 | 0.79 | 0.18 | 0.39 | 0.55 | 0.57 | 0.55 |
| 1990 | 0.78 | 0.63 | 0.11 | 0.88 | 1.37 | 1.11 | 1.37 |
| 1991 | 0.63 | 1.27 | 0.20 | 0.87 | 0.84 | 0.69 | 0.84 |
| 1992 | 0.45 | 1.07 | 0.06 | 0.47 | 0.56 | 0.23 | 0.56 |
| 1993 | 0.51 | 0.76 | 0.02 | 0.26 | 1.00 | 0.28 | 1.00 |
| 1994 | 0.47 | 0.69 | 0.03 | 0.11 | 0.80 | 0.18 | 0.80 |
| 1995 | 0.47 | 0.43 | 0.04 | 0.30 | 0.87 | 0.87 | 0.87 |
| 1996 | 0.45 | 0.50 | 0.08 | 0.52 | 0.70 | 0.48 | 0.70 |
| 1997 | 0.67 | 0.59 | 0.13 | 0.51 | 1.39 | 0.10 | 1.39 |
| 1998 | 0.42 | 0.75 | 0.04 | 0.17 | 0.89 | 0.41 | 0.89 |
| 1999 | 0.61 | 0.81 | 0.09 | 0.23 | 1.02 | 0.14 | 1.02 |
| 2000 | 0.51 | 1.02 | 0.09 | 0.10 | 1.43 | 0.08 | 1.43 |
| 2001 | 0.39 | 0.56 | 0.06 | 0.13 | 0.76 | 0.14 | 0.76 |
| 2002 | 0.50 | 0.72 | 0.05 | 0.12 | 1.27 | 0.18 | 1.27 |
| 2003 | 0.46 | 1.16 | 0.06 | 0.13 | 0.83 | 0.29 | 0.83 |
| 2004 | 0.36 | 0.77 | 0.06 | 0.16 | 0.86 | 0.31 | 0.86 |
| 2005 | 0.46 | 0.75 | 0.10 | 0.20 | 1.07 | 0.45 | 1.07 |
| 2006 | 0.59 | 1.25 | 0.10 | 0.61 | 1.14 | 0.13 | 1.14 |
| 2007 | 0.66 | 1.08 | 0.13 | 0.81 | 1.18 | 0.22 | 1.18 |
| 2008 | 0.40 | 0.74 | 0.06 | 0.66 | 0.77 | 0.11 | 0.77 |
| 2009 | 0.54 | 0.78 | 0.13 | 0.32 | 0.98 | 0.19 | 0.98 |
| 2010 | 0.39 | 1.13 | 0.05 | 0.28 | 0.79 | 0.08 | 0.79 |
| 2011 | 0.36 | 1.03 | 0.04 | 0.26 | 0.83 | 0.20 | 0.83 |
| 2012 | 0.67 | 1.51 | 0.09 | 0.21 | 1.25 | 0.13 | 1.25 |
| 2013 | 0.40 | 0.70 | 0.11 | 0.54 | 0.57 | 0.23 | 0.57 |
| 2014 | 0.51 | 1.24 | 0.08 | 0.48 | 0.90 | 0.13 | 0.90 |
| 2015 | 0.47 | 1.17 | 0.09 | 1.21 | 0.64 | 0.50 | 0.64 |
| 2016 | 0.58 | 1.86 | 0.10 | 0.60 | 1.02 | 0.14 | 1.02 |


| Exploitation Rate Stock |  |  |  |
| :--- | :--- | :--- | :--- |
| Atnarko | Age 4 | Age 5 |  |
| Elk | Age 4 | Age 5 |  |
| Kitsumkalum | Age 5 |  |  |
| Northern Southeast Alaska | Age 5 | Age 6 |  |
| Queets | Age 4 | Age 5 |  |
| Quinsam | Age 4 | Age 5 |  |
| Robertson Creek | Age 3 | Age 4 | Age 5 |
| Shuswap | Age 3 | Age 4 |  |
| Salmon River Hatchery | Age 3 | Age 4 | Age 5 |
| Southern Southeast Alaska | Age 4 | Age 5 | Age 6 |
| Skagit Summer Fingerling | Age 4 |  |  |
| Columbia River Summers | Age 4 | Age 5 |  |
| Columbia Upriver Brights | Age 4 | Age 5 |  |
| Willamette Spring Hatchery | Age 4 | Age 5 |  |


| 2017 | 0.38 | 1.18 | 0.09 | 0.32 | 0.49 | 0.41 | 0.49 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 2018 | 0.26 | 0.43 | 0.04 | 0.01 | 0.77 | 0.28 | 0.77 |
| 2019 | 0.18 | 0.40 | 0.04 | 0.01 | 0.54 | 0.21 | 0.54 |
| 2020 | 0.49 | 0.69 | 0.09 | 0.02 | 0.92 | 0.20 | 0.92 |

Appendix G3- List of stock acronyms used in landed catch and total mortality exploitation rate tables.

| Acronym | Stock Name |
| :--- | :--- |
| CWF | Cowlitz Fall Tule |
| GAD | George Adams Fall Fingerling |
| LRH | Lower River Hatchery |
| LRW | Lewis River Wild |
| QUE | Queets Fall Fingerling |
| QUI | Quinsam Fall |
| RBT | Robertson Creek Hatchery |
| SAM | Samish Fall Fingerling |
| SHU | Lower Shuswap |
| SPR | Spring Creek National Fish Hatchery |
| SPS | South Puget Sound Fall Fingerling |
| SRH | Salmon River Hatchery |
| SSA | Southern Southeast Alaska |
| SUM | Columbia River Summers |
| URB | Columbia Upriver Brights |
| WSH | Willamette Spring |

Appendix G4- Landed catch exploitation rate indices by stock and age in the Northern British Columbia troll fishery, based on codedwire tag (CWT) data. Values shaded in gray are averages across years.

| Year | QUE $\text { Age } 5$ | QUI <br> Age 3 | QUI | $\begin{gathered} \text { RBT } \\ \text { Age } 3 \end{gathered}$ | $\begin{gathered} \text { RBT } \\ \text { Age } 4 \end{gathered}$ | $\begin{gathered} \text { RBT } \\ \text { Age } 5 \end{gathered}$ | $\begin{gathered} \text { SHU } \\ \text { Age } 4 \end{gathered}$ | SRH <br> Age 3 | SRH <br> Age 4 | SRH <br> Age 5 | $\begin{gathered} \text { SSA } \\ \text { Age } 4 \end{gathered}$ | $\begin{gathered} \hline \text { URB } \\ \text { Age } 4 \end{gathered}$ | URB <br> Age 5 | WSH <br> Age 4 | Fishery Index |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1979 |  | 0.55 | 0.87 | 1.15 | 0.83 | 0.48 |  | 1.17 |  |  |  | 1.10 |  | 0.65 | 0.83 |
| 1980 |  | 0.79 | 0.98 | 1.05 | 0.85 | 0.77 |  |  | 0.93 |  |  | 1.02 | 1.14 | 1.18 | 0.94 |
| 1981 |  | 1.78 | 1.44 | 0.85 | 1.04 | 1.75 |  | 1.28 |  | 1.00 |  | 1.27 | 1.50 | 1.53 | 1.28 |
| 1982 |  | 0.88 | 0.71 | 0.95 | 1.28 |  | 1.00 | 0.55 | 1.07 |  | 1.00 | 0.61 | 0.36 | 0.64 | 0.86 |
| 2009 |  |  | 0.11 | 0.19 | 0.21 |  | 0.66 | 0.01 | 1.36 | 0.93 | 0.93 | 1.77 |  | 0.04 | 0.68 |
| 2010 |  | 0.00 |  | 0.13 | 0.09 |  | 0.81 | 0.21 | 1.10 | 0.42 | 0.22 |  |  | 0.14 | 0.44 |
| 2011 |  | 0.00 | 0.00 | 0.00 | 0.32 |  | 0.69 | 0.06 | 0.91 | 0.54 | 0.00 | 0.56 |  | 0.15 | 0.42 |
| 2012 |  |  | 0.10 | 0.08 | 0.21 | 0.36 | 0.96 | 0.04 | 1.40 | 0.70 | 0.26 | 1.46 | 2.48 | 0.08 | 0.73 |
| 2013 |  |  | 0.12 | 0.01 | 0.18 | 0.14 | 0.67 | 0.02 | 0.92 | 0.74 | 0.32 | 0.83 |  | 0.11 | 0.45 |
| 2014 |  | 0.00 | 0.00 |  | 0.24 |  | 0.62 | 0.08 | 0.72 | 0.28 | 0.44 | 0.95 | 1.53 | 0.18 | 0.46 |
| 2015 |  | 0.00 | 0.00 | 0.03 |  | 0.00 | 0.36 | 0.04 | 0.62 | 0.43 | 0.18 | 0.39 | 0.92 | 0.19 | 0.30 |
| 2016 |  | 0.00 | 0.04 | 0.09 | 0.17 |  | 0.99 | 0.06 | 2.06 | 0.91 | 0.58 | 1.58 | 1.91 | 0.30 | 0.82 |
| 2017 |  | 0.08 | 0.11 | 0.10 | 0.21 | 0.15 | 0.70 | 0.00 | 1.96 | 1.09 |  | 1.11 | 1.74 | 0.14 | 0.70 |
| 2018 |  | 0.11 | 0.32 | 0.23 | 0.50 | 0.36 | 0.40 |  | 3.50 | 1.58 |  | 1.56 | 2.11 | 0.23 | 1.08 |
| 2019 |  | 0.08 | 0.00 | 0.17 | 0.24 |  | 0.00 | 0.33 |  | 0.87 |  | 1.13 |  | 0.06 | 0.42 |
| 2020 |  | 0.06 | 0.22 | 0.19 | 0.17 | 0.34 | 0.00 | 0.12 | 0.67 |  | 0.00 | 0.64 | 0.27 | 0.06 | 0.25 |
| 83-95 | NA | 0.49 | 0.87 | 0.43 | 0.85 | 0.94 | 1.11 | 0.21 | 0.86 | 0.95 | 1.01 | 1.26 | 1.90 | 0.39 | 0.90 |
| 96-98 | NA | 0.19 | 0.13 | 0.11 | 0.41 | NA | 0.40 | 0.09 | 0.40 | 0.26 | 0.00 | 0.25 | 1.09 | 0.04 | 0.27 |
| 99-08 | NA | 0.04 | 0.11 | 0.05 | 0.34 | 0.28 | 0.62 | 0.08 | 0.70 | 0.46 | 0.23 | 0.69 | 0.86 | 0.08 | 0.40 |
| 09-18 | NA | 0.03 | 0.09 | 0.10 | 0.24 | 0.20 | 0.69 | 0.06 | 1.46 | 0.76 | 0.37 | 1.13 | 1.78 | 0.15 | 0.61 |
| 19-20 | NA | 0.07 | 0.11 | 0.18 | 0.21 | 0.34 | 0.00 | 0.22 | 0.67 | 0.87 | 0.00 | 0.89 | 0.27 | 0.06 | 0.33 |

Appendix G5- Total mortality exploitation rate indices by stock and age in the Northern British Columbia troll fishery, based on coded-wire tag (CWT) data. Values shaded in gray are averages across years.

|  | QUE | QUI | QUI | RBT | RBT | RBT | SHU | SRH | SRH | SRH | SSA | URB | URB | WSH | Fishery |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Year | Age 5 | Age 3 | Age 4 | Age 3 | Age 4 | Age 5 | Age 4 | Age 3 | Age 4 | Age 5 | Age 4 | Age 4 | Age 5 | Age 4 | Index |
| 1979 |  | 0.56 | 0.85 | 1.16 | 0.83 | 0.48 |  | 1.17 |  |  |  | 1.10 |  | 0.63 | 0.83 |
| 1980 |  | 0.79 | 0.98 | 1.02 | 0.85 | 0.77 |  |  | 0.94 |  |  | 1.03 | 1.14 | 1.14 | 0.94 |
| 1981 |  | 1.75 | 1.45 | 0.85 | 1.04 | 1.76 |  | 1.27 |  | 1.00 |  | 1.27 | 1.51 | 1.52 | 1.28 |
| 1982 |  | 0.89 | 0.72 | 0.96 | 1.28 |  | 1.00 | 0.56 | 1.06 |  | 1.00 | 0.60 | 0.35 | 0.70 | 0.86 |
| 2009 |  |  | 0.11 | 0.20 | 0.21 |  | 0.67 | 0.12 | 1.37 | 0.94 | 0.98 | 1.78 |  | 0.03 | 0.68 |
| 2010 |  | 0.00 |  | 0.16 | 0.09 |  | 0.82 | 0.26 | 1.11 | 0.42 | 0.24 |  |  | 0.14 | 0.44 |
| 2011 |  | 0.00 | 0.00 | 0.07 | 0.35 |  | 0.75 | 0.10 | 0.98 | 0.58 | 0.05 | 0.61 |  | 0.17 | 0.45 |
| 2012 |  |  | 0.10 | 0.13 | 0.21 | 0.38 | 0.96 | 0.09 | 1.41 | 0.71 | 0.34 | 1.43 | 2.47 | 0.09 | 0.72 |
| 2013 |  |  | 0.12 | 0.03 | 0.18 | 0.13 | 0.74 | 0.09 | 1.00 | 0.81 | 0.36 | 0.90 |  | 0.11 | 0.49 |
| 2014 |  | 0.00 | 0.00 |  | 0.24 |  | 0.63 | 0.13 | 0.73 | 0.28 | 0.48 | 0.96 | 1.52 | 0.17 | 0.46 |
| 2015 |  | 0.00 | 0.00 | 0.03 |  | 0.00 | 0.37 | 0.10 | 0.63 | 0.44 | 0.17 | 0.40 | 0.93 | 0.20 | 0.31 |
| 2016 |  | 0.00 | 0.04 | 0.11 | 0.17 |  | 1.00 | 0.31 | 2.09 | 0.92 | 0.59 | 1.62 | 1.91 | 0.29 | 0.83 |
| 2017 |  | 0.10 | 0.11 | 0.11 | 0.21 | 0.16 | 0.72 | 0.30 | 2.02 | 1.12 |  | 1.14 | 1.76 | 0.14 | 0.73 |
| 2018 |  | 0.15 | 0.33 | 0.27 | 0.51 | 0.36 | 0.41 |  | 3.50 | 1.59 |  | 1.55 | 2.13 | 0.25 | 1.07 |
| 2019 |  | 0.09 | 0.00 | 0.21 | 0.28 |  | 0.00 | 0.43 |  | 0.99 |  | 1.29 |  | 0.05 | 0.47 |
| 2020 |  | 0.08 | 0.22 | 0.21 | 0.18 | 0.36 | 0.00 | 0.16 | 0.69 |  | 0.00 | 0.66 | 0.26 | 0.07 | 0.26 |
| 83-95 | NA | 0.56 | 0.89 | 0.54 | 0.86 | 0.95 | 1.14 | 0.33 | 0.88 | 0.96 | 1.12 | 1.29 | 1.91 | 0.42 | 0.93 |
| 96-98 | NA | 0.19 | 0.13 | 0.16 | 0.42 | NA | 0.41 | 0.15 | 0.41 | 0.27 | 0.07 | 0.28 | 1.07 | 0.07 | 0.29 |
| 99-08 | NA | 0.04 | 0.11 | 0.08 | 0.35 | 0.29 | 0.63 | 0.13 | 0.71 | 0.47 | 0.28 | 0.70 | 0.88 | 0.08 | 0.41 |
| 09-18 | NA | 0.04 | 0.09 | 0.12 | 0.24 | 0.21 | 0.71 | 0.17 | 1.48 | 0.78 | 0.40 | 1.16 | 1.79 | 0.16 | 0.62 |
| 19-20 | NA | 0.08 | 0.11 | 0.21 | 0.23 | 0.36 | 0.00 | 0.29 | 0.69 | 0.99 | 0.00 | 0.98 | 0.26 | 0.06 | 0.36 |

Appendix G6- Landed Catch exploitation rate indices by stock and age in the West Coast Vancouver Island (WCVI) troll fishery, based on coded-wire tag (CWT) data. Values shaded in gray are averages across years.

| Year | $\begin{gathered} \text { CWF } \\ \text { Age } 4 \end{gathered}$ | GAD <br> Age 3 | GAD | $\begin{gathered} \text { LRH } \\ \text { Age } 3 \end{gathered}$ | $\begin{gathered} \text { LRH } \\ \text { Age } 4 \end{gathered}$ | $\begin{gathered} \text { LRW } \\ \text { Age } 4 \end{gathered}$ | RBT <br> Age 3 | $\begin{gathered} \text { RBT } \\ \text { Age } 4 \end{gathered}$ | $\begin{gathered} \text { RBT } \\ \text { Age } 5 \end{gathered}$ | $\begin{aligned} & \text { SAM } \\ & \text { Age } 3 \end{aligned}$ | $\begin{gathered} \text { SAM } \\ \text { Age } 4 \end{gathered}$ | $\begin{gathered} \text { SAM } \\ \text { Age } 5 \end{gathered}$ | $\begin{gathered} \text { SPR } \\ \text { Age } 3 \end{gathered}$ | $\begin{gathered} \text { SPR } \\ \text { Age } 4 \end{gathered}$ | $\begin{gathered} \text { SPS } \\ \text { Age } 3 \end{gathered}$ | $\begin{gathered} \text { SPS } \\ \text { Age } 4 \end{gathered}$ | $\begin{gathered} \text { SRH } \\ \text { Age } 3 \end{gathered}$ | $\begin{gathered} \text { SRH } \\ \text { Age } 4 \end{gathered}$ | $\begin{gathered} \text { SRH } \\ \text { Age } 5 \end{gathered}$ | $\begin{gathered} \text { SUM } \\ \text { Age } 4 \end{gathered}$ | URB <br> Age 3 | URB <br> Age 4 | WSH <br> Age 4 | Fishery <br> Index |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1979 |  |  |  | 1.16 |  |  | 1.17 | 1.26 |  |  | 1.00 | 1.00 | 0.97 | 0.84 |  | 1.13 | 1.57 |  |  |  | 1.12 | 1.63 | 1.03 | 1.06 |
| 1980 |  |  |  | 0.55 | 0.90 |  | 1.41 | 1.43 |  |  |  |  | 1.17 | 1.39 |  |  |  | 1.09 |  | 0.69 | 1.10 | 0.99 | 1.11 | 1.02 |
| 1981 | 0.79 | 0.73 |  | 1.14 | 0.79 | 0.85 | 0.67 | 0.58 | 1.00 |  |  |  | 0.94 | 0.63 | 0.72 |  | 0.43 |  | 1.00 | 1.31 |  | 0.99 | 0.63 | 0.87 |
| 1982 | 1.21 | 1.27 | 1.00 | 1.15 | 1.31 | 1.16 | 0.75 | 0.73 |  | 1.00 |  |  | 0.93 | 1.14 | 1.29 | 0.87 |  | 0.91 |  |  | 0.78 | 0.39 | 1.23 | 1.05 |
| 2009 | 0.00 | 0.64 | 0.52 | 0.19 | 0.22 |  |  | 0.00 |  | 0.66 | 0.16 |  | 0.16 | 0.06 | 0.57 | 0.19 | 0.04 | 0.04 | 0.10 | 0.40 |  | 0.11 | 0.12 | 0.22 |
| 2010 | 0.11 | 0.98 | 0.45 | 0.34 |  |  | 0.04 | 0.26 |  | 0.99 | 0.13 |  | 0.24 | 0.36 | 0.48 | 0.12 | 0.00 | 0.00 | 0.00 | 0.32 | 0.10 |  | 0.22 | 0.28 |
| 2011 | 0.07 | 0.43 | 0.22 | 0.41 | 0.75 |  | 0.00 | 0.00 |  | 0.00 | 0.42 |  | 0.25 | 0.59 | 0.05 | 0.21 | 0.12 | 0.56 | 0.43 | 0.21 | 0.00 | 0.33 | 0.52 | 0.33 |
| 2012 | 0.20 | 0.31 | 0.25 | 0.16 | 0.00 |  | 0.00 | 0.00 | 0.17 | 0.34 | 0.05 |  | 0.11 | 0.45 | 0.36 | 0.18 | 0.04 | 0.42 | 0.69 | 0.27 | 0.08 | 0.31 | 1.16 | 0.21 |
| 2013 | 0.06 | 0.20 | 0.24 | 0.18 | 0.14 |  | 0.00 |  |  | 0.14 | 0.09 |  | 0.15 | 0.14 | 0.03 | 0.20 | 0.04 | 0.07 | 0.00 | 0.18 | 0.04 | 0.25 | 0.28 | 0.15 |
| 2014 | 0.13 | 0.18 | 0.28 | 0.26 |  | 0.20 |  | 0.18 |  | 0.70 | 0.26 |  | 0.12 | 0.30 | 0.46 | 0.26 | 0.14 | 0.25 | 0.53 | 0.47 | 0.05 | 0.42 | 1.19 | 0.28 |
| 2015 |  | 0.08 | 0.09 | 0.21 | 0.33 |  | 0.01 |  |  |  | 0.15 |  | 0.09 | 0.22 | 0.23 | 0.12 | 0.09 | 0.14 | 0.36 | 0.07 | 0.03 | 0.09 | 0.17 | 0.16 |
| 2016 | 0.18 | 0.21 | 0.38 | 0.23 | 1.13 |  | 0.01 | 0.18 |  |  | 0.07 |  | 0.13 | 0.61 | 0.10 | 0.28 | 0.02 | 0.25 | 0.54 | 0.44 | 0.17 | 0.38 | 1.18 | 0.36 |
| 2017 | 0.25 | 0.46 | 0.18 | 0.52 |  |  | 0.12 | 0.13 | 0.15 | 0.80 |  |  | 0.32 |  | 0.42 | 0.22 | 0.00 | 0.18 | 0.29 | 0.39 | 0.25 | 0.21 | 1.13 | 0.31 |
| 2018 | 0.00 | 0.22 | 0.09 | 0.28 |  |  | 0.15 | 0.26 |  | 0.50 | 0.05 |  | 0.15 |  | 0.15 | 0.14 |  | 0.34 | 0.74 | 0.16 | 0.02 | 0.28 | 0.57 | 0.17 |
| 2019 | 0.08 | 0.10 | 0.03 | 0.07 |  |  | 0.14 | 0.13 |  | 0.19 | 0.06 |  | 0.09 | 0.00 | 0.26 | 0.06 | 0.12 |  |  | 0.00 | 0.05 | 0.23 | 0.00 | 0.07 |
| 2020 | 0.08 | 0.18 | 0.00 | 0.06 | 0.13 | 0.12 | 0.04 | 0.05 | 0.19 | 0.06 | 0.15 |  | 0.07 |  | 0.20 | 0.04 | 0.17 | 0.34 |  | 0.02 | 0.05 | 0.11 | 0.05 | 0.09 |
| 83-95 | 0.90 | 0.82 | 0.84 | 1.10 | 1.24 | 0.74 | 0.69 | 0.90 | 1.64 | 0.49 | 0.60 | 1.09 | 0.78 | 0.79 | 0.75 | 0.65 | 0.79 | 0.72 | 1.88 | 1.02 | 0.54 | 1.14 | 0.44 | 0.84 |
| 96-98 | 0.19 | 0.00 | 0.10 | 0.37 | NA | NA | 0.00 | 0.02 | NA | 0.01 | 0.11 | NA | 0.17 | 0.20 | 0.01 | 0.11 | 0.00 | 0.01 | 0.00 | 0.02 | 0.01 | 0.03 | 0.01 | 0.11 |
| 99-08 | 0.46 | 0.41 | 0.90 | 0.36 | 1.09 | 0.31 | 0.01 | 0.01 | 0.00 | 0.48 | 0.56 | NA | 0.34 | 0.87 | 0.44 | 0.57 | 0.07 | 0.09 | 0.29 | 0.40 | 0.11 | 0.28 | 0.72 | 0.53 |
| 09-18 | 0.11 | 0.37 | 0.27 | 0.28 | 0.43 | 0.20 | 0.04 | 0.13 | 0.16 | 0.52 | 0.15 | NA | 0.17 | 0.34 | 0.29 | 0.19 | 0.06 | 0.22 | 0.37 | 0.29 | 0.08 | 0.27 | 0.65 | 0.25 |
| 19-20 | 0.08 | 0.14 | 0.01 | 0.07 | 0.13 | 0.12 | 0.09 | 0.09 | 0.19 | 0.12 | 0.11 | NA | 0.08 | 0.00 | 0.23 | 0.05 | 0.15 | 0.34 | NA | 0.01 | 0.05 | 0.17 | 0.02 | 0.08 |

Appendix G7- Total mortality exploitation rate indices by stock and age in the West Coast Vancouver Island (WCVI) troll fishery, based on coded-wire tag (CWT) data. Values shaded in gray are averages across years.

| Year | $\begin{array}{r} \hline \text { CWF } \\ \text { Age } 4 \\ \hline \end{array}$ | GAD Age 3 | $\begin{gathered} \hline \text { GAD } \\ \text { Age } 4 \\ \hline \end{gathered}$ | LRH $\text { Age } 3$ | LRH Age 4 | LRW <br> Age 4 | $\begin{array}{\|c\|} \hline \text { RBT } \\ \text { Age } 3 \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline \text { RBT } \\ \text { Age } 4 \\ \hline \end{array}$ | $\begin{gathered} \text { RBT } \\ \text { Age } 5 \\ \hline \end{gathered}$ | $\begin{aligned} & \text { SAM } \\ & \text { Age } 3 \end{aligned}$ | $\begin{array}{\|c\|} \hline \text { SAM } \\ \text { Age } 4 \\ \hline \end{array}$ | $\begin{aligned} & \text { SAM } \\ & \text { Age } 5 \end{aligned}$ | $\begin{gathered} \text { SPR } \\ \text { Age } 3 \\ \hline \end{gathered}$ | $\begin{array}{\|c\|} \hline \text { SPR } \\ \text { Age } 4 \\ \hline \end{array}$ | $\begin{gathered} \text { SPS } \\ \text { Age } 3 \\ \hline \end{gathered}$ | $\begin{array}{\|c} \hline \text { SPS } \\ \text { Age } 4 \\ \hline \end{array}$ | SRH Age 3 | SRH Age 4 | $\begin{gathered} \text { SRH } \\ \text { Age } 5 \\ \hline \end{gathered}$ | $\begin{aligned} & \text { SUM } \\ & \text { Age } 4 \\ & \hline \end{aligned}$ | URB Age 3 | URB Age 4 | WSH Age 4 | Fishery Index |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1979 |  |  |  | 1.15 |  |  | 1.20 | 1.25 |  |  | 1.00 | 1.00 | 0.95 | 0.84 |  | 1.13 | 1.54 |  |  |  | 1.11 | 1.64 | 1.00 | 1.05 |
| 1980 |  |  |  | 0.56 | 0.88 |  | 1.38 | 1.42 |  |  |  |  | 1.16 | 1.39 |  |  |  | 1.11 |  | 0.69 | 1.10 | 1.00 | 1.09 | 1.02 |
| 1981 | 0.79 | 0.72 |  | 1.13 | 0.78 | 0.85 | 0.66 | 0.60 | 1.00 |  |  |  | 0.92 | 0.63 | 0.73 |  | 0.46 |  | 1.00 | 1.31 |  | 0.98 | 0.64 | 0.86 |
| 1982 | 1.21 | 1.28 | 1.00 | 1.17 | 1.34 | 1.15 | 0.75 | 0.72 |  | 1.00 |  |  | 0.97 | 1.14 | 1.27 | 0.87 |  | 0.89 |  |  | 0.79 | 0.38 | 1.27 | 1.06 |
| 2009 | 0.00 | 0.55 | 0.51 | 0.19 | 0.22 |  |  | 0.00 |  | 0.57 | 0.15 |  | 0.15 | 0.05 | 0.50 | 0.18 | 0.04 | 0.04 | 0.10 | 0.39 |  | 0.10 | 0.10 | 0.21 |
| 2010 | 0.11 | 0.83 | 0.44 | 0.31 |  |  | 0.03 | 0.26 |  | 0.86 | 0.12 |  | 0.22 | 0.34 | 0.43 | 0.12 | 0.00 | 0.00 | 0.00 | 0.32 | 0.09 |  | 0.20 | 0.27 |
| 2011 | 0.07 | 0.37 | 0.22 | 0.38 | 0.74 |  | 0.00 | 0.00 |  | 0.00 | 0.42 |  | 0.23 | 0.57 | 0.04 | 0.20 | 0.11 | 0.56 | 0.43 | 0.21 | 0.00 | 0.33 | 0.47 | 0.32 |
| 2012 | 0.20 | 0.26 | 0.24 | 0.14 | 0.00 |  | 0.00 | 0.00 | 0.17 | 0.30 | 0.05 |  | 0.10 | 0.43 | 0.32 | 0.17 | 0.04 | 0.43 | 0.69 | 0.27 | 0.07 | 0.30 | 1.06 | 0.20 |
| 2013 | 0.06 | 0.17 | 0.24 | 0.16 | 0.13 |  | 0.00 |  |  | 0.13 | 0.09 |  | 0.14 | 0.13 | 0.03 | 0.20 | 0.04 | 0.07 | 0.00 | 0.18 | 0.03 | 0.25 | 0.25 | 0.14 |
| 2014 | 0.13 | 0.14 | 0.27 | 0.24 |  | 0.20 |  | 0.17 |  | 0.60 | 0.25 |  | 0.11 | 0.29 | 0.41 | 0.25 | 0.13 | 0.25 | 0.54 | 0.47 | 0.05 | 0.42 | 1.08 | 0.26 |
| 2015 |  | 0.06 | 0.09 | 0.20 | 0.32 |  | 0.01 |  |  |  | 0.14 |  | 0.09 | 0.22 | 0.21 | 0.12 | 0.08 | 0.14 | 0.36 | 0.07 | 0.03 | 0.09 | 0.15 | 0.15 |
| 2016 | 0.18 | 0.17 | 0.37 | 0.20 | 1.11 |  | 0.01 | 0.18 |  |  | 0.07 |  | 0.12 | 0.59 | 0.09 | 0.28 | 0.02 | 0.25 | 0.54 | 0.44 | 0.16 | 0.38 | 1.08 | 0.35 |
| 2017 | 0.25 | 0.38 | 0.17 | 0.47 |  |  | 0.10 | 0.13 | 0.15 | 0.69 |  |  | 0.29 |  | 0.37 | 0.22 | 0.00 | 0.18 | 0.29 | 0.38 | 0.23 | 0.21 | 1.03 | 0.29 |
| 2018 | 0.00 | 0.19 | 0.09 | 0.27 |  |  | 0.14 | 0.26 |  | 0.43 | 0.05 |  | 0.14 |  | 0.13 | 0.14 |  | 0.36 | 0.74 | 0.16 | 0.01 | 0.27 | 0.51 | 0.16 |
| 2019 | 0.08 | 0.09 | 0.03 | 0.06 |  |  | 0.12 | 0.13 |  | 0.19 | 0.06 |  | 0.08 | 0.00 | 0.22 | 0.06 | 0.11 |  |  | 0.00 | 0.05 | 0.23 | 0.00 | 0.07 |
| 2020 | 0.08 | 0.15 | 0.00 | 0.06 | 0.12 | 0.12 | 0.03 | 0.05 | 0.19 | 0.05 | 0.15 |  | 0.06 |  | 0.17 | 0.04 | 0.16 | 0.34 |  | 0.02 | 0.04 | 0.11 | 0.04 | 0.08 |
| 83-95 | 0.93 | 0.86 | 0.86 | 1.18 | 1.30 | 0.77 | 0.79 | 0.93 | 1.70 | 0.61 | 0.61 | 1.09 | 0.81 | 0.80 | 0.83 | 0.66 | 0.90 | 0.75 | 1.93 | 1.04 | 0.65 | 1.18 | 0.47 | 0.87 |
| 96-98 | 0.21 | 0.07 | 0.12 | 0.47 | NA | NA | 0.02 | 0.02 | NA | 0.08 | 0.12 | NA | 0.22 | 0.22 | 0.07 | 0.12 | 0.03 | 0.02 | 0.00 | 0.03 | 0.04 | 0.06 | 0.02 | 0.13 |
| 99-08 | 0.46 | 0.35 | 0.90 | 0.33 | 1.09 | 0.30 | 0.01 | 0.01 | 0.00 | 0.42 | 0.55 | NA | 0.32 | 0.85 | 0.39 | 0.57 | 0.06 | 0.09 | 0.29 | 0.40 | 0.10 | 0.28 | 0.65 | 0.51 |
| 09-18 | 0.11 | 0.31 | 0.27 | 0.26 | 0.42 | 0.20 | 0.04 | 0.12 | 0.16 | 0.45 | 0.15 | NA | 0.16 | 0.33 | 0.25 | 0.19 | 0.05 | 0.23 | 0.37 | 0.29 | 0.07 | 0.26 | 0.59 | 0.24 |
| 19-20 | 0.08 | 0.12 | 0.01 | 0.06 | 0.12 | 0.12 | 0.08 | 0.09 | 0.19 | 0.12 | 0.10 | NA | 0.07 | 0.00 | 0.20 | 0.05 | 0.14 | 0.34 | NA | 0.01 | 0.05 | 0.17 | 0.02 | 0.07 |

## Appendix H: Calendar Year Exploitation Rate Metrics

Calendar year exploitation rates were introduced with Paragraph 5(e) of the 2019 PST Agreement as a way to monitor the total mortality in ISBM fisheries. CYERs are calculated for each calendar year and CTC fishery as:

$$
\text { CYDIST }_{C Y, F}=\frac{\sum_{a=\text { Minage }}^{\text {Maxage }} \sum_{f \in\left\{F_{I S B M}\right\}} \text { Morts }_{C Y, a, f} * A E Q_{B Y=C Y-a, a, f}}{\sum_{a=\text { Minage }}^{\text {Maxage }}\left(\sum_{f=1}^{\text {Numfisheries }} \text { Morts }_{C Y, a, f} * A E Q_{B Y=C Y-a, a, f}+E s c_{C Y, a}\right)}
$$

Equation notations can be found in Appendix B. CYER limits for each stock and ISBM fishery are laid out in Attachment I of the 2019 PST Agreement and are based on a base period average from 2009-2015 as shown in Appendix H1 and Appendix H2 below. ISBM fisheries are listed in Table 4.2. ISBM performance and CYER limit evaluation can be found in section 4.1.

## LIST OF APPENDIX H TABLES

Appendix H1-Calculation of individual stock-based management (ISBM) calendar year exploitation rate (CYER) limits for all Canadian ISBM fisheries based on coded wire tag (CWT)-based exploitation rate analysis.
Appendix H2-Calculation of individual stock-based management (ISBM) calendar year exploitation rate (CYER) limits for all United States ISBM fisheries based on coded wire tag (CWT)-based exploitation rate analysis.
Appendix H3-Individual stock-based management (ISBM) calendar year exploitation rates (CYERs) for all Canadian fisheries based on coded wire tag (CWT)-based exploitation rate analysis under the 2019 Pacific Salmon Treaty (PST) Agreement. Values shaded in green indicate that the annual ISBM obligation was met for that stock in that year while values shaded in red indicate that the annual ISBM obligation was not met for that stock in that year.207

Appendix H4—Individual stock-based management (ISBM) calendar year exploitation rates (CYERs) for all United States (U.S.) fisheries based on coded wire tag (CWT)-based exploitation rate analysis under the 2019 Pacific Salmon Treaty (PST) Agreement. Values shaded in green indicate that the annual ISBM obligation was met for that stock in that year while values shaded in red indicate that the annual ISBM obligation was not met for that stock in that year. 208

Appendix H1-Calculation of individual stock-based management (ISBM) calendar year exploitation rate (CYER) limits for all Canadian ISBM fisheries based on coded wire tag (CWT)-based exploitation rate analysis.
Note: Escapement indicator stocks correspond to Annex IV, Chapter 3, Attachment I of the 2019 Pacific Salmon Treaty Agreement.

| Escapement Indicator | CWT <br> Indicator | CYER Obj. | Base Period CYER |  |  |  |  |  |  |  | CYER <br> Limit |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | Avg. |  |
| Skeena | KLM | 100.0\% | 0.065 | 0.185 | 0.257 | 0.121 | 0.102 | 0.167 | 0.129 | 0.146 | 0.146 |
| Atnarko | ATN | 100.0\% | 0.372 | 0.290 | 0.364 | 0.276 | 0.228 | 0.212 | 0.169 | 0.273 | 0.273 |
| NWVI Natural Aggregate | RBT adj | 95.0\% | 0.112 | 0.074 | 0.076 | 0.083 | 0.107 | 0.067 | 0.111 | 0.090 | 0.085 |
| SWVI Natural Aggregate | RBT adj | 95.0\% | 0.112 | 0.074 | 0.076 | 0.083 | 0.107 | 0.067 | 0.111 | 0.090 | 0.085 |
| East Coast Vancouver Island North | QUI adj | 95.0\% | 0.144 | 0.233 | 0.149 | 0.141 | 0.080 | 0.092 | 0.265 | 0.158 | 0.150 |
| Phillips | PHI | 100.0\% |  |  | 0.150 | 0.214 | 0.067 | 0.109 | 0.128 | 0.101 | 0.101 |
| Cowichan | COW | 95.0\% | 0.486 | 0.424 | 0.242 | 0.377 | 0.366 | 0.492 | 0.415 | 0.400 | 0.380 |
| Nicola | NIC | 95.0\% | 0.471 | 0.064 | 0.111 | 0.226 | 0.070 | 0.126 | 0.143 | 0.173 | 0.164 |
| Chilcotin |  |  |  |  |  |  |  |  |  |  |  |
| Chilko |  |  |  |  |  |  |  |  |  |  |  |
| Lower Shuswap | SHU | 100.0\% | 0.256 | 0.211 | 0.215 | 0.206 | 0.168 | 0.184 | 0.152 | 0.199 | 0.199 |
| Harrison | HAR | 95.0\% | 0.074 | 0.071 | 0.066 | 0.104 | 0.090 | 0.190 | 0.141 | 0.105 | 0.100 |
| Nooksack Spring | NSF | 87.5\% | 0.190 | 0.050 | 0.143 | 0.149 | 0.159 | 0.238 | 0.111 | 0.149 | 0.130 |
| Skagit Spring | SKF | 87.5\% | 0.072 | 0.078 | 0.061 | 0.117 | 0.079 | 0.086 | 0.057 | 0.079 | 0.069 |
| Skagit Summer/Fall | SSF | 87.5\% | 0.083 | 0.081 | 0.067 | 0.028 | 0.082 | 0.186 | 0.129 | 0.094 | 0.082 |
| Stillaguamish | STL | 87.5\% | 0.077 | 0.094 | 0.102 | 0.084 | 0.126 | 0.214 | 0.164 | 0.123 | 0.108 |
| Snohomish | SKY | 87.5\% | 0.038 | 0.043 | 0.063 | 0.164 | 0.112 | 0.138 | 0.060 | 0.088 | 0.077 |

Appendix H2-Calculation of individual stock-based management (ISBM) calendar year exploitation rate (CYER) limits for all United States ISBM fisheries based on coded wire tag (CWT)-based exploitation rate analysis.
Note: Escapement indicator stocks correspond to Annex IV, Chapter 3, Attachment I of the 2019 Pacific Salmon Treaty Agreement.

| Escapement Indicator | $\begin{gathered} \text { CWT } \\ \text { Indicator } \end{gathered}$ | CYER Obj. | Base Period CYER |  |  |  |  |  |  |  | CYER <br> Limit |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | Avg. |  |
| Cowichan | cow | 95.0\% | 0.101 | 0.110 | 0.130 | 0.158 | 0.141 | 0.072 | 0.047 | 0.108 | 0.103 |
| Nicola | NIC | 95.0\% | 0.072 | 0.012 | 0.038 | 0.087 | 0.046 | 0.016 | 0.019 | 0.041 | 0.039 |
| Harrison | HAR | 95.0\% | 0.033 | 0.078 | 0.064 | 0.093 | 0.108 | 0.095 | 0.065 | 0.077 | 0.073 |
| Nooksack Spring | NSF | 100.0\% | 0.058 | 0.064 | 0.075 | 0.196 | 0.133 | 0.126 | 0.070 | 0.103 | 0.103 |
| Skagit Spring | SKF | 95.0\% | 0.265 | 0.228 | 0.241 | 0.268 | 0.296 | 0.342 | 0.207 | 0.264 | 0.251 |
| Skagit Summer/Fall | SSF | 95.0\% | 0.372 | 0.123 | 0.268 | 0.041 | 0.195 | 0.120 | 0.090 | 0.173 | 0.164 |
| Stillaguamish | STL | 100.0\% | 0.177 | 0.164 | 0.082 | 0.068 | 0.261 | 0.263 | 0.159 | 0.168 | 0.168 |
| Snohomish | SKY | 100.0\% | 0.170 | 0.143 | 0.315 | 0.162 | 0.123 | 0.142 | 0.244 | 0.185 | 0.185 |
| Hoko | HOK | 10.0\% | 0.026 | 0.012 | 0.014 | 0.045 | 0.074 | 0.048 | 0.091 | 0.044 | 0.100 |
| Grays Harbor Fall | QUE adj | 85.0\% | 0.164 | 0.185 | 0.211 | 0.165 | 0.164 | 0.182 | 0.251 | 0.189 | 0.160 |
| Queets Fall | QUE | 85.0\% | 0.172 | 0.147 | 0.206 | 0.206 | 0.206 | 0.144 | 0.076 | 0.165 | 0.140 |
| Quillayute Fall | QUE adj | 85.0\% | 0.244 | 0.222 | 0.258 | 0.196 | 0.211 | 0.352 | 0.287 | 0.253 | 0.215 |
| Hoh Fall | QUE adj | 85.0\% | 0.127 | 0.126 | 0.251 | 0.150 | 0.295 | 0.162 | 0.161 | 0.182 | 0.154 |
| river Brights | URB | 85.0\% | 0.276 | 0.275 | 0.314 | 0.211 | 0.340 | 0.243 | 0.214 | 0.268 | 0.228 |
|  | HAN | 85.0\% | 0.526 | 0.164 | 0.273 | 0.288 | 0.306 | 0.257 | 0.235 | 0.293 | 0.249 |
| Lewis River Fall | LRW | 85.0\% | 0.051 | 0.185 | 0.320 | 0.271 | 0.426 | 0.203 | 0.150 | 0.229 | 0.195 |
| Coweeman | CWF | 100.0\% | 0.210 | 0.256 | 0.054 | 0.200 | 0.132 | 0.261 | 0.339 | 0.207 | 0.207 |
| Mid-Columbia Summers | SUM | 85.0\% | 0.215 | 0.332 | 0.337 | 0.288 | 0.289 | 0.341 | 0.366 | 0.310 | 0.263 |
| Nehalem | SRH adj | 85.0\% | 0.022 | 0.081 | 0.150 | 0.158 | 0.187 | 0.212 | 0.268 | 0.154 | 0.131 |
| Siletz | SRH adj | 85.0\% | 0.116 | 0.068 | 0.300 | 0.184 | 0.194 | 0.182 | 0.378 | 0.203 | 0.173 |
| Siuslaw | SRH adj | 85.0\% | 0.145 | 0.182 | 0.273 | 0.195 | 0.316 | 0.236 | 0.333 | 0.240 | 0.204 |
| South Umpqua | Elk adj | 85.0\% | 0.222 | 0.313 | 0.365 | 0.390 | 0.402 | 0.312 | 0.222 | 0.318 | 0.270 |
| Coquille | Elk adj | 85.0\% | 0.069 | 0.139 | 0.257 | 0.339 | 0.453 | 0.279 | 0.326 | 0.266 | 0.226 |

Appendix H3-Individual stock-based management (ISBM) calendar year exploitation rates (CYERs) for all Canadian fisheries based on coded wire tag (CWT)-based exploitation rate analysis under the 2019 Pacific Salmon Treaty (PST) Agreement. Values shaded in green indicate that the annual ISBM obligation was met for that stock in that year while values shaded in red indicate that the annual ISBM obligation was not met for that stock in that year.

Note: Escapement indicator stocks correspond to Annex IV, Chapter 3, Attachment I of the 2019 PST Agreement.

| Escapement Indicator | CYER |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Skeena | 0.129 | 0.145 |  |  |  |  |  |  |  |  |
| Atnarko | 0.324 | 0.277 |  |  |  |  |  |  |  |  |
| NWVI Natural Aggregate | 0.098 | 0.064 |  |  |  |  |  |  |  |  |
| SWVI Natural Aggregate | 0.098 | 0.064 |  |  |  |  |  |  |  |  |
| East Coast Vancouver Island North | 0.261 | 0.115 |  |  |  |  |  |  |  |  |
| Phillips | 0.076 | 0.070 |  |  |  |  |  |  |  |  |
| Cowichan | 0.501 | 0.143 |  |  |  |  |  |  |  |  |
| Nicola | 0.021 | 0.274 |  |  |  |  |  |  |  |  |
| Chilcotin |  |  |  |  |  |  |  |  |  |  |
| Chilko |  |  |  |  |  |  |  |  |  |  |
| Lower Shuswap | 0.117 | 0.187 |  |  |  |  |  |  |  |  |
| Harrison | 0.203 | 0.151 |  |  |  |  |  |  |  |  |
| Nooksack Spring | 0.106 | 0.169 |  |  |  |  |  |  |  |  |
| Skagit Spring | 0.051 | 0.129 |  |  |  |  |  |  |  |  |
| Skagit Summer/Fall | 0.048 | 0.098 |  |  |  |  |  |  |  |  |
| Stillaguamish | 0.140 | 0.063 |  |  |  |  |  |  |  |  |
| Snohomish | 0.082 | 0.100 |  |  |  |  |  |  |  |  |

Appendix H4—Individual stock-based management (ISBM) calendar year exploitation rates (CYERs) for all United States (U.S.) fisheries based on coded wire tag (CWT)-based exploitation rate analysis under the 2019 Pacific Salmon Treaty (PST) Agreement. Values shaded in green indicate that the annual ISBM obligation was met for that stock in that year while values shaded in red indicate that the annual ISBM obligation was not met for that stock in that year.

Note: Escapement indicator stocks correspond to Annex IV, Chapter 3, Attachment I of the 2019 PST Agreement.

| Escapement Indicator | CYER |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Cowichan | 0.066 | 0.028 |  |  |  |  |  |  |  |  |
| Nicola | 0.019 | 0.017 |  |  |  |  |  |  |  |  |
| Harrison | 0.062 | 0.046 |  |  |  |  |  |  |  |  |
| Nooksack Spring | 0.178 | 0.181 |  |  |  |  |  |  |  |  |
| Skagit Spring | 0.430 | 0.214 |  |  |  |  |  |  |  |  |
| Skagit Summer/Fall | 0.131 | 0.060 |  |  |  |  |  |  |  |  |
| Stillaguamish | 0.190 | 0.104 |  |  |  |  |  |  |  |  |
| Snohomish | 0.104 | 0.098 |  |  |  |  |  |  |  |  |
| Hoko | 0.224 | 0.010 |  |  |  |  |  |  |  |  |
| Grays Harbor Fall | 0.118 | 0.113 |  |  |  |  |  |  |  |  |
| Queets Fall | 0.200 | 0.280 |  |  |  |  |  |  |  |  |
| Quillayute Fall | 0.125 | 0.125 |  |  |  |  |  |  |  |  |
| Hoh Fall | 0.200 | 0.214 |  |  |  |  |  |  |  |  |
| Upriver Brights | 0.176 | 0.164 |  |  |  |  |  |  |  |  |
| Hanford Wild Brights | 0.048 | 0.138 |  |  |  |  |  |  |  |  |
| Lewis River Fall | 0.029 | 0.081 |  |  |  |  |  |  |  |  |
| Coweeman | 0.118 | 0.087 |  |  |  |  |  |  |  |  |
| Mid-Columbia Summers | 0.107 | 0.149 |  |  |  |  |  |  |  |  |
| Nehalem | 0.066 | 0.073 |  |  |  |  |  |  |  |  |
| Siletz | 0.273 | 0.126 |  |  |  |  |  |  |  |  |
| Siuslaw | 0.392 | 0.206 |  |  |  |  |  |  |  |  |
| South Umpqua | 0.355 | 0.277 |  |  |  |  |  |  |  |  |
| Coquille | 0.513 | 0.102 |  |  |  |  |  |  |  |  |

## Appendix I: Issues with and changes to the Exploitation Rate Analysis

 Fishery LookupsSamish (SAM)
A correction was made to one of the fishery lookup records for fishery 3306 (North Puget Sound Freshwater Sport) by deleting values in the 'StartMonth', 'StartDay', 'EndMonth', and 'EndDay' fields for the record with LookUpID 4747 in the image below. Removing these values allows recoveries in the Samish River sport fishery (recovery site = '3F10107 030005 R') to correctly map to fishery 3306 , whereas in the past they were being incorrectly mapped to fishery 3321 (Washington Coast Freshwater Sport). This correction affected 136 SAM recoveries, of which 11 were recovered in 1996 and 116 were recovered in 2007.


## Mortality Distribution Calculations

## North of Falcon Sport moved in mortality distribution calculations

ERA fishery 54 (North of Falcon Terminal Sport [TNF TERM S]) was moved from the North of Falcon sport group to the Southern U.S. terminal sport group:


As the CTC has moved to implementing terminal adjustments of Queets Fall Fingerling for the other WA coastal escapement indicator stocks, there is a need to account for some of the terminal/freshwater sport fisheries that occur in these systems. In the past, all terminal fisheries (sport and net) were combined into one terminal harvest rate for the adjustment program. Now that MDTs are reported for these adjusted stocks, there is a need to account for the sport and net separately. The ERA fishery that gets adjusted for the sport component of the terminal adjustments for Washington coast stocks is fishery 54, which was getting mapped to North of Falcon sport in the MDTs. ERA fishery 54 (NOF terminal sport) is mapped to fine scale (c-file) fishery 171 (T WAC S) to fine scale fishery 3321 (WA coast FW sport). The relationship is 1:1, meaning that there are not any other fine scale fisheries that get included in ERA fishery 54. Based on this, the AWG agreed to move the TNF TERM S fishery from the ISBM North of Falcon Sport to Terminal Southern U.S. sport fishery in the mortality distribution calculations.

## CM1 Files

In past ERAs, four CM1 files have been maintained for each stock. There were two CM1 files for brood-year based IM calculations and two for calendar year-based IM calculations. The difference between each pair was a flag indicating whether to generate a text-based mortality distribution table, which are no longer used in the CTC's reporting since the current program to generate mortality distribution tables relies on HRJ files. For Columbia River stocks, the CM1 files that generate the obsolete mortality distribution table text file were not used in this year's ERA and will not be maintained going into the future.

## CCF Files

An effort was made during this year's ERA to validate flat files used by Coshak with tables populated in the CAMP database, which will replace flat files in future ERA years. This process helped to reveal errors in some Coshak input files. A copy and paste error was identified in the Spring Creek Calendar Year CCF file. This was corrected. As a result, IM estimates of Spring Creek, the Central Troll fishery, in 2013, 2014, 2017 and 2019 have changed.

## CDS File / Tag Code Changes

Northern Southeast Alaska (NSA)

Alaska has decided to drop Macaulay Hatchery (AMC) from the NSA conglomerate stock. From the 2022 ERA onward, NSA will now comprise only Crystal Lake Hatchery (ACI). We made this decision for the following reasons:

1. The time series of estimated returns to Macaulay hatchery have been suspect for many years. The variability in the return estimates is higher than one would expect which casts some doubt on the consistency of their data reporting methods. Randy Peterson and John Carlile met with DIPAC (owner and operator of the hatchery) twice since 2014 in hopes of resolving the issues, but no satisfactory conclusion was reached in regards to explaining or correcting the return data.
2. In addition, DIPAC had a loss of water to the Macaulay hatchery in 2020, which led to the dumping of the entire BY 2019 cohort prior to osmocompetence/smoltification, from which very few Chinook are expected to survive. While this is a temporary setback, we felt that this event combined with the previously identified problems with Macaulay returns provided ample rationale for removing the Macaulay tag codes from NSA.

## Elk River (ELK)

There were tag codes in the 2021 ERA from BY 2017 that included research treatment groups. These were removed from the .cds file, and only that release group which originated from a production release (non-experimental) was used for the 2018 BY for this year's ERA (2022).

Columbia Lower River Hatchery (LRH)

During the tag code review, three codes for LRH representing BON (Lower Columbia River Tule Fall Chinook, OR side) were identified for exclusion from the Cohort Analysis System (CAS). These tag codes are not included in the annual ERA calibration but were included in the examination for the Base Period Calibration and thus included in the MDL file package for the base period calibration years. Two tag codes ( 071704 and 071705 ) were experimental codes from Big Creek Hatchery with brood year 1977. These codes had minimal recoveries (both actual and auxiliary record) and should not be further included in the CAS database. A third code (071844) was a production lot with significant actual and auxiliary recovery records but was also not included in the finalized Base Period Calibration MDLs nor in annual calibrations thereafter, thus this tag code should also henceforth be excluded from the annual CAS database.

## Other Miscellaneous Changes

Similkameen Summer Yearling (SMK) / Columbia Summers (SUM)
Some Wells Hatchery Escapement Recoveries were not upload to RMIS by WDFW / Confederated Colville Tribes (CCT) for recovery years 2019 and 2020. This unknowingly affected last years' ERA. Auxiliaries were created this year to load these recoveries. WDFW / CCT plans to submit these recoveries to RMIS soon.

Wells brood stock / hatchery surplus data was missing from inter-dam loss (IDL) calculations in 2018 and 2019. This data was added and IDL estimates for those years were revised.

Little Port Walter (ALP) / Southern Southeast Alaska (SSA)
Due to staff shortages, the National Oceanic and Atmospheric Administration (NOAA) was not able to finalize the data used for the 2022 ERA. Thus, the ERA for ALP and SSA was completed using preliminary data from Little Port Walter.

## Appendix J: Pseudo recovery inclusion assessment

## LIST OF APPENDIX J FIGURES

$$
\begin{aligned}
& \text { Appendix J1-Comparison of stock-specific estimated coded wire tags derived with and } \\
& \text { without age-2 pseudo-recoveries across all fisheries and including escapement } \\
& \text { for seven Canadian stocks (top) and differences between estimates (bottom). ..... } 215
\end{aligned}
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Appendix J2- Comparison of (top), and differences between (bottom) stock-specific
numeric and proportional escapement mortality estimates derived with and
without age-2 pseudo-recoveries for seven Canadian individual stock-based
management (ISBM) fisheries (top) and differences between numeric and
proportional estimates (bottom). ..... 216

Appendix J3-Comparison of stock-specific estimates of total calendar year mortalities (CYM; left) and calendar year exploitation rates (CYER; right) across all associated abundance-based management (AABM) fisheries and individual stock-based management (ISBM) fisheries combined (row 1), across all AABM and ISBM fisheries separately (rows 2 and 3, respectively), and across all Canadian and U.S. fisheries (AABM and ISBM combined; rows 4 and 5, respectively).
Appendix J4-Comparison of differences in stock-specific estimates of total calendar year mortalities (CYM; left) and calendar year exploitation rates (CYER; right) across all associated abundance-based management (AABM) fisheries and individual stock-based management (ISBM) fisheries combined (row 1), across all AABM and ISBM fisheries separately (rows 2 and 3, respectively), and across all Canadian and U.S. fisheries (AABM and ISBM combined; rows 4 and 5, respectively).218
Appendix J5-Comparison of (top), and differences between (bottom) stock- and country- specific individual stock-based management (ISBM) total calendar year mortalities (CYM) derived with and without age-2 pseudo-recoveries for seven Canadian exploitation rate analysis (ERA) stocks. ..... 219

Appendix J6-Comparison of (top), and differences between (bottom) stock- and countryspecific individual stock-based management (ISBM) total calendar year exploitation rates (CYER) derived with and without age-2 pseudo-recoveries for seven Canadian exploitation rate analysis (ERA) stocks. Annual CYER limits for specific stocks from Attachment I of Chapter 3 of the Pacific Salmon Treaty are depicted by horizontal black lines with 10\% upper buffers. Canadian ISBM CYER for HAR are the only estimates that exceeded annual limits in 2021, regardless of inclusion of age-2 pseudo-recoveries (black box, top left panel)220

Appendix J7-Comparison of (top), and differences between (bottom) stock- and countryspecific abundance-based management (AABM) total calendar year mortalities (CYM) derived with and without age-2 pseudo-recoveries for seven Canadian exploitation rate analysis (ERA) stocks.221

Appendix J8-Comparison of (top), and differences between (bottom) stock- and countryspecific abundance-based management (AABM) total calendar year exploitation rates (CYER) derived with and without age-2 pseudo-recoveries for seven Canadian exploitation rate analysis (ERA) stocks.222

Appendix J9- Canadian and U.S. individual stock-based management (ISBM) fishery
specific differences in total calendar year mortalities (CYM; left) and calendar
year exploitation rates (CYER; right) derived with and without age-2 pseudo
recoveries for seven Canadian exploitation rate analysis (ERA) stocks ..... 223

Appendix J10-Canadian and U.S. aggregate abundance-based management (AABM)
fishery-specific differences in total calendar year mortalities (CYM; left) and
calendar year exploitation rates (CYER; right) derived with and without age-2
pseudo-recoveries for seven Canadian exploitation rate analysis (ERA) stocks. ..... 223

## Introduction

As described in a memo provided to the Chinook Interface Group (CIG) by the CTC on February 25, 2022 (CTC 2022e; Supplementary Materials), pseudo-recoveries of age-2 CWT fish in catch year 2021 escapement and fisheries for seven Canadian Chinook ERA indicator stocks were estimated based on historical data in order to address the information gap associated with untagged/unmarked 2019 brood year hatchery releases for these stocks as a result of COVID-19 impacts to hatchery operations in 2020. The methods for estimating these pseudo-recoveries were presented in a technical report included as Attachment I to the February 25 memo (Supplementary Materials). Attachment I of the February 25 memo examines calendar-year statistics from 2022 ERA output with and without age-2 pseudo-recoveries to assess their contribution to the analysis.

## Methods

Methods used to estimate stock-specific CWT recoveries for escapement, landed catch, and total (landed catch plus incidental mortalities) fishery mortalities attributed to component fisheries of ERA indicator stocks are described in Section 2 of the 2022 Exploitation Rate Analysis Report to which this document is appended, and methods used to estimate pseudorecoveries of age-2 CWTs (e.g., statistical models, model evaluation, and validation) are described in Attachment I of the February 25 memo (CTC 2022e; Supplementary Materials).

Estimates of total CWTs, escapement mortality, landed catch, and total fishery mortalities from the seven impacted Canadian ERA indicator stocks (Big Qualicum (BQR), Chilliwack (CHI), Harrison (HAR), Middle Shuswap (MSH), Puntledge (PPS), Robertson Creek (RBT) ${ }^{6}$, and Lower Shuswap (SHU)) derived from the ERA process both with and without inclusion of age-2 pseudorecoveries were compared individually and as Canadian and U.S. stock-specific calendar year mortalities (CYMs) and CYERs. Differences were calculated by subtracting ERA estimates

[^8]derived without age-2 pseudo-recoveries from those derived with them, therefore positive and negative proportional differences correspond to higher and lower estimates when pseudorecoveries were included, respectively. Summary figures of these results are presented herein while associated summary tables are included in Attachment A of this appendix. While this appendix focuses on estimated CWT recoveries, escapement mortality, and total mortality from associated Canadian and U.S. ISBM and AABM fisheries (e.g., data from which CYM and CYER estimates are derived), estimates of landed catch for fisheries associated with the seven ERA indicator stocks with and without pseudo-recoveries are also presented in Attachment A. These latter comparisons are valuable as they provide comparisons of results that are independent of the influence of components of the ERA algorithms accounting for estimates of incidental mortality (CTC 2022e; Supplementary Materials).

## Results

The effects of including age-2 pseudo-recoveries on estimated CWT recoveries across all fisheries (Appendix J1) and escapement mortalities (Appendix J2) for the seven Canadian ERA stocks were small. Inclusion of age-2 pseudo-recoveries added between 57 (BQR) and 1,696 (CHI) CWTs to individual stocks or between $6 \%$ and $27 \%$ increase in the number of CWTs, corresponding to a $30(\mathrm{MSH})$ to $1,290(\mathrm{CHI})$ increase in total escapement, but minor differences in proportional escapement mortality, ranging from $-2.56 \%$ to $3.23 \%$ (mean $=0.16 \%$ ).

Overall differences in fishery mortalities (i.e., CYM) were similarly small. Stock-specific total CYMs increased between 14 to 382 fish from combined Canadian and U.S. ISBM fisheries and between 1 and 254 fish from combined AABM fisheries with the inclusion of age-2 pseudo recoveries, corresponding to only $-1.7 \%$ to $1.7 \%$ and $-0.9 \%$ and $1.05 \%$ changes in CYERs, respectively (Appendix J3 and Appendix J4).

Differences in Canadian and U.S. ISBM CYMs with and without age-2 pseudo-recoveries were largest for CHI and HAR, with the relative differences being most pronounced for the U.S. CYMs (Appendix J5). Canadian ISBM CYER estimates were marginally lower with inclusion of age-2 pseudo-recoveries in all but three of the seven stocks (MSH, PPS, and RBT), with differences ranging from $-0.017 \%$ to $0.012 \%$ (mean $0.003 \%$; Appendix J6). In contrast, proportional U.S. CYER estimates were higher with inclusion of pseudo-recoveries in three of the four Canadian stocks from which fish were captured in U.S. fisheries (CHI, HAR, and MSH) and did not change for SHU, with all differences being less than 0.009\%. Differences in Canadian and U.S. AABM CYMs and CYERs with and without age-2 pseudo-recoveries were larger than those for ISBM fisheries and greatest for CHI, HAR, and SHU in Canadian fisheries and RBT in U.S. fisheries (Appendix J7 and Appendix J8). However, again, despite larger differences in CYM estimates, differences in CYER estimates were also very small, ranging from only $-0.9 \%$ to $0.9 \%$. ISBM CYER estimates were below associated annual limits and $10 \%$ buffers for ERA stocks where stipulated in Attachment I of the PST regardless of inclusion of age-2 pseudo-recoveries, except for Canadian ISBM CYER estimates for HAR (Appendix J6).

Total mortalities for the seven Canadian ERA stocks were noted in 10 of the 21 associated component ISBM fisheries (i.e., 48\%) and all seven AABM component fisheries. In line with the ERA stock-level results, the differences in estimates of CYM and CYER within these fisheries
derived with and without inclusion of age-2 pseudo-recoveries were generally small (Appendix J9 and Appendix J10). Between 0 and 218 age- 2 pseudo-recoveries (mean $=20$ ) were added to the total mortality estimates from individual ISBM fisheries resulting in differences in CYERs ranging from $-1.19 \%$ to $2.39 \%$ (mean $=-0.03 \%$ ), with $15 \%$ of estimates being lower, $10 \%$ being higher, and $75 \%$ showing no difference when age-2 pseudo-recoveries were included. In general, and as expected given that the stocks are Canadian, differences in both CYM and CYER were larger and more variable for Canadian component ISBM fisheries relative to U.S. ones. Total differences in CYMs associated with AABM fisheries were generally smaller than those of ISBM fisheries, with between 0 and 113 age- 2 pseudo-recoveries ( mean $=11$ ) being added to the total mortality estimates from individual AABM fisheries with inclusion of age-2 pseudorecoveries (Appendix J10) and equating to similarly small differences in CYER, ranging from 0.71\% (SHU-US) to 0.81\% (MSH-US).


Appendix J1- Comparison of stock-specific estimated coded wire tags derived with and without age-2 pseudo-recoveries across all fisheries and including escapement for seven Canadian stocks (top) and differences between estimates (bottom).


Appendix J2-Comparison of (top), and differences between (bottom) stock-specific numeric and proportional escapement mortality estimates derived with and without age-2 pseudo-recoveries for seven Canadian individual stock-based management (ISBM) fisheries (top) and differences between numeric and proportional estimates (bottom).


Appendix J3- Comparison of stock-specific estimates of total calendar year mortalities (CYM; left) and calendar year exploitation rates (CYER; right) across all associated abundance-based management (AABM) fisheries and individual stock-based management (ISBM) fisheries combined (row 1), across all AABM and ISBM fisheries separately (rows 2 and 3, respectively), and across all Canadian and U.S. fisheries (AABM and ISBM combined; rows 4 and 5, respectively).


Appendix J4-Comparison of differences in stock-specific estimates of total calendar year mortalities (CYM; left) and calendar year exploitation rates (CYER; right) across all associated abundance-based management (AABM) fisheries and individual stock-based management (ISBM) fisheries combined (row 1), across all AABM and ISBM fisheries separately (rows 2 and 3, respectively), and across all Canadian and U.S. fisheries (AABM and ISBM combined; rows 4 and 5, respectively).


Appendix J5-Comparison of (top), and differences between (bottom) stock- and country-specific individual stock-based management (ISBM) total calendar year mortalities (CYM) derived with and without age-2 pseudo-recoveries for seven Canadian exploitation rate analysis (ERA) stocks.


Appendix J6-Comparison of (top), and differences between (bottom) stock- and country-specific individual stock-based management (ISBM) total calendar year exploitation rates (CYER) derived with and without age-2 pseudo-recoveries for seven Canadian exploitation rate analysis (ERA) stocks. Annual CYER limits for specific stocks from Attachment I of Chapter 3 of the Pacific Salmon Treaty are depicted by horizontal black lines with 10\% upper buffers. Canadian ISBM CYER for HAR are the only estimates that exceeded annual limits in 2021, regardless of inclusion of age-2 pseudo-recoveries (black box, top left panel).


Appendix J7-Comparison of (top), and differences between (bottom) stock- and country-specific abundance-based management (AABM) total calendar year mortalities (CYM) derived with and without age-2 pseudo-recoveries for seven Canadian exploitation rate analysis (ERA) stocks.


Appendix J8-Comparison of (top), and differences between (bottom) stock- and country-specific abundance-based management (AABM) total calendar year exploitation rates (CYER) derived with and without age-2 pseudo-recoveries for seven Canadian exploitation rate analysis (ERA) stocks.


Appendix J9-Canadian and U.S. individual stock-based management (ISBM) fishery-specific differences in total calendar year mortalities (CYM; left) and calendar year exploitation rates (CYER; right) derived with and without age-2 pseudo-recoveries for seven Canadian exploitation rate analysis (ERA) stocks.


Appendix J10-Canadian and U.S. aggregate abundance-based management (AABM) fisheryspecific differences in total calendar year mortalities (CYM; left) and calendar year exploitation rates (CYER; right) derived with and without age-2 pseudo-recoveries for seven Canadian exploitation rate analysis (ERA) stocks.

## ATTACHMENT A

Attachment A1. Summary of exploitation rate analysis (ERA) stock-specific estimated coded wire tags (CWT) derived with and without age-2 pseudo-recoveries across all fisheries and including escapement and escapement mortalities for seven Canadian stocks in 2021.

| Estimated CWT Recoveries | Metric | Method | Mean | SD | Min | Max |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| All Fisheries | Numeric | None | 4,176.7 | 4,413.2 | 210.0 | 10,707.0 |
|  |  | Pseudo-Rec | 4,859.9 | 4,910.8 | 276.0 | 11,361.0 |
|  |  | Difference | 683.1 | 668.8 | 57.0 | 1,696.0 |
| Escapement | Numeric | None | 3,071.9 | 3,205.3 | 167.0 | 7,662.0 |
|  |  | Pseudo-Rec | 3,602.6 | 3,574.5 | 218.0 | 8,282.0 |
|  |  | Difference | 530.7 | 557.8 | 30.0 | 1,290.0 |
|  | Proportional | None | 0.739 | 0.058 | 0.623 | 0.795 |
|  |  | Pseudo-Rec | 0.741 | 0.059 | 0.627 | 0.795 |
|  |  | Difference | 0.002 | 0.019 | -0.026 | 0.032 |

Attachment A2. Summary of exploitation rate analysis (ERA) stock-specific estimates of total calendar year mortalities (CYM) and calendar year exploitation rates (CYER) across all associated individual stock-based management (ISBM) and aggregate abundance-based management (AABM) fisheries combined, all ISBM and AABM fisheries separately, and across all Canadian and U.S. fisheries (AABM and ISBM combined).

| Fisheries Group | Metric | Method | Mean | SD | Min | Max |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| All Fisheries | CYM | None | 1,076.0 | 1,204.8 | 43.0 | 3,045.0 |
|  |  | Pseudo-Rec | 1,228.4 | 1,348.0 | 58.0 | 3,359.0 |
|  |  | Difference | 152.4 | 153.4 | 15.0 | 406.0 |
|  | CYER | None | 0.254 | 0.061 | 0.205 | 0.377 |
|  |  | Pseudo-Rec | 0.254 | 0.062 | 0.202 | 0.373 |
|  |  | Difference | -0.0005 | 0.017 | -0.026 | 0.027 |
| ISBM | CYM | None | 668.1 | 782.4 | 34.0 | 2,281.0 |
|  |  | Pseudo-Rec | 770.1 | 906.9 | 48.0 | 2,663.0 |
|  |  | Difference | 102.0 | 130.6 | 14.0 | 382.0 |
|  | CYER | None | 0.192 | 0.082 | 0.079 | 0.340 |
|  |  | Pseudo-Rec | 0.191 | 0.082 | 0.080 | 0.336 |
|  |  | Difference | -0.001 | 0.012 | -0.017 | 0.017 |
| AABM | CYM | None | 407.9 | 806.5 | 9.0 | 2,201.0 |
|  |  | Pseudo-Rec | 458.3 | 897.8 | 10.0 | 2,455.0 |
|  |  | Difference | 50.4 | 91.4 | 1.0 | 254.0 |
|  | CYER | None | 0.063 | 0.067 | 0.011 | 0.206 |
|  |  | Pseudo-Rec | 0.063 | 0.071 | 0.011 | 0.216 |
|  |  | Difference | 0.0004 | 0.008 | -0.009 | 0.011 |
| Canada | CYM | None | 797.4 | 869.0 | 34.0 | 2,292.0 |
|  |  | Pseudo-Rec | 902.6 | 977.9 | 48.0 | 2,637.0 |
|  |  | Difference | 105.1 | 116.7 | 14.0 | 345.0 |
|  | CYER | None | 0.206 | 0.073 | 0.152 | 0.355 |
|  |  | Pseudo-Rec | 0.203 | 0.072 | 0.147 | 0.353 |
|  |  | Difference | -0.003 | 0.012 | -0.020 | 0.012 |
| US | CYM | None | 278.6 | 513.7 | 8.0 | 1,414.0 |
|  |  | Pseudo-Rec | 325.9 | 574.5 | 9.0 | 1,596.0 |
|  |  | Difference | 47.3 | 63.2 | 1.0 | 182.0 |
|  | CYER | None | 0.048 | 0.041 | 0.010 | 0.132 |
|  |  | Pseudo-Rec | 0.050 | 0.043 | 0.014 | 0.140 |
|  |  | Difference | 0.003 | 0.009 | -0.007 | 0.018 |

Attachment A3. Summary of individual stock-based management (ISBM) and aggregate abundance-based management (AABM) fishery-specific differences in total calendar year mortalities (CYM) and calendar year exploitation rates (CYER) derived with and without age-2 pseudo-recoveries for seven Canadian ERA stocks.

| Fishery | Metric | Stock | N | Mean | SD | Min | Max |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ISBM | CYM | BQR | 1 | 18.0 | 0.0000 | 18.0 | 18.0 |
|  |  | CHI | 10 | 38.2 | 67.0 | 0.0000 | 218.0 |
|  |  | HAR | 7 | 719.0 | 36.8 | 0.0000 | 101.0 |
|  |  | MSH | 5 | 54.8 | 3.8 | 0.0000 | 10.0 |
|  |  | PPS | 2 | 27.0 | 5.7 | 3.0 | 11.0 |
|  |  | RBT | 3 | 320.0 | 22.9 | 0.0000 | 45.0 |
|  |  | SHU | 8 | 810.4 | 11.6 | 0.0000 | 30.0 |
|  | CYER | BQR |  | $1-0.0031$ | 0.0000 | -0.0031 | -0.0031 |
|  |  | CHI | 10 | -0.0003 | 0.0024 | -0.0061 | 0.0028 |
|  |  | HAR |  | -0.0019 | 0.0049 | -0.0119 | 0.0035 |
|  |  | MSH | 5 | 50.0034 | 0.0040 | -0.0013 | 0.0082 |
|  |  | PPS |  | 20.0060 | 0.0253 | -0.0119 | 0.0239 |
|  |  | RBT |  | 30.0002 | 0.0003 | 0.0000 | 0.0005 |
|  |  | SHU |  | $8-0.0021$ | 0.0035 | -0.0103 | 0.0004 |
| AABM | CYM | BQR | 4 | 40.5 | 0.6 | 0.0 | 1.0 |
|  |  | CHI | 4 | 6.0 | 4.7 | 1.0 | 10.0 |
|  |  | HAR | 4 | $4 \quad 2.8$ | 2.1 | 1.0 | 5.0 |
|  |  | MSH | 3 | 3.3 | 3.2 | 1.0 | 7.0 |
|  |  | PPS | 3 | 0.3 | 1.5 | -1.0 | 2.0 |
|  |  | RBT | 7 | 76.3 | 36.2 | 5.0 | 113.0 |
|  |  | SHU | 7 | 7.3 | 8.5 | 0.0 | 24.0 |
|  | CYER | BQR |  | $4-0.0001$ | 0.0007 | -0.0007 | 0.0009 |
|  |  | CHI |  | 40.0001 | 0.0003 | -0.0001 | 0.0006 |
|  |  | HAR |  | $4-0.0004$ | 0.0006 | -0.0011 | 0.0003 |
|  |  | MSH |  | 30.0033 | 0.0042 | 0.0005 | 0.0081 |
|  |  | PPS |  | -0.0022 | 0.0022 | -0.0048 | -0.0007 |
|  |  | RBT |  | 70.0015 | 0.0021 | 0.0000 | 0.0059 |
|  |  | SHU |  | $7-0.0013$ | 0.0026 | -0.0071 | 0.0010 |



Attachment A4. Comparison of (top), and differences between (bottom) stock- and countryspecific total combined individual stock-based management (ISBM) landed catch estimates derived with and without age-2 pseudo-recoveries for seven Canadian exploitation rate analysis (ERA) stocks.


Attachment A5. Comparison of (top), and differences between (bottom) stock- and countryspecific combined proportional individual stock-based management (ISBM) landed catch estimates derived with and without age-2 pseudo-recoveries for seven Canadian exploitation rate analysis (ERA) stocks.


Attachment A6. Comparison of (top), and differences between (bottom) stock- and countryspecific total combined aggregate abundance-based management (AABM) landed catch estimates derived with and without age-2 pseudo-recoveries for seven Canadian exploitation rate analysis (ERA) stocks.


Attachment A7. Comparison of (top), and differences between (bottom) stock- and countryspecific combined proportional aggregate abundance-based management (AABM) landed catch estimates derived with and without age-2 pseudo-recoveries for seven Canadian exploitation rate analysis (ERA) stocks.


Attachment A8. Canadian and U.S. individual stock-based management (ISBM) fishery-specific differences in numeric (left) and proportional (right) estimated landed catch derived with and without age-2 pseudo-recoveries for seven Canadian exploitation rate analysis (ERA) stocks.


Attachment A9. Canadian and U.S. aggregate abundance-based management (AABM) fisheryspecific differences in numeric (left) and proportional (right) estimated landed catch derived with and without age-2 pseudo-recoveries for seven Canadian ERA stocks.


Attachment A10. Comparison of stock-specific calendar year mortalities (CYM; left) and calendar year exploitation rates (CYER; right) as both landed catch (LC) and total mortality (TM) across all associated aggregate abundance-based management (AABM) and individual stockbased management (ISBM) fisheries combined (row 1), across all AABM and ISBM fisheries separately (rows 2 and 3, respectively), and across all Canadian and U.S. fisheries (AABM and ISBM combined; rows 4 and 5, respectively).


Attachment A11. Comparison of differences in stock-specific calendar year mortalities (CYM; left) and calendar year exploitation rates (CYER; right) as both landed catch (LC) and total mortality (TM) across all associated aggregate abundance-based management (AABM) and individual stock-based management (ISBM) fisheries combined (row 1), across all AABM and ISBM fisheries separately (rows 2 and 3, respectively), and across all Canadian and U.S. fisheries (AABM and ISBM combined; rows 4 and 5, respectively).

Attachment A12. Summary of stock-specific calendar year mortalities (CYM) and calendar year exploitation rates (CYER) as estimated landed catch across all associated aggregate abundancebased management (AABM) and individual stock-based management (ISBM) fisheries combined, all ISBM and AABM fisheries separately, and across all Canadian and U.S. fisheries (AABM and ISBM combined).

| Fisheries Group | Metric | Method | Mean | SD | Min | Max |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| All Fisheries | CYM | None | 907.3 | 1,004.5 | 38.0 | 2,485.0 |
|  |  | Pseudo-Rec | 950.7 | 1,042.9 | 40.0 | 2,506.0 |
|  |  | Difference | 43.4 | 63.7 | 2.0 | 182.0 |
|  | CYER | None | 0.223 | 0.043 | 0.185 | 0.307 |
|  |  | Pseudo-Rec | 0.203 | 0.047 | 0.149 | 0.280 |
|  |  | Difference | -0.020 | 0.016 | -0.037 | 0.007 |
| ISBM | CYM | None | 585.1 | 680.4 | 30.0 | 1,967.0 |
|  |  | Pseudo-Rec | 624.1 | 736.5 | 32.0 | 2,134.0 |
|  |  | Difference | 39.0 | 59.1 | 2.0 | 167.0 |
|  | CYER | None | 0.170 | 0.064 | 0.077 | 0.280 |
|  |  | Pseudo-Rec | 0.155 | 0.060 | 0.075 | 0.257 |
|  |  | Difference | -0.015 | 0.015 | -0.035 | 0.009 |
| AABM | CYM | None | 322.1 | 627.8 | 8.0 | 1,715.0 |
|  |  | Pseudo-Rec | 326.6 | 629.6 | 8.0 | 1,724.0 |
|  |  | Difference | 4.4 | 6.0 | 0.00 | 15.0 |
|  | CYER | None | 0.053 | 0.055 | 0.009 | 0.171 |
|  |  | Pseudo-Rec | 0.048 | 0.054 | 0.009 | 0.166 |
|  |  | Difference | -0.005 | 0.005 | -0.014 | 0.0002 |
| Canada | CYM | None | 704.0 | 767.6 | 30.0 | 1,980.0 |
|  |  | Pseudo-Rec | 740.6 | 810.8 | 32.0 | 2,128.0 |
|  |  | Difference | 36.6 | 52.1 | 2.0 | 148.0 |
|  | CYER | None | 0.185 | 0.055 | 0.146 | 0.298 |
|  |  | Pseudo-Rec | 0.168 | 0.054 | 0.124 | 0.272 |
|  |  | Difference | -0.017 | 0.015 | -0.035 | 0.009 |
| US | CYM | None | 203.3 | 362.6 | 3.0 | 1,000.0 |
|  |  | Pseudo-Rec | 210.1 | 360.2 | 3.0 | 1,001.0 |
|  |  | Difference | 6.9 | 12.9 | 0.00 | 34.0 |
|  | CYER | None | 0.038 | 0.031 | 0.008 | 0.099 |
|  |  | Pseudo-Rec | 0.034 | 0.030 | 0.008 | 0.096 |
|  |  | Difference | -0.003 | 0.004 | -0.010 | 0.002 |

Attachment A13. Summary of aggregate abundance-based management (AABM) and individual stock-based management (ISBM) fishery-specific differences in calendar year mortalities (CYM) and calendar year exploitation rates (CYER) as estimated landed catch derived with and without age-2 pseudo-recoveries for seven Canadian exploitation rate analysis (ERA) stocks.

| Fishery | Metric | Stock | N | Mean | SD | Min | Max |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ISBM | CYM | BQR | 1 | 12.0 | 0.0 | 2.0 | 2.0 |
|  |  | CHI | 10 | 16.7 | 21.8 | 0.0 | 70.0 |
|  |  | HAR | 7 | $7 \quad 3.1$ | 3.0 | 0.0 | 7.0 |
|  |  | MSH | 5 | 5.8 | 3.8 | 0.0 | 9.0 |
|  |  | PPS | 2 | 21.0 | 1.4 | 0.0 | 2.0 |
|  |  | RBT | 3 | 34.0 | 4.0 | 0.0 | 8.0 |
|  |  | SHU | 8 | 8.6 | 10.1 | 0.0 | 28.0 |
|  | CYER | BQR |  | $1-0.0236$ | 0.0000 | -0.0236 | -0.0236 |
|  |  | CHI |  | -0.0014 | 0.0034 | -0.0097 | 0.0015 |
|  |  | HAR |  | -0.0050 | 0.0108 | -0.0292 | 0.0009 |
|  |  | MSH | 5 | 50.0019 | 0.0036 | -0.0008 | 0.0080 |
|  |  | PPS |  | $2-0.0112$ | 0.0097 | -0.0180 | -0.0043 |
|  |  | RBT |  | -0.0004 | 0.0007 | -0.0012 | 0.0000 |
|  |  | SHU |  | -0.0023 | 0.0033 | -0.0102 | 0.0000 |
| AABM | CYM | BQR | 4 | 40.0 | 0.0 | 0.0 | 0.0 |
|  |  | CHI | 4 | 43.8 | 3.9 | 0.0 | 8.0 |
|  |  | HAR | 4 | 41.8 | 2.1 | 0.0 | 4.0 |
|  |  | MSH | 3 | 30.0 | 0.0 | 0.0 | 0.0 |
|  |  | PPS | 2 | 20.0 | 0.0 | 0.0 | 0.0 |
|  |  | RBT | 7 | 71.3 | 3.0 | 0.0 | 8.0 |
|  |  | SHU | 7 | $7 \quad 0.0$ | 0.0 | 0.0 | 0.0 |
|  | CYER | BQR |  | -0.0007 | 0.0004 | -0.0012 | -0.0003 |
|  |  | CHI |  | 40.0000 | 0.0003 | -0.0002 | 0.0005 |
|  |  | HAR |  | $4-0.0006$ | 0.0007 | -0.0013 | 0.0002 |
|  |  | MSH |  | -0.0007 | 0.0002 | -0.0009 | -0.0005 |
|  |  | PPS |  | $2-0.0040$ | 0.0043 | -0.0070 | -0.0010 |
|  |  | RBT |  | -0.0006 | 0.0008 | -0.0022 | 0.0003 |
|  |  | SHU |  | -0.0020 | 0.0023 | -0.0070 | -0.0001 |


[^0]:    ${ }^{1}$ Stock acronyms can be found in Table 2.1 and Appendix A.

[^1]:    ${ }^{2}$ Attachment I of the 2019 PST Agreement has a total of 38 stocks of which 31 are subject to ISBM obligations. There are currently 22 stocks with management objectives and 16 of those are subject to ISBM obligations.

[^2]:    ${ }^{3}$ The Southern U.S. co-managers are investigating spawning ground escapement tag recoveries which may have been missing from 2017-2020 (2022 ERA) and the potential effects of regulatory changes since 2013 (mark-selective fishing).

[^3]:    ${ }^{4}$ A DIT group consists of at least two paired CWT release groups, one with the mass mark (or adipose fin clip) and one without the mark. These 2 tag groups are supposed to be identical except for the mark, and differences in recoveries at escapement are assumed to be due to the MSFs-assuming there is no mark induced mortality occurring prior to recruitment to the fisheries.

[^4]:    ${ }^{1} \%$ Escapement is not a measure of performance for the escapement indicator stock(s) associated with a given CWT indicator stock. See CTC (2013) for these details.
    ${ }^{2}$ BYER is ocean exploitation rate only.

[^5]:    ${ }^{1}$ BYER based on ocean exploitation rate.

[^6]:    ${ }^{1}$ TBD = to be determined after review specified in paragraph 2(b)(iv) of Chapter 3 of 2019 Pacific Salmon Treaty.
    ${ }^{2}$ TBD $=$ to be determined because the requisite data are not available.
    ${ }^{3}$ Agency escapement goal has the same status as Chinook Technical Committee agreed escapement goal for implementation of Chapter 3.
    ${ }^{4}$ Natural origin spawners.
    ${ }^{5}$ Coded-wire tag stocks and adjustments described in CTC (2016), CTC (2019b), CYER WG (2021), and CTC (2021b).
    ${ }^{6}$ ISBM limit set at $10 \%$ in recognition of closure of the Hoko River to Chinook salmon fishing in 2009-2015.
    ${ }^{7}$ NWVI Natural Aggregate consists of Colonial-Cayeagle, Tashish, Artlish, and Kaouk.
    ${ }^{8}$ SWVI Natural Aggregate consists of Bedwell-Ursus, Megin, and Moyehy.
    ${ }^{9}$ In development.

[^7]:    ${ }^{5}$ Attachment I of the 2019 PST Agreement has a total of 38 stocks of which 31 are subject to ISBM obligations. There are currently 22 with management objectives and 16 of those are subject to ISBM obligations.

[^8]:    ${ }^{6}$ As per Attachment I of Chapter 3 of the 2019 PST Agreement, RBT is among 11 CWT ERA indicator stocks for which CWT recoveries in terminal fisheries are adjusted to more accurately represent the fishery impacts on the associated escapement indicator stock. ERA estimates of escapement and fishery mortalities derived with and without age- 2 pseudo-recoveries have been adjusted accordingly.

