PACIFIC SALMON COMMISSION JOINT CHINOOK TECHNICAL COMMITTEE REPORT

2021 Exploitation Rate Analysis

TCCHINOOK (2022)-03

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## List of Acronyms and Abbreviations

|  | Aggregate Abundance-Based | NC | Not Calculated |
| :--- | :--- | :--- | :--- |
| AABM | Management | ND | No Data Available |
| ADF\&G | Alaska Department of Fish \& Game | ND | NMFS |
| AEQ | Adult Equivalent | National Marine Fisheries Service |  |
| AMA | Additional Management Actions | NSF | Non-Selective Fishery <br> Northwest Indian Fisheries |
| AWG | Analytical Working Group of the CTC | NWIFC | Commission |
| B.C. | British Columbia | NWVI | Northwest Vancouver Island |
| BPC | Base Period Calibration | ODFW |  <br> Wildlife |
| BY | Brood Year | PFMA | Pacific Fishery Management Area |
| BYER | Brood Year Exploitation Rate | PFMC | Pacific Fishery Management Council |
| CDN | Canada | PSC | Pacific Salmon Commission |
| CBC | Central British Columbia | PST | Pacific Salmon Treaty |
| CNR | Chinook Nonretention | QIN | Quinault Indian Nation |
| CRITFC | Columbia River Intertribal Fish | RM | Release Mortality |
| Commission | Chinook Technical Committee | RMIS | Regional Mark Information System |
| CWT | Coded-wire Tag | SEAK | Southeast Alaska Cape Suckling to |
|  | Coded-wire Tag Improvement |  | Dixon Entrance |
| Celective Fishery Evaluation |  |  |  |

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## EXeCutive Summary

Chapter 3 of the 2019 Pacific Salmon Treaty (PST) Agreement 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 (MSF). This report includes the results of the 2021 annual ERA through 2019 CWT data for Southern U.S. stocks and 2020 for Alaskan and Canadian stocks.

## Exploitation Rate Analysis

The CTC currently monitors 52 CWT exploitation rate indicator stocks. The ERA relies on cohort analysis, a procedure that reconstructs the cohort size and exploitation history of a given stock and brood year (BY) using CWT release and recovery data (CTC 1988). The ERA provides broodand 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 calendar year exploitation rates (CYERs), and fishery indices for aggregate abundancebased (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, incidental mortalities, and to complete the annual calibration of the PSC Chinook Model.

Section 3.11 of this report provides exploitation rate analysis statistics generated in 2021, based on CWT data through 2020 for Alaska and Canada, and through 2019 for the southern U.S. Statistics include:

1) brood year exploitation rates (BYERs) based on total mortality (catch plus incidental mortality) of complete broods (Appendix D),
2) 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), and
3) 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).
The most recent calendar year for percent distribution of total mortality in escapement is 2020 in Alaska and Canada and 2019 for Southern US 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).

## 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, 16 have management objectives ${ }^{1}$. The CTC has conducted its evaluation of 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 2019, 3 of the 16 stocks were below their escapement goals; of these 2 stocks (Harrison, Siuslaw) were more than $85 \%$ below and 1 stock (Atnarko) was within $85 \%$ of its escapement goal. Thus, for stocks with management objectives, annual CYER limits only apply to the Atnarko, Harrison, and Siuslaw for 2019 per paragraph 5(a).

Relative to Canadian ISBM fisheries performance for 2019, annual ISBM obligations were met for 8 of the 15 stocks that could be evaluated; 4 that met their management objectives and thus had no applicable CYER limits, and 4 that had CYERs that were below the applicable limits. Annual CYER obligations were not met for 7 stocks—Atnarko, NWVI Natural Aggregate, SWVI Natural Aggregate, East Coast Vancouver Island North, Harrison, Stillaguamish, and Snohomish.

Relative to U.S. ISBM fisheries performance for 2019, annual ISBM obligations were met for 16 of the 22 stocks listed in Attachment $I ; 12$ that met their management objectives and thus had no applicable CYER limits, and 4 that had CYERs that were below the applicable limits. Annual CYER obligations were not met for 6 stocks - Nooksack Spring, Stillaguamish, Hoko, Siuslaw, South Umpqua, and Coquille.

[^0]Review of performance in the Pacific Salmon Treaty Individual Stock-Based Management fisheries, 2019. 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 | No | NA |
| NWVI Natural Aggregate | No | NA |
| SWVI Natural Aggregate | No | NA |
| East Vancouver Island North | No | NA |
| Phillips | Yes | NA |
| Cowichan | Yes | Yes |
| Nicola | Yes | Yes |
| Chilcotin | NA | NA |
| Chilko | NA | NA |
| Lower Shuswap | Yes | NA |
| Harrison | No | Yes |
| Nooksack Spring | Yes | No |
| Skagit Spring | Yes | Yes |
| Skagit Summer/Fall | Yes | Yes |
| Stillaguamish | No | No |
| Snohomish | No | Yes |
| Hoko | NA | No |
| 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 | No |
| South Umpqua | NA | No |
| Coquille | NA | No |

## Mark-Selective Fisheries

Section 5 of this report contains harvest information by region from mark-selective fisheries (MSFs). Mark-selective fisheries occurred along the Oregon Coast, Washington Coast, and in the Columbia River, Puget Sound, and Canadian Strait of Juan de Fuca in 2019. 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 ${ }^{2}$, however many CWT indicator stocks do not have a DIT pair. Additionally, coastwide application of electronic tag detection (ETD) is inconsistent so recoveries of unmarked DIT releases are. 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 FIs, models and analytical methods will need to be changed substantially.

[^1]
## 1. Introduction

Chapter 3 of the 2019 Pacific Salmon Treaty (PST) Agreement requires the Chinook Technical Committee (CTC) to annually report catch and escapement data and modeling results used to manage Chinook salmon fisheries and stocks harvested within the Treaty area. To fulfill this obligation, the CTC provides a series of annual reports to the Pacific Salmon Commission (PSC). This report provides an overview of the annual exploitation rate analysis (ERA) and 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 from 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 2021 ERA are based on CWT data through catch year 2020 for Alaskan and Canadian stocks and 2019 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 fishery (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) and accompanying 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 presents the data used to adjust ERA results for when a terminal area adjustment was applied (see Section 2.1.3.1 for details). Appendix G presents exploitation rates by stock and age for each aggregate abundance-based management (AABM) fishery. Calendar year exploitation rates (CYER) are presented in Appendix H. CWT data quality and ERA documentation are detailed in Appendix I.

## 2. Exploitation Rate Analysis Methods

The Chinook Technical Committee (CTC) currently monitors 52 CWT exploitation rate indicator stocks (Figure 2.1; Table 2.1) for accounting year 2021. The ERA relies on cohort analysis, a procedure that reconstructs the cohort size and exploitation history of a given stock and 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 a Stock Aggregate Cohort Evaluation (SACE), age-specific CWT indicator estimates of cohorts and exploitation and terminal return from the ERA are combined with age-specific estimates of stock aggregate terminal return to reconstruct stock aggregate cohorts, and calculate adjusted maturation rates representative of stock aggregates in the PSC Chinook Model. Finally, estimates of age- and fishery-specific exploitation and maturation rates from these cohort analysis methods are combined with data on catches, escapements, and incidental mortalities to complete the annual calibration of the PSC Chinook Model (CTC 2021a).

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 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 coded-wire tag (CWT) exploitation rate indicator stocks, location, run type, and smolt age.

| Stock/Area | Exploitation Rate Indicator Stock | Hatchery | Run Type | $\begin{gathered} \text { Smolt } \\ \text { Age } \end{gathered}$ | Map No. |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Southeast <br> Alaska | Northern Southeast Alaska (NSA) | Crystal Lake (ACI), Macaulay (AMC) | Spring | Age 1 | 1 |
|  | Southern Southeast Alaska (SSA) | Herring Cove (AHC), Little Port Walter (ALP), Deer Mountain (ADM), Neets Bay (ANB) | Spring | Age 1 | 2 |
|  | Chilkat (CHK) | Wild | Spring | Age 1 | 4 |
|  | Unuk (UNU) | Wild | Spring | Age 1 | 7 |
| Transboundary Rivers | Taku (TAK) | Wild | Spring | Age 1 | 5 |
|  | Stikine (STI) | Wild | Spring | Age 1 | 6 |
| North/Central B.C. | Kitsumkalum (KLM) | Deep Creek | Summer | Age 1 | 8 |
|  | Atnarko (ATN) | Snootli | Summer | Age 0 | 9 |
| WCVI | Robertson Creek (RBT) | Robertson Creek | Fall | Age 0 | 10 |
| Strait of Georgia | Quinsam (QUI) | Quinsam | Fall | Age 0 | 11 |
|  | Phillips (PHI) | Gillard Pass | Summer/Fall | Age 0 | 12 |
|  | Puntledge (PPS) | Puntledge | Summer | Age 0 | 13 |
|  | Big Qualicum (BQR) | Big Qualicum | Fall | Age 0 | 14 |
|  | Nanaimo (NAN) ${ }^{1}$ | Nanaimo | Fall | Age 0 | 15 |
|  | Cowichan (COW) ${ }^{2}$ | Cowichan | Fall | Age 0 | 16 |
| Fraser River | Harrison (HAR) | Chehalis | Fall | Age 0 | 17 |
|  | Chilliwack (CHI) ${ }^{2}$ | Chilliwack | Fall | Age 0 | 18 |
|  | Chilko (CKO) | Spius Creek, Chehalis | Summer | Age 1 | 19 |
|  | Nicola (NIC) | Spius Creek | Spring | Age 1 | 20 |
|  | Lower Shuswap (SHU) ${ }^{2}$ | Shuswap Falls | Summer | Age 0 | 21 |
|  | Middle Shuswap (MSH) | Shuswap Falls | Summer | Age 0 | 22 |
|  | Dome (DOM) ${ }^{3}$ | Penny Creek | Spring | Age 1 | 23 |
| North Puget Sound | Nooksack Spring Fingerling (NSF) | Kendall Creek | Spring | Age 0 | 24 |
|  | Nooksack Spring Yearling (NKS) | Kendall Creek | Spring | Age 1 |  |
|  | Samish Fall Fingerling (SAM) ${ }^{4}$ | Samish | Summer/Fall | Age 0 | 25 |
|  | Skagit Summer Fingerling (SSF) | Marblemount | Summer | Age 0 | 26 |
|  | Skagit Spring Fingerling (SKF) | Marblemount | Spring | Age 0 | 28 |
|  | Skagit Spring Yearling (SKS) ${ }^{4}$ | Marblemount | Spring | Age 1 |  |
| Central Puget | Stillaguamish Fall Fingerling (STL) ${ }^{5}$ | Stillaguamish Tribal | Summer/Fall | Age 0 | 27 |
| Sound | Skykomish Summer Fingerling (SKY) ${ }^{4,5}$ | Wallace | Summer/Fall | Age 0 | 29 |
| South Puget Sound | Nisqually Fall Fingerling (NIS) ${ }^{4}$ | Clear Creek | Summer/Fall | Age 0 | 32 |
|  | South Puget Sound Fall Fingerling (SPS) ${ }^{4}$ | Soos/Grovers/Issaquah creeks | Summer/Fall | Age 0 | 30,31 |
|  | South Puget Sound Fall Yearling (SPY) | Tumwater Falls | Summer/Fall | Age 1 | 33 |
|  | White River Spring Yearling (WRY) ${ }^{6}$ | White River | Spring | Age 1 | 34 |
| Hood Canal | George Adams Fall Fingerling (GAD) | George Adams | Summer/Fall | Age 0 | 35 |
| Juan de Fuca | Elwha Fall Fingerling (ELW) | Lower Elwha | Summer/Fall | Age 0 | 36 |
| North <br> Washington Coast | Hoko Fall Fingerling (HOK) | Hoko Makah National Fish Hatchery | Fall | Age 0 | 37 |
|  | Queets Fall Fingerling (QUE) | Wild broodstock, Salmon River (WA) | Fall | Age 0 | 38 |
|  | $\begin{array}{l}\text { Tsoo-Yess Fall Fingerling } \\ \text { (SOO) }\end{array}$ | Makah National Fish Hatchery | Fall | Age 0 | 39 |
|  | Columbia Lower River Hatchery (LRH) ${ }^{4}$ | Big Creek | Fall Tule | Age 0 | 40 |


| Stock/Area | Exploitation Rate Indicator Stock | Hatchery | Run Type | Smolt Age | Map No. |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Lower Columbia River | Cowlitz Tule (WA) (CWF) | Cowlitz | Fall Tule | Age 0 | 41 |
|  | Lewis River Wild (LRW) | Wild | Fall Bright | Age 0 | 42 |
|  | Willamette Spring (WSH) ${ }^{2}$ | Willamette Hatcheries | Spring | Age 1 | 43 |
|  | Spring Creek Tule (WA) (SPR) ${ }^{4}$ | Spring Creek National Fish Hatchery | Fall Tule | Age 0 | 44 |
| Upper Columbia River | Hanford Wild (HAN) | Wild | Fall Bright | Age 0 | 45 |
|  | Okanagan (SMK) | Similkameen and Omak Pond | Summer | Age 1 | 46 |
|  | Columbia Summers (WA) (SUM) | Wells | Summer | $\begin{aligned} & \text { Age } \\ & 0 / 1 \end{aligned}$ | 48 |
|  | Columbia Upriver Brights (URB) ${ }^{4}$ | Priest Rapids | Fall Bright | Age 0 | 49 |
| Snake River | Lyons Ferry Fingerling (LYF) ${ }^{8}$ | Lyons Ferry | Fall Bright | Age 0 | 47 |
|  | Lyons Ferry Yearling (LYY) ${ }^{4}$ | Lyons Ferry | Fall Bright | Age 1 |  |
| North Oregon Coast | Salmon (SRH) | Salmon | Fall | Age 0 | 50 |
| Mid Oregon Coast | Elk River (ELK) | Elk River | Fall | Age 0 | 51 |

${ }^{1}$ Tagged releases for the Nanaimo Fall stock were discontinued after the 2004 brood.
${ }^{2}$ Historical releases with double index tags (DIT); not currently maintained.
${ }^{3}$ Hatchery production of the Dome Creek stock was discontinued after the 2002 brood.
${ }^{4}$ DIT releases associated with this stock.
${ }^{5}$ 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.
${ }^{6}$ No longer adipose fin clipped.
${ }^{7}$ The name for the Sooes River and hatchery was changed to Tsoo-Yess in 2015.
${ }^{8}$ 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), survival indices, brood year exploitation rates (BYER), and stock catch distribution (Dist) with escapement estimates (Esc) and base period (1979-1982) tag recoveries.

| Exploitation Rate Indicator Stock | Fishery <br> Index | ISBM CYER <br> Limit | Survival <br> Index | BYER $^{\mathbf{1}}$ | Dist | Esc | Base <br> 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) | - | - | Yes | Total | Yes | Yes | Yes |
| Dome (DOM) | - | Yes | Total | Yes | Yes | - |  |
| Harrison (HAR) | - | - | Yes | Total | Yes | Yes | - |


| Exploitation Rate Indicator Stock | Fishery Index | ISBM CYER Limit | Survival Index | BYER ${ }^{1}$ | Dist | Esc | Base Recoveries |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 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 |
| Squaxin Pens Fall Yearling (SQP) | - | - | - | - | 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 | - |
| Columbia Lower River Hatchery $(\mathrm{LRH})^{4}$ | 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) ${ }^{4}$ | 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 | - |
| Okanagan (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) was used in the stratified proportional fishery index for the Phase II PSC 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 a number of important metrics, listed in Table 2.2. The details for calculating each metric is 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 Pacific Salmon Treaty was signed in 1985. Regulatory changes have included size limit changes, extended periods of Chinook Non-Retention (CNR) in troll and non-troll fisheries, mandatory release of Chinook salmon caught in some net fisheries, and MSFs under various retention restrictions. For ISBM fisheries only total mortality fishery indices are presented, but for AABM fisheries fishery indices are presented for both reported catch and total mortality, the latter including incidental mortality (IM). 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: (1) drop-off mortality of legal-sized fish in retention fisheries (CTC 2022), (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 Working Group (AWG)3, CTC (2004), and CTC (2022).

### 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 (CYER) 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, the CTC provides evaluation for ISBM fisheries on a post-season basis, with a two-year lag for Southern U.S. stocks due to CWT processing. See Appendix H and section 4.2 for calculation and evaluation of the CYER metric.

### 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 make them comparable.

[^2]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 $4 \rightarrow 5$ 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 2022).
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. A factor of 0.34 was used 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. A factor of 0.20 was used in the North/Central British Columbia (B.C.) troll fishery. This factor corresponds to the proportion of fishing areas that remain open during CNR periods. A selectivity factor of 0.34 exists for the Southeast Alaska (SEAK) troll fishery but is not used since an independent estimate of legal and sublegal encounters is provided annually.
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 on the Future of Coded Wire Tag Program for Pacific Salmon 2005), is that the vulnerability to and distribution amongst fisheries of each CWT
indicator stock is the same as the associated model or wild stock that it represents. Similarly, the maturation rate schedule implicit in age-specific terminal return 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, or assumptions of differing fishery harvest of CWT indicator stocks relative to associated wild stocks, to adjust terminal harvest rates for escapement indicator stocks. This is accomplished by switching out the actual CWT recoveries and switching in new terminal harvest and escapement estimates that align with the harvest rate on the escapement indicator stock (CYER Work Group 2021). Terminal area adjustments can substantially change the estimated CYER in ISBM fisheries (CYER Work Group 2019), especially when differences in the return location, run timing, or other factors result in a different harvest rate on the CWT indicator stock than the associated escapement indicator stock (CTC 2019a). In such cases, the adjusted CWT recoveries in terminal fisheries 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 the exploitation rate on hatchery fish in terminal areas is not representative of the exploitation rate on SEAK wild stocks. Overall, the SSA BYER estimates have usually exceeded $30 \%$; since 1976, only BYs 1996-1999, 2004-2007, and 2013-2014 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 20072014. The BYERs for the UNU wild stock exceeded 30\% for BYs 2009-2012 but have been less than $30 \%$ for the 2 most recent complete BYs (Table 3.1; Appendix D2).

### 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 $3.3 \%$ for the most recent complete BY (2014). The STI survival rates ranged from 1\% to 7\% since BY 1998, including 3.2\%
for the most recent complete BY (2014). The TAK historically has shown higher survival rates than other stocks since BY 1991 (average 13\%) but has been less than its long-term average (7.3\%; BYs 1975-1981, 1991-2014) for the last 14 complete BYs (average $4.2 \%$ for BYs 20012014). The UNU survival rates have been as high as $13 \%$ (BY 1982) and average $4.7 \%$ for BYs 1982-1986 and 1992-2014. Recent complete BYs have been below the long-term average (2.6\% for BYs 2001-2013); however, the 2014 BY exceeded the long-term average with a $6.6 \%$ survival rate. The survival rates for the NSA stock group have ranged from $1 \%$ to $24 \%$ and averaged $5.7 \%$ for BYs 1979-2014, including 15 recent complete BYs below the long-term average ( $2.3 \%$ for BYs 2000-2014), and the 2014 BY survival rate of $2.6 \%$ (Appendix E1). The survival rates for the SSA stock group have ranged from $2 \%$ to $26 \%$ and averaged $8.3 \%$ for BYs 1976-2014, including the ten most recent complete BYs being below the long-term average (4.6\% for BYs 2005-2014) and the 2014 BY survival rate of 4.0\% (Appendix E1).

### 3.1.3 Mortality Distributions

The ocean distribution of fishing mortalities for SEAK wild, TBR wild, and SEAK hatchery stock groups are illustrated in Table 3.1Table 3.1 and Figure 3.1. A high percentage of the mortality distributions for CHK (2004-2020 average of 84\%; Appendix C5), STI (2003-2020 average of $66 \%$; Appendix C59), TAK (1999-2020 average of 82\%; Appendix C62), and UNU (1999-2020 average of $70 \%$; Appendix C64) were within the escapement, with most of the remaining mortality occurring in the SEAK AABM sport, troll, and net fisheries. Within the SEAK AABM fisheries in the 1999-2020 period, the SEAK troll fishery caught a higher percentage of STI fish (average of 6\%), TAK fish (average of 4\%), and UNU fish (average of 15\%), whereas the SEAK net fishery caught a higher percentage of CHK fish (average of 7\%). 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 $51 \%$ and $50 \%$ of NSA and SSA mortalities, respectively, occurred within escapement in the 1999-2020 period, with the remaining mortalities occurring in the SEAK AABM and terminal fisheries (Appendix C29; Appendix C57). The SEAK AABM troll fishery accounted for an average of 20\% of the SSA total mortalities for the 1999-2020 period, followed by SEAK AABM net fisheries which accounted for 7\% of total mortalities. SEAK AABM net fisheries accounted for $17 \%$ of NSA mortality from 1999-2020, with SEAK AABM troll accounting for an average of 15\%. SEAK AABM sport fisheries accounted for $9 \%$ and $6 \%$ of the NSA and SSA stock groups mortality, respectively. SEAK terminal fisheries combined (troll, net, sport) accounted for $8 \%$ of total NSA mortality and $15 \%$ of SSA total mortality (Appendix C29; Appendix C57).


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

### 3.1.4 Regional Summary for Southeast Alaska Stocks

Table 3.1-Summary of statistics generated by the 2021 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 | 2019-current |  |
|  | Mean (range) | Last complete BY |  |  | Mean <br> (range) | Last complete BY | Mean <br> (range) | Mean <br> (range) | Last CY (year) |
| Southern Southeast Alaska Spring ${ }^{2}$ (SSA) | $\begin{gathered} 39 \% \\ (22 \%-62 \%) \end{gathered}$ | $\begin{gathered} 22 \% \\ (2014) \\ \hline \end{gathered}$ | $\begin{array}{c\|} \hline 8.26 \% \\ (2.37-26.00 \%) \\ \hline \end{array}$ | $\begin{aligned} & 3.99 \% \\ & (2014) \\ & \hline \end{aligned}$ | $\begin{gathered} 51 \% \\ (35-66 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 70 \% \\ (64-77 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 77 \% \\ (2020) \end{gathered}$ |
| Northern Southeast Alaska Spring ${ }^{2}$ (NSA) | $\begin{gathered} \hline 38 \% \\ (15 \%-65 \%) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 15 \% \\ (2014) \\ \hline \end{gathered}$ | $\begin{array}{\|c\|} \hline 5.70 \% \\ (1.02-23.98 \%) \\ \hline \end{array}$ | $\begin{aligned} & \hline 2.60 \% \\ & (2014) \\ & \hline \end{aligned}$ | $\begin{gathered} 52 \% \\ (31-77 \%) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 57 \% \\ (43-71 \%) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 71 \% \\ (2020) \\ \hline \end{gathered}$ |
| Chilkat River (CHK) | $\begin{array}{c\|} \hline 17 \% \\ (6 \%-31 \%) \\ \hline \end{array}$ | $\begin{gathered} \hline 7 \% \\ (2014) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 3.38 \% \\ (1.45-8.04 \%) \end{gathered}$ | $\begin{aligned} & \hline 3.33 \% \\ & (2014) \\ & \hline \end{aligned}$ | $\begin{gathered} \hline 85 \% \\ (72-95 \%) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 97 \% \\ (97-97 \%) \end{gathered}$ | $\begin{gathered} \hline 97 \% \\ (2020) \\ \hline \end{gathered}$ |
| Stikine River (STI) | $\begin{gathered} 36 \% \\ (12 \%-81 \%) \end{gathered}$ | $\begin{gathered} 12 \% \\ (2014) \end{gathered}$ | $\begin{gathered} 3.86 \% \\ (1.06-7.09 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & 3.15 \% \\ & (2014) \end{aligned}$ | $\begin{gathered} 73 \% \\ (57-97 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 87 \% \\ (82-92 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 82 \% \\ (2020) \end{gathered}$ |
| Taku River (TAK) | $\begin{gathered} \hline 17 \% \\ (5 \%-37 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 7 \% \\ (2014) \\ \hline \end{gathered}$ | $\begin{array}{c\|} \hline 7.26 \% \\ (1.27-26.45 \%) \\ \hline \end{array}$ | $\begin{aligned} & \hline 1.64 \% \\ & (2014) \\ & \hline \end{aligned}$ | $\begin{gathered} \hline 82 \% \\ (61-97 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 96 \% \\ (95-96 \%) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 95 \% \\ (2020) \\ \hline \end{gathered}$ |
| Taku and Stikine Rivers (TST) | $\begin{gathered} \hline 20 \% \\ (5 \%-50 \%) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 10 \% \\ (2014) \\ \hline \end{gathered}$ | $\begin{array}{c\|} \hline 6.73 \% \\ (1.17-26.45 \%) \\ \hline \end{array}$ | $\begin{aligned} & \hline 2.43 \% \\ & (2014) \\ & \hline \end{aligned}$ | $\begin{gathered} \hline 77 \% \\ (59-97 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 93 \% \\ (92-95 \%) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 92 \% \\ (2020) \\ \hline \end{gathered}$ |
| Unuk River (UNU) | $\begin{gathered} 30 \% \\ (15 \%-53 \%) \end{gathered}$ | $\begin{gathered} 25 \% \\ (2014) \\ \hline \end{gathered}$ | $\begin{gathered} 4.66 \% \\ (1.05-13.24 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & 6.58 \% \\ & (2014) \\ & \hline \end{aligned}$ | $\begin{gathered} 65 \% \\ (41-86 \%) \end{gathered}$ | $\begin{gathered} 81 \% \\ (80-83 \%) \end{gathered}$ | $\begin{gathered} 80 \% \\ (2020) \\ \hline \end{gathered}$ |

[^3]
### 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 no ATN CWT releases in 2003 and 2004.

### 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 $22 \%$ for BY 2014, 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 $34 \%$ in 2015, the last complete brood year (Appendix D3). ATN BYER averaged 40\% (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 2016. Brood years included for the analyses of ATN were 1986 to 2002 and 2005 to 2015. The KLM survival rates have averaged $0.79 \%$ and ranged from $0.14-1.95 \%$ with a rate of 0.20\% for the last complete BY, 2014 (Appendix E3; Table 3.2). The ATN survival rates have averaged $2.26 \%$ and ranged from around $0.50-5.98 \%$ with a survival rate of $1.93 \%$ for the last complete BY, 2015 (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. Average mortality in the escapement was 61\% in KLM during 2009-2018 and 78\% during 2019-2020. The largest mortality components for KLM were catch and IM in the NBC ISBM sport (2009-2018 average: 10\%; 2019-2020 average: 11\%) and SEAK AABM troll (2009-2018 average: 12\%; 2019-2020 average: 5\%) fisheries. NBC AABM troll and ISBM Canada net fisheries were large mortality components for KLM during 1985-1995 with $10 \%$ (AABM troll) and 14\% (ISBM terminal net) of the total mortality, but their magnitude decreased in recent years (Appendix C18; Appendix C19; Figure 3.2). No terminal sport
mortality (0\%) occurred for KLM from 2018-2020, compared to the previous agreement which averaged $3.6 \%$ (2009-2019). Escapement accounted for an average of $60 \%$ of the ATN total mortality across the entire mortality distribution time series which began in catch year 1990. Average mortality in the escapement was 59\% for ATN during 2009-2018 and 69\% during 201920. Canadian ISBM (2019-2020 average: $17.7 \%$ made up of $13.1 \%$ net and $4.6 \%$ sport) and terminal (2019-2020 average: 9.2\% made up of $4.6 \%$ net and $4.6 \%$ sport) fisheries were the largest mortality components for ATN, with SEAK AABM and Canadian AABM making up a lower percentage in 2019-2020 compared to 2009-2018 (Appendix C1; Appendix C2; Figure 3.2).

There are essentially no strays for KLM and ATN.


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

### 3.3 West Coast Vancouver Island Stocks

There is one hatchery CWT indicator stock to represent wild and hatchery WCVI Chinook: Robertson Creek Fall. 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 2015 (Appendix D4).

### 3.3.1 Brood Year Exploitation Rates

The BYER computed for RBT includes only recoveries from ocean fisheries. The BYER for RBT has been decreasing from approximately 67\% for BY 1973 to approximately 31\% for BY 2015 (Appendix D4). BYER for RBT averaged 42\% and ranged from 23\% for BY 1998 to $67 \%$ for BY 1973. The percentage of the RBT BYER represented by IM increased during the first 10 years of the time series from approximately $10 \%$ for BY 1973 to $21 \%$ for BY 1983. It then decreased substantially to approximately 7\% and 6\% for BYs 1984 and 1985 respectively, then increased
five-fold again for the following six BYs to approximately $30 \%$ for BY 1991. The variation in the percentage of the RBT BYER represented by IM subsided after BY 1992 and has ranged from approximately $3 \%$ to $10 \%$ since 1999 . The percentage of the RBT BYER that is attributed to IM averages approximately $10 \%$ for the entire time series.

### 3.3.2 Survival Rates

The survival rate of RBT is survival to age 2 because the fish enter the ocean as subyearlings. The RBT survival rates show a general declining trend, averaging 4.55\% and ranging from around 0.03\% for BY 1992 to 20.1\% for BY 1974, although the last complete BY in 2015 has a higher than average survival rate of $6.7 \%$ (Appendix E4). In addition to BY 1992, BYs 1983, 1995-1997, 2004, 2006, 2009, and 2011 also experienced extremely low survival rates (< 1\%).

### 3.3.3 Mortality Distributions

Total mortality attributed to escapement for RBT declined from 45\% during 2009-2018 to 29\% during 2019-2020; prior to 2009 escapement mortality was $36 \%$ (1979-2008).

Most of the total mortality for RBT during the recent 2019-2020 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). Canadian terminal net fisheries accounted for most of the terminal mortality in the current period (average 35\% during 2019-2020), 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 2019-2020). Terminal fisheries in SEAK or the Southern US have not accounted for any RBT mortality during the current (2019-2020) or past (2009-2018) periods.

Total mortality attributed to AABM fisheries declined from 26\% in the previous period (20092018) to $20 \%$ in the most recent period (2019-2020). SEAK troll fisheries have historically accounted for most of the AABM mortality, although have declined between periods (average 11\% during 2009-2018; average 6\% during 2019-2020). SEAK net (average 3\% during 20092018; average during 4\% 2019-2020) and sport (average 3\% during 2009-2018; average 2\% during 2019-2020) fisheries have accounted for a moderate amount of the RBT mortality and have been relatively constant over time. NBC AABM troll and sport fisheries accounted for similar portions of mortalities, with sport (average 5\% during 2009-2018; average 3\% during 2019-2020) contributing slightly more than troll (average 2\% during 2009-2018 and 20192020). WCVI AABM troll (average 1\% during 2009-2018 and 2019-2020) and sport (average 3\% during 2009-2018; average $2 \%$ during 2019-2020) fisheries account for a minimal portion of RBT total mortality.

ISBM fisheries contributed the smallest portion of the total mortality for RBT, and has remained declined slightly between periods (average 10\% during 2009-2018; average $8 \%$ during 20192020). NBC/CBC (average 3\% during 2009-2018 and 2019-2020) and SBC (average 6\% during 2009-2018; average 5\% during 2019-2020) ISBM sport fisheries account for most of the ISBM mortality. The remaining ISBM fisheries have contributed little-to-none of the total mortality for RBT in either the current (2019-2020) or previous (2009-2018) periods.

Observed strays make up a very small percentage of the total mortality for RBT (average 0.2\% during 2009-2018; average $0.7 \%$ during 2019-2020). The largest percentage of the total mortality represented by strays in RBT was 1.3\% 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) PST Agreement periods.

### 3.3.4 Terminal Area Adjustments

The CTC (2016) described the terminal area adjustment for the Robertson Creek CWT indicator stock as:
"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."

However, the ISBM indices calculated in both the performance review report (CTC 2016) and the 2019 exploitation rate analysis (CTC 2020) only include unidirectional fishery impacts in terminal area adjustments. 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 C41) and Northwest Vancouver Island (NWVI; Appendix C40) 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) PST Agreement periods.

### 3.4 Strait of Georgia Stocks

Strait of Georgia model stocks are segregated into Upper Strait of Georgia (UGS), Puntledge Summers (PPS), Lower Strait of Georgia (LGS), and Middle Strait of Georgia (MGS) 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 two for LGS (Cowichan [COW] and Nanaimo [NAN]), in addition to Puntledge (PPS) representing the PPS Model stock. QUI is composed of tag recoveries from the Quinsam Hatchery. COW and NAN are composed of tag recoveries from the Cowichan and Nanaimo hatcheries, whereas PPS and BQR are composed of 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, NAN in 1979, PPS in 1975, and BQR in 1973. The NAN indicator program was terminated after BY 2004.

### 3.4.1 Brood Year Exploitation Rates

The BYERs computed for GST stocks include recoveries from ocean fisheries and terminal fisheries. There is a general declining trend for BYERs of the indicator stock for Upper GST as well as for most of the indicator stocks for Lower GST (Appendix D5). The BYER for QUI has been generally decreasing from about $71 \%$ in 1974 to approximately $46 \%$ in 2015, averaging $54 \%$ for total mortality over the entire time series (1974-2015) and ranging from $29 \%$ for brood year 1997 to 85\% for brood year 1977 (Appendix D5). The percentage of the QUI BYER
that is incidental mortality increased consistently during the first 17 years of the time series reaching $43 \%$ for brood year 1991, and then decreased substantially to average levels for subsequent brood years averaging $11 \%$ for the entire time series. Similar exploitation rate patterns occurred for all Lower GST indicator stocks, except for COW (Appendix D5) for which BYERs generally decreased from brood year 1985 to brood year 1995, and then increased for subsequent brood years. COW BYER averaged about $67 \%$ and ranged from $36 \%$ for brood year 1995 to $89 \%$ for brood year 1985. The percentage of the COW BYER that is incidental mortality increased during the first 5 years of the time series reaching $33 \%$ for brood year 1990 and averaged about 19\% for the entire time series. BYERs in Lower GST also include indicator stocks BQR, NAN, and PPS. BQR decreased from exploitation rate levels of $84 \%$ in 1974 to exploitation rate levels of 29-57\% since 1994. The lowest BYERs for these stocks were experienced by brood year 2014 in BQR (29\%), by brood year 2001 and 2004 in NAN (35\%), and by brood years 1998 and 2004 in PPS (13\%). The exploitation rates due to incidental mortality in these three stocks increased consistently during the first 15-20 years of the time series but recently decreased to approximately $9 \%$ in BQR, $12 \%$ in NAN (during last year of 2004), and 11\% in PPS.

### 3.4.2 Survival Rates

The survival rates of 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 have averaged $2.0 \%$ and ranged from around $0.2 \%$ for brood years 1989 and 2006 to 9.1\% for brood years 1974 and 1976 (Appendix E5). In the case of Lower GST CWT indicator stocks, BQR survival rates have averaged $2.2 \%$ and ranged from around $0.1 \%$ to $25.1 \%$ (the highest observed for GST stocks), COW survival rates have averaged $1.8 \%$ and ranged from around $0.3 \%$ to $6.8 \%$, NAN survival rates have averaged $3.0 \%$ and ranged from around $0.5 \%$ to $13.6 \%$, and PPS survival rates have averaged $1.2 \%$ and ranged from around $0.1 \%$ to $12.8 \%$ (Appendix E5). The survival rate for the last completed brood of the time series ( 2015 for QUI, BQR, COW, PPS and 2004 for NAN) was $1.4 \%$ for QUI, $0.4 \%$ for BQR, $1.2 \%$ for COW, $3.1 \%$ for NAN, and $0.9 \%$ for PPS.

### 3.4.3 Mortality Distributions

An average of 47\% of the total mortality in the Upper GST indicator stock QUI (Figure 3.5; Appendix C37) occurred in the escapement during 1979-2020. The QUI average mortality in the escapement remained relatively the same from the 1999-2008 period (61\%) to the 2009-2018 period (58\%) and the 2019-2020 period (55\%). Most of the fishing mortalities on this stock are associated with catch and IM in the SEAK AABM troll (1999-2008 average: 15\%, 2009-2018 average: 12\%, 2019-2020 average: 11\%), NBC and CBC ISBM sport (1999-2008 average: 8\%, 2009-2018 average: 9\%, 2019-2020 average: 12\%) and Southern B.C. sport (1999-2008 average: 6\%, 2009-2018 average: 11\%, 2019-2020 average: 8\%) fisheries. The NBC AABM troll and ISBM NBC, CBC and Southern B.C. troll and net fisheries used to be large mortality components for QUI during 1979-1995 with 4-15\% of the total mortality in NBC AABM troll, $0-$ $17 \%$ in ISBM Canada troll, and 2-19\% in ISBM Canada net. Average mortality in these fisheries diminishes during 1999-2020 to about 1\% (NBC AABM troll), 0\% (ISBM NBC, CBC and Southern B.C. troll), and $0.2 \%$ (ISBM NBC, CBC and Southern B.C. net).

Strays make up only a small percentage (average approximately 0.1\% during 1979-2020) of the total mortality in QUI. The largest percentage of the total mortality represented by strays in QUI was $0.8 \%$ in 2014. In BQR, strays averaged $0.6 \%$ of the total mortality between 1979-2020. The largest percentage of the total mortality represented by strays in BQR was $2.4 \%$ in 1998 and 2002 (Appendix C3). Out of all the GST indicator stocks, COW had the largest percentage of the total mortality represented by strays (average $2.7 \%$ during 1990-2020; Appendix C6). The highest observed contribution of strays to the COW total mortality was $11.3 \%$ in 2009. Strays also represented a significant percentage of the total mortality in NAN (1.3\% during 1991-2006; Appendix C25) with the largest percentage of the total mortality represented by strays of 4.6\% in 2004. In PPS, strays comprise only a small percentage (average 0.2\% during 1979-2020 (excluding years 1988-2000 and 2004)) of the total mortality. The greatest percentage of the total mortality represented by strays at PPS was $6.5 \%$ in 2003 (Appendix C32).

Among the Lower GST indicator stocks, an average of 44\% of the BQR total mortality (Figure 3.5 ; Appendix C3), $35 \%$ of the COW total mortality (Figure 3.5; Appendix C6), $41 \%$ of the NAN total mortality (Figure 3.5; Appendix C25), and 53\% of the PPS total mortality (Figure 3.5; Appendix C32) occurred in the escapement during 1979-2020 (note that COW mortality distribution time series begins in 1990 and that of NAN is truncated to 1991-2006). After the 1979-2008 period, the average percent of total mortality represented by escapement from 2009-2020 increased from $39 \%$ to $57 \%$ in BQR, $31 \%$ to $41 \%$ in COW, and $51 \%$ to $63 \%$ in PPS. Most of the remaining mortalities in BQR are associated with catch and incidental mortality in the ISBM Southern B.C. sport (1999-2008 average: 16\%, 2009-2018 average: 26\%, 2019-2020 average: 36\%) and the SEAK AABM troll (1999-2008 average: 9\%, 2009-2018 average: 5\%, 2019-2020 average: 2\%) fisheries. The ISBM Southern B.C. troll and net fisheries used to be large mortality components for BQR during 1979-1995 with an average of $8 \%$ and $7 \%$ of the total mortality but their magnitude diminishes to less than 1\% during 1999-2020. In the case of COW, total fishing mortality is dominated by the ISBM Southern B.C. sport fishery (1999-2020 average: 33\%), but the WCVI AABM troll (1999-2008 average: 10\%, 2009-2018 average: 4\%, 2019-2020 average: 1\%), the ISBM Puget Sound sport (1999-2008 average: 3\%, 2009-2018 average: $4 \%, 2019-2020$ average: $3 \%$ ), the Canada terminal net (1999-2008 average: 5\%, 2009-2018 average: 5\%, 2019-2020 average: 0.1\%) and Southern U.S. terminal net (1999-2008 average: 7\%, 2009-2018 average: 3\%, 2019-2020 average: 1\%) fisheries are also large COW mortality components. The ISBM Southern B.C. troll fishery used to be a large mortality component for COW during 1990-1995, averaging $10 \%$ of the total mortality but its contribution becomes effectively 0\% during 1999-2020. Similar to COW, most of NAN fishing mortality has been dominated by the ISBM Southern B.C. sport fishery (1991-2006 average: $40 \%)$. Lastly, most of PPS fishing mortality is associated to catch and IM in the ISBM Southern B.C. sport (1999-2008 average: 12\%, 2009-2018 average: 25\%, 2019-2020 average: 17\%), the SEAK AABM troll (1999-2008 average: 4\%, 2009-2018 average: 6\%, 2019-2020 average: 8\%), and the ISBM NBC \& CBC sport (1999-2008 average: 2\%, 2009-2018 average: 3\%, 2019-2020 average: 7\%) fisheries. ISBM Canada troll and net fisheries used to be large mortality components for PPS during 1979-1984 with 12\% of the total mortality associated to ISBM NBC, CBC and Southern B.C. troll and 6\% to ISBM NBC, CBC and Southern B.C. net but their magnitude diminishes to collective mortality levels of less than 1\% during 1999-2020.


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

### 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; Appendix C38) escapement indicator stock (Figure 3.6). Work is ongoing to identify the most suitable escapement indicator stock for the EVIN area (Appendix C38).


Figure 3.6—Distribution of total mortality for the West Coast Vancouver Island 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) PST 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 Stream-type 1.3 (FSS), Fraser Summer-run Ocean-type 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 discontinued Dome (DOM) representing FS3, 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, the time series of DOM begins with BY 1986, NIC with BY 1985, SHU with BY 1984 and MSH with BY 1985. Since the last CTC 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. Unlike the other Fraser River stocks with time series ending with BY 2015, the last completed BY for DOM is 2002 because the Penny Hatchery was closed afterward.

### 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, BYER was increasing for DOM when that program was discontinued (last completed BY 2002); however, no clear trend is apparent for NIC (Appendix D7). The BYER has been decreasing for the summer-run stocks, since BY 2001 for SHU and since BY 2008 for MSH. From BY 1981 to BY 2015, the BYERs decreased from approximately $66 \%$ to $30 \%$ for CHI and from approximately $70 \%$ to $34 \%$ for HAR. CHI BYER averaged $40 \%$ and ranged from 22\% for BY 1995 to $83 \%$ for BY 1982, whereas HAR BYERs averaged 46\% 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 is an exception at $31 \%$. 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. DOM BYER averaged approximately 55\% and ranged from 15\% for BY 1986 to

78\% for BY 1996. The percentage of the DOM BYER that is attributed to IM remained relatively stable, averaging approximately $5 \%$ for the entire time series, and reached its lowest values for BYs in 2000 at ( $<0.01 \%$ ). Excluding BY 1992, for which there were no recoveries in the catch, likely as a result of the poorest survival observed for this stock (see section 3.5.2), NIC BYERs are the lowest among Fraser River and all other Canadian ERIS. Estimated BYERs for NIC averaged approximately $25 \%$ and ranged from approximately $5 \%$ for BY 2015 to approximately $60 \%$ for BY 2003. The estimates of IM remained relatively stable, averaging approximately $14 \%$ for the entire time series, and ranging from 3\% for BY 2003 to $24 \%$ for BY 1991. Estimated BYERs for MSH averaged approximately $40 \%$ and ranged from $22 \%$ to $74 \%$. The percentage of MSH BYER attributed to IM averaged $15 \%$ and ranged from $9 \%$ to $28 \%$. Lastly, BYER for SHU averaged approximately $52 \%$, and ranged from $29 \%$ for BY 1997 to $80 \%$ for BY 1989. SHU BYER IM percentages have remained relatively stable, averaging approximately $18 \%$ 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 recovered. Estimated survival rates for DOM and NIC represent survival to age 3 because smolts from those stocks enter the ocean as yearlings and age 3 is the youngest age recovered.

For CHI, survival averaged 11.5\%, 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 (). For the Fraser Early indicator stocks, DOM survival rates averaged 1.1\% and ranged from a low of 0.1\% for BY 1994 to 2.5\% for BY 1993. NIC survival rates averaged $2.7 \%$ with a range of $0.1-12.5 \%$, 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 $7.2 \%$ for CHI, $2.7 \%$ for HAR, $1.4 \%$ for NIC, $1.0 \%$ for MSH and $1.2 \%$ for SHU. DOM has been discontinued, and survival for the last completed BY (2002) was 0.4\%.

### 3.5.3 Mortality Distributions

For the fall-run ERIS, escapement represented an average of $63 \%$ of the CHI total mortality (Figure 3.7; Appendix C4) and 62\% of the HAR mortality (Figure 3.7; Appendix C16) between 1985 and 2020 (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 $2019-2020$ period ( $71 \%$ ). 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 2019-2020 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; 2019-2020 average: 11\%), the ISBM Southern B.C. sport (1999-2008 average: 5\%; 2009-2018 average: 11\%; 2019-2020 average: 12\%) the ISBM north of Falcon troll (1999-2008 average: 6\%; 2009-2018 average: 4\%; 2019-2020 average: 1\%), and the WCVI AABM troll (1999-2008 average: 6\%; 2009-2018: 2\%; 2019-2020 average: 0.5\%) fisheries. Between 1985 and 1995, the ISBM Southern B.C. (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 2019-2020 period; other large components of the total mortality were the North Falcon troll ISBM fishery (1999-2008 average: 9\%; 20092018 average: 4\%; 2019-2020 average: 2\%) and the Southern B.C. sport ISBM fishery (19992008 average: 6\%; 2009-2018 average: 10\%; 2019-2020 average: 13\%). The ISBM Southern B.C. sport fishery is a large mortality component for HAR, ranging from $4 \%$ to $32 \%$ of the total mortality during 1985-1998 and from $10 \%$ to $16 \%$ from 2019-2020. 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 2019-2020 period than the 2009-2018 and the 1999-2008 period for NIC ( $85 \%$ vs $77 \%$ and $73 \%$, respectively; Figure 3.7; Appendix C26), MSH ( $77 \%$ vs $55 \%$ and $68 \%$ respectively; Figure 3.7; Appendix C24), and SHU total mortality ( $80 \%$ vs $56 \%$ and $54 \%$ respectively; Figure 3.7; Appendix C43). During 2019 to 2020, the largest components of the total fishing mortality for SHU occurred in the Terminal sport fishery (average: 4\%), followed by the ISBM Southern B.C. sport (average: 4\%), SEAK AABM troll fishery (average: 4\%), and the Terminal net 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 20192020 occurred in the terminal sport and net (average: $7 \%$ and $3 \%$ respectively), followed by the NBC \& CBC ISBM Sport fishery (average: 3\%), and the ISBM Southern BC sport fishery (average: 2\%; Figure 3.7; Appendix C24). During 2019 to 2020, the largest components of the total fishing mortality for NIC occurred in the Terminal net fishery (average: 12\%), followed by the ISBM Puget Sound sport (average: 1\%).

Strays to other escapement locations made an average 1.0\% of the total mortality for CHI during 1985-2020, with a high of $5.6 \%$ in 2003, whereas for HAR, strays made only $0.3 \%$ of the total mortality during 1985-2020with a high of $4.6 \%$ in 1995. For DOM, strays made only a small percentage ( $0.2 \%$ during 1991-2006), but strays were only reported in one year ( $2.6 \%$ of the total mortality that year). Strays also represented a very small percentage of the total mortality in NIC ( $\sim 0 \%$ during 1989-2020). 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 (1988-2020 average: 0.4\%) and MSH (2012-2020 average: $2.4 \%$ ). The largest percentage of the total mortality represented by strays in SHU was $1.4 \%$ in 2015 and it was $4.8 \%$ and $4.9 \%$ for MSH in 2015 and 2016 respectively.


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

Note: The Dome Creek (DOM) indicator stock does not have data for these two PST Agreement periods. For previous Agreement data, refer to CTC 2021d.

### 3.6 Regional Summary for Candida

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. Notwithstanding, Strait of Georgia stocks have experienced the largest BYERs among Canadian indicator stocks with Lower Strait of Georgia natural stocks COW and NAN (for which 2004 was the last complete BY reported) experiencing average BYERs greater than 60\%. Except for DOM (for which 2002 was the last complete BY reported), BYERs for the last complete BY of all Canadian stocks were lower than their long-term averages (Table 3.2). Fraser Early indicator stock NIC has experienced the lowest BYERs among Canadian indicator stocks with an average of $26 \%$ across all complete BYs and 5\% for its last complete BY (Table 3.2).

Average survival rates to age 2 (to age 3 for KLM and DOM) are lower than 5\% for all Canadian indicator stocks, except for CHI , which has the largest average survival rate at $11.5 \%$ (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\% are RBT, BQR, and HAR. These high survival rates occurred in all cases in the first few years of the time series. Survival rates for these stocks have clearly subsided relative to those high values. The lowest survival rate for the last complete BY (2014 or 2015) among all Canadian indicator stocks was $0.20 \%$ for KLM.

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 $29 \%$ from 2019-current. Escapement percentages by calendar year lower than $20 \%$ have occurred only in COW, and DOM. These low escapement percentages of the total mortality took place in 2009 for COW and 2003 for DOM. The largest escapement percentages of the total mortality in 2020 occurred in KLM ( $86 \%$ ) and HAR ( $83 \%$ ). Differences in average escapement percentages of the total mortality between PST Agreement periods 20092018 and the current Agreement were small in most cases (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 $29 \%$, BQR which decreased from $58 \%$ to $51 \%$, and QUI which decreased from $58 \%$ to $55 \%$.

Table 3.2-Summary of statistics generated by the 2021 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 KLM and DOM), and calendar year (CY) percent distribution of the total mortality and the escapement.

| Region | Indicator Stock | BYER (total mortality) |  | Survival rate |  | CY \% Escapement ${ }^{1}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | $\square$ | 2019-current |  |
|  |  | Mean (range) | Last complete BY |  | Mean (range) | Last complete BY | Mean (range) | $\begin{gathered} \hline \text { Last } \mathrm{CY} \\ \% \\ \text { (year) } \\ \hline \end{gathered}$ |
| North/ Central B.C. | Kitsumkalum (KLM) | $\begin{gathered} 45 \% \\ (22 \%-69 \%) \end{gathered}$ | $\begin{gathered} \hline 22 \% \\ (2014) \end{gathered}$ | $\begin{gathered} 0.79 \% \\ (0.14-1.95 \%) \end{gathered}$ | $\begin{aligned} & \hline 0.20 \% \\ & (2014) \end{aligned}$ | $\begin{gathered} 61 \% \\ (50-88 \%) \end{gathered}$ | $\begin{gathered} 78 \% \\ (70-86 \%) \end{gathered}$ | $\begin{gathered} 86 \% \\ (2020) \end{gathered}$ |
|  | Atnarko (ATN) | $\begin{gathered} 40 \% \\ (29 \%-60 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 34 \% \\ (2015) \\ \hline \end{gathered}$ | $\begin{gathered} 2.26 \% \\ (0.50-5.98 \%) \\ \hline \end{gathered}$ | $\begin{array}{r} 1.93 \% \\ (2015) \\ \hline \end{array}$ | $\begin{gathered} 59 \% \\ (37-74 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 69 \% \\ (59-78 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 78 \% \\ (2020) \\ \hline \end{gathered}$ |
| WCVI | $\begin{gathered} \text { Robertson } \\ \text { Creek (RBT) } \\ 4 \end{gathered}$ | $\begin{gathered} 42 \% \\ (23 \%-67 \%) \end{gathered}$ | $\begin{gathered} 31 \% \\ (2015) \end{gathered}$ | $\begin{gathered} 4.55 \% \\ (0.03-20.10 \%) \end{gathered}$ | $\begin{aligned} & 6.66 \% \\ & (2015) \end{aligned}$ | $\begin{gathered} 45 \% \\ (27-64 \%) \end{gathered}$ | $\begin{gathered} 29 \% \\ (23-35 \%) \end{gathered}$ | $\begin{gathered} 35 \% \\ (2020) \end{gathered}$ |
| Strait of Georgia | Big Qualicum (BQR) | $\begin{gathered} 57 \% \\ (29 \%-85 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 30 \% \\ (2015) \\ \hline \end{gathered}$ | $\begin{gathered} 2.15 \% \\ (0.12-25.14 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & 0.40 \% \\ & (2015) \\ & \hline \end{aligned}$ | $\begin{gathered} 58 \% \\ (43-73 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 51 \% \\ (49-52 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 52 \% \\ (2020) \\ \hline \end{gathered}$ |
|  | Cowichan (COW) | $\begin{gathered} 67 \% \\ (36 \%-89 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 54 \% \\ (2015) \\ \hline \end{gathered}$ | $\begin{gathered} 1.80 \% \\ (0.33-6.83 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & 1.19 \% \\ & (2015) \\ & \hline \end{aligned}$ | $\begin{gathered} 37 \% \\ (18-51 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 58 \% \\ (36-79 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 79 \% \\ (2020) \\ \hline \end{gathered}$ |
|  | Nanaimo (NAN) | $\begin{gathered} 67 \% \\ (35 \%-94 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 35 \% \\ (2004) \\ \hline \end{gathered}$ | $\begin{gathered} 2.99 \% \\ (0.48-13.63 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & 3.09 \% \\ & (2004) \\ & \hline \end{aligned}$ | ND | ND | $\begin{gathered} 76 \% \\ (2006) \\ \hline \end{gathered}$ |
|  | Puntledge (PPS) | $\begin{gathered} 50 \% \\ (13 \%-88 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 30 \% \\ (2015) \\ \hline \end{gathered}$ | $\begin{gathered} 1.16 \% \\ (0.10-12.76 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & 0.87 \% \\ & (2015) \\ & \hline \end{aligned}$ | $\begin{gathered} 62 \% \\ (40-76 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 68 \% \\ (54-83 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 54 \% \\ (2020) \\ \hline \end{gathered}$ |
|  | Quinsam (QUI) ${ }^{4}$ | $\begin{gathered} 54 \% \\ (29 \%-85 \%) \end{gathered}$ | $\begin{gathered} 46 \% \\ (2015) \\ \hline \end{gathered}$ | $\begin{gathered} 2.0 \% \\ (0.16-9.11 \%) \end{gathered}$ | $\begin{aligned} & 1.38 \% \\ & (2015) \\ & \hline \end{aligned}$ | $\begin{gathered} 58 \% \\ (50-69 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 55 \% \\ (48-61 \%) \end{gathered}$ | $\begin{gathered} 61 \% \\ (2020) \\ \hline \end{gathered}$ |
|  | Phillips (PHI) | $\begin{gathered} 29 \% \\ (15 \%-36 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 19 \% \\ (2015) \\ \hline \end{gathered}$ | $\begin{gathered} 4.12 \% \\ (1.00-9.80 \%) \\ \hline \end{gathered}$ | $\begin{array}{r} 1.75 \% \\ (2015) \\ \hline \end{array}$ | $\begin{gathered} 69 \% \\ (63-76 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 82 \% \\ (80-84 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 80 \% \\ (2020) \\ \hline \end{gathered}$ |
| Fraser <br> River | Chilliwack (CHI) | $\begin{gathered} 40 \% \\ (22 \%-83 \%) \end{gathered}$ | $\begin{gathered} \hline 32 \% \\ (2015) \end{gathered}$ | $\begin{gathered} 11.52 \% \\ (1.68-30.55 \%) \end{gathered}$ | $\begin{aligned} & 7.16 \% \\ & (2015) \end{aligned}$ | $\begin{gathered} 69 \% \\ (58-80 \%) \end{gathered}$ | $\begin{gathered} 71 \% \\ (65-78 \%) \end{gathered}$ | $\begin{gathered} 65 \% \\ (2020) \end{gathered}$ |
|  | Harrison (HAR) | $\begin{gathered} 46 \% \\ (19 \%-86 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 37 \% \\ (2015) \\ \hline \end{gathered}$ | $\begin{gathered} 3.34 \% \\ (0.40-23.97 \%) \\ \hline \end{gathered}$ | $\begin{array}{r} 2.71 \% \\ (2015) \\ \hline \end{array}$ | $\begin{gathered} 74 \% \\ (56-84 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 76 \% \\ (70-83 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 83 \% \\ (2020) \\ \hline \end{gathered}$ |
|  | Dome (DOM) | $\begin{gathered} 55 \% \\ (15 \%-78 \%) \end{gathered}$ | $\begin{gathered} 55 \% \\ (2002) \\ \hline \end{gathered}$ | $\begin{gathered} 1.11 \% \\ (0.14-2.48 \%) \end{gathered}$ | $\begin{aligned} & \hline 0.35 \% \\ & (2002) \\ & \hline \end{aligned}$ | ND | ND | $\begin{gathered} 25 \% \\ (2005) \\ \hline \end{gathered}$ |
|  | Nicola (NIC) | $\begin{gathered} 26 \% \\ (5 \%-60 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 5 \% \\ (2015) \\ \hline \end{gathered}$ | $\begin{gathered} 2.72 \% \\ (0.10-12.51 \%) \\ \hline \end{gathered}$ | $\begin{array}{r} 1.38 \% \\ (2014) \\ \hline \end{array}$ | $\begin{gathered} 77 \% \\ (45-90 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 84 \% \\ (76-93 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 76 \% \\ (2020) \\ \hline \end{gathered}$ |


| Region | Indicator Stock | 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) |
|  | Lower Shuswap (SHU) | $\begin{gathered} 52 \% \\ (29 \%-80 \%) \end{gathered}$ | $\begin{gathered} 32 \% \\ (2015) \end{gathered}$ | $\begin{gathered} 2.91 \% \\ (0.73-8.13 \%) \end{gathered}$ | $\begin{aligned} & 1.18 \% \\ & (2015) \end{aligned}$ | $\begin{gathered} 56 \% \\ (50-66 \%) \end{gathered}$ | $\begin{gathered} 79 \% \\ (79-80 \%) \end{gathered}$ | $\begin{gathered} 79 \% \\ (2020) \end{gathered}$ |

${ }^{1}$ \% 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.
${ }^{2}$ Does not include BY 1992 from which there were no CWT recoveries in the catch due to extremely low survival rates.
${ }^{3}$ BYER based on ocean exploitation rate.
${ }^{4}$ Terminal adjustments to CYER applied because fishing mortality on the hatchery stock does not represent fishing mortality on wild stocks.
${ }^{5} \mathrm{ND}=$ No data available.

### 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 ), Queets records starting in 1977 and Hoko and Tsoo-Yess records starting in 1985.

### 3.7.1 Brood Year Exploitation Rates

BYER patterns for Hoko, Queets, and Tsoo-Yess are considered in terms 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 $38 \%)$. Approximately one quarter of all fishery-related mortality for Hoko and Tsoo-Yess is in the form of non-landed, 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 (2014) is $65 \%$, up from the most recent three years.

Table 3.3-Summary of statistics generated by the 2021 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 <br> (range) | Mean (range) | Last CY \% (year) |
| Hoko Fall Fingerling (HOK) | $\begin{gathered} 34 \% \\ (16 \%-64 \%) \end{gathered}$ | $\begin{gathered} \hline 37 \% \\ (2014) \end{gathered}$ | $\begin{gathered} 1.33 \% \\ (0.11-3.14 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & \hline 0.87 \% \\ & (2014) \end{aligned}$ | $\begin{gathered} 69 \% \\ (46-85 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 23 \% \\ (n=1) \\ \hline \end{gathered}$ | $\begin{gathered} 23 \% \\ (2019) \\ \hline \end{gathered}$ |
| Queets Fall <br> Fingerling (QUE) | $\begin{gathered} 59 \% \\ (37 \%-82 \%) \end{gathered}$ | $\begin{gathered} 65 \% \\ (2014) \end{gathered}$ | $\begin{gathered} 2.56 \% \\ (0.59-5.65 \%) \end{gathered}$ | $\begin{aligned} & 1.70 \% \\ & (2014) \end{aligned}$ | $\begin{gathered} 38 \% \\ (20-51 \%) \end{gathered}$ | $\begin{gathered} 36 \% \\ (n=1) \end{gathered}$ | $\begin{gathered} 36 \% \\ (2019) \end{gathered}$ |
| Tsoo-Yess Fall <br> Fingerling (SOO) | $\begin{gathered} \hline 38 \% \\ (17 \%-61 \%) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 33 \% \\ (2014) \\ \hline \end{gathered}$ | $\begin{gathered} 0.61 \% \\ (0.01-1.92 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & \hline 0.25 \% \\ & (2014) \\ & \hline \end{aligned}$ | $\begin{gathered} 72 \% \\ (63-84 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 56 \% \\ (n=1) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 56 \% \\ (2019) \\ \hline \end{gathered}$ |

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.

### 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 $0.61 \%$, but it has ranged more than 2 orders of magnitude ( $0.01-1.92 \%$ ). The Queets Chinook 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 $2.56 \%$. 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 coastal 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 U.S. and Canada. The majority of these fishery-related mortalities occur in the SEAK and NBC AABM troll fisheries (Figure 3.8; Appendix C17; Appendix C33; Appendix C48). Escapement recoveries for the 3 stocks have averaged between approximately 20\% (Queets) and 84\% (Hoko) of the total distribution in recent years (Table 3.3). With only one year of ERA results for the current PST Agreement period (2019), 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) PST Agreement periods. The figure on the right only contains data for 2019 due to reporting requirements.

### 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 2009 2018 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 C33; Appendix C35; Appendix C36) and slightly higher in the Quillayute basin, averaging around 25\% (Appendix C34).


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) PST Agreement periods. The figure on the right only contains data for 2019 due to reporting requirements.

### 3.8 Salish Sea Stocks

There are 14 CWT indicator stocks analyzed within the Washington Salish Sea. 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 nontribal sport fisheries for Chinook within Puget Sound are almost exclusively under MSF regulations. Except for one stock, White River Spring Yearlings, these CWT indicator groups are adipose-clipped (marked) and therefore available for retention in MSFs. Consequently, estimates of fishing mortality from these adipose-clipped CWT recoveries will likely 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 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.

### 3.8.1 North Puget Sound

Indicator stocks in Northern Puget Sound include Fingerling and Yearling Spring tag groups from Nooksack River (NSF, NKS) and Skagit River (SKF, SKS) and Summer/Fall Fingerling groups from 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. Releases of Yearling Spring Chinook salmon
into the Nooksack River were discontinued following the 1996 BY. The Nooksack Spring hatchery program's primary purpose 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 Skagit Spring program's primary purpose 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 Skagit Summer Fingerling (SSF) group's purpose 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. The yearling program in the Skagit River was discontinued with the 2010 BY , released in spring of 2012.

### 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, ranging from $50 \%$ to $80 \%$. Between the mid-1980s and mid-1990s, ocean BYERs declined and have generally been in the $25 \%$ to $50 \%$ range since. For indicator stocks that are still active, the most recent ocean BYERs are for BY 2014 and ranged from 29\% (SKF) to 53\% (SSF; 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 fingerling stocks there are no discernable trends in survival during the time series of available data. Over the most recent decade, mean survival or these stocks has ranged between $1 \%$ and $2 \%$, with poor years around $0.5 \%$ and the highest rates around $3.5 \%$. The two North Puget Sound yearling indicator stocks are no longer in production, and while survival for NKS was generally poor and similar to the fingerling stocks, survival rates were slightly better for SKS, averaging near 3\% over the final decade of production and ranging between $1 \%$ and $5 \%$.

### 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, SKS, and SSF, and was closer to $70 \%$ for SAM (Figure 3.10). On average since 2009 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, SKS), the proportion of fishery mortality occurring in AABM fisheries was much lower, approximately 1015\% since 2009.

### 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 Stillaguamish Fall CWT program's primary purpose is for the evaluation of fishery impacts and some natural supplementation. Brood stock for this program is captured on the spawning grounds. The Skykomish program's primary purpose, which uses returns of summer-run fish to the Wallace Salmon Hatchery for brood stock, is for fishery evaluation, providing some limited harvest in the inriver 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 $40 \%$ for the most recent complete BY (2014). Beginning with BY 2000, ocean BYERs for SKY have generally ranged between $20 \%$ and $40 \%$, with a most recent complete BY (2014) estimate of $29 \%$.

### 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 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 $43 \%$ 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

Indicator stocks in Southern Puget Sound include South Puget Sound Fall Fingerling (SPS), South Puget Sound Fall Yearling (SPY), Nisqually Fall Fingerling (NIS), and White River Spring Yearling (WRY). The SPS indicator group is an aggregate of several CWT indicator programs, which is now 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 the best representative of 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 and SPY stocks are the southernmost indicator tag groups in Puget Sound. The SPY indicator represents
hatchery production where the intent of the program is to release yearling Chinook salmon that have a higher tendency to remain within Puget Sound and benefit the Puget Sound sport fishery. This hatchery program has been reduced substantially since Chinook salmon were listed in 1999 as threatened status under the U.S. Endangered Species Act. The WRY indicator has not been adipose-clipped since the 2002 BY and all tag recoveries result from electronic tag detection sampling. The migration range of WRY is almost exclusively within the Salish Sea where all fisheries are sampled with electronic tag detectors.

### 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-1990s. For SPS, ocean BYERs reached a low of approximately $20 \%$ with BY 1996, and have increased slightly since, ranging between $30 \%$ and $50 \%$. The ocean BYER for the most recent complete BY (2014) was $35 \%$. 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 (2014) was $30 \%$. 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. Ocean BYERs for SPY have consistently been greater than $50 \%$ and have not shown decreasing trends similar to other stocks. This reflects the intent of full harvest on this hatchery stock, with achievement of egg-take goals as the only escapement objective.

### 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 the two fingerling stocks, SPS and NIS, which in the most recent decade have averaged around $2 \%$ and generally ranged between $1 \%$ and $3.5 \%$. With the exception of some successful years in the late 1980s, survival to age 3 for SPY has been consistently poor, averaging $0.3 \%$ in the most recent decade with only one year that exceeded $1 \%$. Survival rates have also been low for WRY, although better than those of SPY, averaging around $0.8 \%$ in the most recent decade and only exceeding $1 \%$ twice.

### 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, $55 \%$ for NIS, $68 \%$ for SPY, and 18\% for WRY (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, $85 \%$ for NIS, and $95 \%$ for SPY and WRY. The majority of U.S. ISBM fishery impacts on these stocks occur in Puget Sound mark-selective sport fisheries and/or in terminal net fisheries, both of which are designed to target large-scale hatchery production. An important note regarding WRY is that CWT releases have not been adipose-clipped, so these fish are not typically retained in mark-selective fisheries.

### 3.8.4 Juan de Fuca and Hood Canal

Chinook salmon releases from the WDFW Elwha Hatchery (ELW) were formerly used in the annual ERA, but releases of adipose-clipped and CWT Chinook salmon have been insufficient for analysis since BY 1994. Tagging of Elwha River (ELW) Fall Fingerling stock in Juan de Fuca was discontinued with the 1994 BY. A hatchery program continues 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) stock indicator 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 early 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 (2014) was 24\%. 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 $30 \%$ and $40 \%$, with the most recent complete BY (2014) estimated at $38 \%$.

### 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 less than $0.5 \%$. Survival for GAD was particularly poor for eight consecutive BY between 1988 and 1995 but has since rebounded, averaging almost 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 $45 \%$ for ELW, although since the ELW program only resumed with BY 2012, CY estimates of mortality distribution are only available since 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 ( $\sim 33 \%$ ) 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 likely overestimate impacts on natural stocks. The ocean fishery BYERs contain estimates of exploitation in the Puget Sound marine area mark-selective sport fisheries which have grown significantly since 2003. Consequently, these BYERs for Puget Sound stocks, especially those from Central and Southern Puget Sound, will tend to 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 44\% (per stock average range of $34-55 \%$ ) for the fall fingerling stocks (SAM, SSF, STL, SKY, SPS, NIS, ELW, and GAD) and $36 \%$ (range 20-51\%) for the spring fingerling and yearling stocks (NSF, NKS, SKF, SKS, and WRY; 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 fingerling stocks and $24 \%$ for the spring yearling 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 fingerling stocks averaged between $0.7-2.5 \%$, which is similar to the rates commonly observed for fall-run fingerling type stocks. Survival rates for spring-run yearling stocks were 1.1-2.7\% and were at the lower end of rates usually observed for yearling type releases that should accrue some survival benefit from an extra year of rearing in the hatchery. 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 $54 \%$ for stocks exposed to notable terminal fisheries (SAM, SKF, SKS, NIS, GAD) and $41 \%$ for stocks where terminal fishery impacts a 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) PST Agreement periods. The figure on the bottom only contains data for 2019 due to reporting requirements.
Note: The Skagit spring yearling (SKS), South Puget Sound fall yearling (SPY), and White River spring yearling (WRY) indicator stocks do not have data to compare the two PST Agreement periods. For previous Agreement data, refer to CTC 2021d.

Table 3.4-Summary of statistics generated by the 2021 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 ${ }^{1,2}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | $\begin{aligned} & 2009- \\ & 2018 \end{aligned}$ | 2019 | rrent |
|  |  | Mean (range) | Last complete BY |  |  | Mean (range) | Last complete BY | Mean (range) | Mean (range) | Last CY \% (year) |
| North Puget Sound | Nooksack Spring Fingerling (NSF) | $\begin{gathered} 40 \% \\ (24 \%-61 \%) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 36 \% \\ (2014) \\ \hline \end{gathered}$ | $\begin{gathered} 1.48 \% \\ (0.27-4.60 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & \hline 3.53 \% \\ & (2014) \\ & \hline \end{aligned}$ | $\begin{gathered} 56 \% \\ (37-72 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 64 \% \\ (n=1) \\ \hline \end{gathered}$ | $\begin{gathered} 64 \% \\ (2019) \\ \hline \end{gathered}$ |
|  | Nooksack Spring Yearling (NKS) | $\begin{gathered} 51 \% \\ (34 \%-76 \%) \end{gathered}$ | $\begin{gathered} \hline 45 \% \\ (1996) \\ \hline \end{gathered}$ | $\begin{gathered} 1.07 \% \\ (0.10-3.60 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & \hline 0.61 \% \\ & (1996) \\ & \hline \end{aligned}$ | ND | ND | $\begin{gathered} 54 \% \\ (1999) \end{gathered}$ |
|  | Samish Fall Fingerling (SAM) | $\begin{gathered} \hline 43 \% \\ (27 \%-68 \%) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 43 \% \\ (2014) \\ \hline \end{gathered}$ | $\begin{gathered} 2.49 \% \\ (0.31-14.47 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & \hline 1.96 \% \\ & (2014) \\ & \hline \end{aligned}$ | $\begin{gathered} 29 \% \\ (18-39 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 32 \% \\ (n=1) \\ \hline \end{gathered}$ | $\begin{gathered} 32 \% \\ (2019) \\ \hline \end{gathered}$ |
|  | Skagit Spring Fingerling (SKF) | $\begin{gathered} \hline 29 \% \\ (13 \%-49 \%) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 29 \% \\ (2014) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 1.57 \% \\ (0.67-4.11 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & \hline 2.48 \% \\ & (2014) \\ & \hline \end{aligned}$ | $\begin{gathered} 57 \% \\ (46-70 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 46 \% \\ (n=1) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 46 \% \\ (2019) \\ \hline \end{gathered}$ |
|  | Skagit Spring <br> Yearling (SKS) | $\begin{gathered} 42 \% \\ (18 \%-78 \%) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 29 \% \\ (2010) \\ \hline \end{gathered}$ | $\begin{gathered} 2.69 \% \\ (0.58-7.50 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & \hline 2.66 \% \\ & (2010) \\ & \hline \end{aligned}$ | $\begin{gathered} 58 \% \\ (54-65 \%) \\ \hline \end{gathered}$ | ND | $\begin{gathered} 57 \% \\ (2013) \\ \hline \end{gathered}$ |
|  | Skagit Summer <br> Fingerling (SSF) | $\begin{gathered} 35 \% \\ (21 \%-56 \%) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 53 \% \\ (2014) \\ \hline \end{gathered}$ | $\begin{gathered} 1.21 \% \\ (0.22-3.35 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & \hline 1.88 \% \\ & (2014) \\ & \hline \end{aligned}$ | $\begin{gathered} 47 \% \\ (30-72 \%) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 70 \% \\ (n=1) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 70 \% \\ (2019) \\ \hline \end{gathered}$ |
| Central Puget <br> Sound | Stillaguamish Fall <br> Fingerling (STL) | $\begin{gathered} \hline 48 \% \\ (21 \%-91 \%) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 40 \% \\ (2014) \\ \hline \end{gathered}$ | $\begin{gathered} 1.74 \% \\ (0.28-6.97 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & \hline 1.44 \% \\ & (2014) \\ & \hline \end{aligned}$ | $\begin{gathered} 52 \% \\ (29-68 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 53 \% \\ (n=1) \\ \hline \end{gathered}$ | $\begin{gathered} 53 \% \\ (2019) \\ \hline \end{gathered}$ |
|  | Skykomish Fall <br> Fingerling (SKY) | $\begin{gathered} 34 \% \\ (21 \%-43 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 29 \% \\ (2014) \\ \hline \end{gathered}$ | $\begin{gathered} 1.05 \% \\ (0.43-3.01 \%) \end{gathered}$ | $\begin{aligned} & 0.77 \% \\ & (2014) \end{aligned}$ | $\begin{gathered} 66 \% \\ (56-77 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 75 \% \\ (n=1) \end{gathered}$ | $\begin{gathered} 75 \% \\ (2019) \\ \hline \end{gathered}$ |
| South Puget <br> Sound | South Puget Sound Fall Fingerling (SPS) | $\begin{gathered} 47 \% \\ (23 \%-75 \%) \end{gathered}$ | $\begin{gathered} 35 \% \\ (2014) \end{gathered}$ | $\begin{gathered} 2.31 \% \\ (0.41-9.51 \%) \end{gathered}$ | $\begin{aligned} & 3.07 \% \\ & (2014) \end{aligned}$ | $\begin{gathered} 59 \% \\ (46-70 \%) \end{gathered}$ | $\begin{gathered} 57 \% \\ (n=1) \end{gathered}$ | $\begin{gathered} 57 \% \\ (2019) \end{gathered}$ |
|  | South Puget Sound Fall Yearling (SPY) | $\begin{gathered} 74 \% \\ (52 \%-95 \%) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 56 \% \\ (2011) \\ \hline \end{gathered}$ | $\begin{gathered} 1.65 \% \\ (0.01-14.41 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & 0.02 \% \\ & (2013) \\ & \hline \end{aligned}$ | $\begin{gathered} 18 \% \\ (1-52 \%) \end{gathered}$ | ND | $\begin{gathered} 4 \% \\ (2012) \\ \hline \end{gathered}$ |
|  | Nisqually Fall <br> Fingerling (NIS) | $\begin{gathered} 42 \% \\ (23 \%-84 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 30 \% \\ (2014) \\ \hline \end{gathered}$ | $\begin{gathered} 1.73 \% \\ (0.11-4.29 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & 4.25 \% \\ & (2014) \\ & \hline \end{aligned}$ | $\begin{gathered} 47 \% \\ (38-72 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 30 \% \\ (n=1) \\ \hline \end{gathered}$ | $\begin{gathered} 30 \% \\ (2019) \\ \hline \end{gathered}$ |
|  | White River Spring Yearling (WRY) | $\begin{gathered} \hline 20 \% \\ (2 \%-91 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 2 \% \\ (2014) \\ \hline \end{gathered}$ | $\begin{gathered} 1.40 \% \\ (0.14-5.68 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & \hline 0.72 \% \\ & (2014) \\ & \hline \end{aligned}$ | $\begin{gathered} \hline 84 \% \\ (68-95 \%) \\ \hline \end{gathered}$ | ND | $\begin{gathered} 95 \% \\ (2017) \\ \hline \end{gathered}$ |
| Juan de <br> Fuca/ <br> Hood <br> Canal | Elwha (ELW) | $\begin{gathered} 55 \% \\ (34 \%-78 \%) \end{gathered}$ | $\begin{gathered} 38 \% \\ (2014) \\ \hline \end{gathered}$ | $\begin{gathered} 0.65 \% \\ (0.01-2.32 \%) \end{gathered}$ | $\begin{aligned} & 0.36 \% \\ & (2014) \end{aligned}$ | $\begin{gathered} 67 \% \\ (58-74 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 74 \% \\ (n=1) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 74 \% \\ (2019) \\ \hline \end{gathered}$ |
|  | George Adams Fall Fingerling (GAD) | $\begin{gathered} 46 \% \\ (22 \%-83 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 24 \% \\ (2014) \\ \hline \end{gathered}$ | $\begin{gathered} 1.69 \% \\ (0.04-5.87 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & 4.11 \% \\ & (2014) \\ & \hline \end{aligned}$ | $\begin{gathered} 46 \% \\ (24-55 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 31 \% \\ (n=1) \end{gathered}$ | $\begin{gathered} 31 \% \\ (2019) \\ \hline \end{gathered}$ |

${ }^{1} \%$ 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.
${ }^{2} \mathrm{ND}=$ No data available.

### 3.9 Columbia River Stocks

The Columbia River stocks are split into those from the Willamette River tributary, the Lower Columbia, the Upper Columbia, and the Snake River tributary. The Willamette River spring Chinook CWT indicator (WSH) is a conglomeration of yearling releases from several Willamette basin hatcheries. Lower Columbia stocks comprise three tule fall Chinook CWT indicator stocks from hatcheries, and one wild stock tagging program on the only bright Chinook stock below Bonneville Dam: Lower River Hatchery (LRH, now released from Big Creek/Bonneville Hatchery), Cowlitz Hatchery (CWF), Spring Creek Hatchery (SPR), and Lewis River Wild (LRW). Tule stocks are distinguished by their dark coloration and advanced stage of maturation. Bright stocks typically have a later freshwater entry and are bright in color. Upper Columbia stocks include two bright fall and one summer Chinook CWT indicator stocks: Columbia Upriver Brights (URB, from Priest Rapids Hatchery), Hanford Wild (HAN, from Hanford Reach), and Mid-Columbia Summers (SUM, from Wells Hatchery, including subyearling and yearling releases). For the Snake River tributary, Lyons Ferry Hatchery releases both subyearling (LYF) and yearling (LYY) CWT indicators, but only the subyearlings are representative of the natural production. To see 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, please refer to Table 3.5 below.

### 3.9.1 Brood Year Exploitation Rates

BYERs for WSH and CWF appear much lower than other stocks (Appendix D13) due to only reporting ocean exploitation; this is to better represent wild components in the presence of fairly high MSF exploitation in terminal fisheries targeting hatchery production. Over the last 10 years' data, ocean BYERs have averaged about $8 \%$ for WSH, with $2 \%$ IM, and $18 \%$ for CWF, with 4\% IM.

The 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' data, ocean BYERs for LRH and SPR were 55-65\%, with 5-8\% IM.

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 the wild component of upriver brights 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' data, BYERs for LRW, URB, HAN, SUM, and LYY have been 40-50\%, with IM of 5-6\%, while LYF BYER is lower at 30\%, with IM of 3\%.

### 3.9.2 Survival Rates

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 LRW.
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, $3-7 \%$ (averaging $4 \%$ ) for the next four, 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 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 19821992 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 $1 \%$ in the last four broods. HAN survival rates were $0-$ $2 \%$ for 20 of 21 broods from 1986-2006, (averaging 1\%), and then averaged $3 \%$ for six broods, before declining to well under $1 \%$ for recent broods. LYF has data gaps through the 2000 brood, and highly variable survival rates since, with 11 of 17 broods under $2 \%$ and seven broods at $2-$ $8 \%$ (averaging 5\%). Like HAN and URB, LYF shows a recent decline to under $1 \%$. LYY, which are yearlings, had $4-5 \%$ survival rates for 12 of 16 broods (averaging 5\%), decreasing to about 3\%, before also dropping to less than $1 \%$ recently.

### 3.9.3 Mortality Distributions

The distribution of mortality for each stock can be found in Appendix C. For Columbia River stocks, sport data takes two years to complete, so the most recent numbers are for 2019. For most stocks, about 20-30\% of mortality attributable to fisheries occurs in AABM fisheries; primarily in SEAK for WSH, LRW, URB, HAN, and SUM, and in WCVI for SPR and LRH tules. It is lower for CWF (14\%), which is widely distributed, and SPR which was only in fisheries from WCVI south.

Figure 3.11 demonstrates changes in the proportion of CY total mortality in fisheries and escapement. Impacts in SUS ISBM fisheries were lower than usual for most Columbia River stocks, and correspondingly, the 2019 proportion to escapement for most Columbia River stocks increased from the 2009-2018 average, up 9-14\% for SPR, LYY, URB, and CWF, and 18$26 \%$ for WSH, HAN, and SUM, while LRH and LYF were near average, and LRW showed an $8 \%$ decrease.


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

### 3.9.4 Regional Summary for Columbia River 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 55\%), compared to escapement proportions of about 45-55\% for other stocks, except SPR and LRH, at 29-36\%, and LYF at 64\%. Except for LRW, most Columbia River stocks are showing lower survival rates less than $1 \%$ for recent broods.

Table 3.5—Summary of statistics generated by the 2021 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 ${ }^{1}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | $2009-$ <br> 2018 <br> Mean (range) | 2019-current |  |
|  | Mean (range) | Last complete BY |  | Mean (range) | Last complete BY | Mean (range) | Last CY \% (year) |
| Cowlitz Fall Tule (CWF) ${ }^{2}$ | $\begin{gathered} 37 \% \\ (11 \%-68 \%) \end{gathered}$ | $\begin{gathered} \hline 25 \% \\ (2014) \end{gathered}$ | $\begin{gathered} 0.67 \% \\ (0.06-3.54 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & \hline 0.10 \% \\ & (2014) \\ & \hline \end{aligned}$ | $\begin{array}{\|c\|} \hline 67 \% \\ (48-90 \%) \\ \hline \end{array}$ | $\begin{gathered} 81 \% \\ (n=1) \end{gathered}$ | $\begin{gathered} 81 \% \\ (2019) \\ \hline \end{gathered}$ |
| Hanford Wild Brights (HAN) | $\begin{gathered} 51 \% \\ (35 \%-72 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 41 \% \\ (2014) \\ \hline \end{gathered}$ | $\begin{gathered} 1.09 \% \\ (0.10-5.81 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & 0.11 \% \\ & (2014) \\ & \hline \end{aligned}$ | $\begin{array}{\|c\|} \hline 44 \% \\ (11-67 \%) \\ \hline \end{array}$ | $\begin{gathered} 65 \% \\ (n=1) \\ \hline \end{gathered}$ | $\begin{gathered} 65 \% \\ (2019) \\ \hline \end{gathered}$ |
| Lower River <br> Hatchery Tule (LRH) | $\begin{gathered} 59 \% \\ (20 \%-82 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 66 \% \\ (2014) \\ \hline \end{gathered}$ | $\begin{gathered} 1.09 \% \\ (0.02-9.59 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & 0.72 \% \\ & (2014) \\ & \hline \end{aligned}$ | $\begin{array}{\|c\|} \hline 36 \% \\ (28-44 \%) \\ \hline \end{array}$ | $\begin{gathered} 37 \% \\ (n=1) \\ \hline \end{gathered}$ | $\begin{gathered} 37 \% \\ (2019) \\ \hline \end{gathered}$ |
| Lewis River Wild (LRW) | $\begin{gathered} 43 \% \\ (17 \%-70 \%) \end{gathered}$ | $\begin{gathered} 43 \% \\ (2014) \\ \hline \end{gathered}$ | $\begin{gathered} 1.05 \% \\ (0.11-3.45 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & 0.97 \% \\ & (2014) \\ & \hline \end{aligned}$ | $\begin{array}{\|c\|} \hline 48 \% \\ (31-67 \%) \\ \hline \end{array}$ | $\begin{gathered} 43 \% \\ (n=1) \end{gathered}$ | $\begin{gathered} 43 \% \\ (2019) \\ \hline \end{gathered}$ |
| Lyons Ferry Fingerling (LYF) | $\begin{gathered} 35 \% \\ (8 \%-67 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 38 \% \\ (2014) \\ \hline \end{gathered}$ | $\begin{gathered} 2.22 \% \\ (0.08-7.88 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & 1.77 \% \\ & (2014) \\ & \hline \end{aligned}$ | $\begin{array}{\|c\|} \hline 64 \% \\ (41-89 \%) \\ \hline \end{array}$ | $\begin{gathered} 64 \% \\ (n=1) \end{gathered}$ | $\begin{gathered} 64 \% \\ (2019) \\ \hline \end{gathered}$ |
| Lyons Ferry Yearling (LYY) | $\begin{gathered} 47 \% \\ (24 \%-75 \%) \end{gathered}$ | $\begin{gathered} 61 \% \\ (2013) \\ \hline \end{gathered}$ | $\begin{gathered} 4.43 \% \\ (0.96-14.69 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & 2.81 \% \\ & (2013) \\ & \hline \end{aligned}$ | $\begin{array}{c\|} \hline 48 \% \\ (32-72 \%) \\ \hline \end{array}$ | $\begin{gathered} 57 \% \\ (n=1) \end{gathered}$ | $\begin{gathered} 57 \% \\ (2019) \end{gathered}$ |
| Spring Creek Tule (SPR) | $\begin{gathered} 72 \% \\ (46 \%-94 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 80 \% \\ (2014) \\ \hline \end{gathered}$ | $\begin{gathered} 1.97 \% \\ (0.12-8.26 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & 1.63 \% \\ & (2014) \\ & \hline \end{aligned}$ | $\begin{array}{\|c\|} \hline 29 \% \\ (22-46 \%) \\ \hline \end{array}$ | $\begin{gathered} 38 \% \\ (n=1) \\ \hline \end{gathered}$ | $\begin{gathered} 38 \% \\ (2019) \\ \hline \end{gathered}$ |
| Columbia Summer (SUM) | $\begin{gathered} 52 \% \\ (18 \%-78 \%) \end{gathered}$ | $\begin{gathered} \hline 49 \% \\ (2014) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 1.73 \% \\ (0.01-5.60 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & 2.06 \% \\ & (2014) \\ & \hline \end{aligned}$ | $\begin{array}{\|c\|} \hline 48 \% \\ (44-54 \%) \\ \hline \end{array}$ | $\begin{gathered} 74 \% \\ (n=1) \end{gathered}$ | $\begin{gathered} \hline 74 \% \\ (2019) \\ \hline \end{gathered}$ |
| Columbia River Upriver Brights (URB) | $\begin{gathered} 52 \% \\ (24 \%-80 \%) \end{gathered}$ | $\begin{gathered} 43 \% \\ (2014) \end{gathered}$ | $\begin{gathered} 2.18 \% \\ (0.08-8.03 \%) \end{gathered}$ | $\begin{aligned} & 0.42 \% \\ & (2014) \end{aligned}$ | $\begin{gathered} 53 \% \\ (34-66 \%) \end{gathered}$ | $\begin{gathered} 63 \% \\ (n=1) \end{gathered}$ | $\begin{gathered} 63 \% \\ (2019) \end{gathered}$ |
| Willamette Spring Hatchery (WSH) ${ }^{2}$ | $\begin{gathered} 12 \% \\ (3 \%-29 \%) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 11 \% \\ (2013) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 2.80 \% \\ (0.67-6.34 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & \hline 1.71 \% \\ & (2013) \\ & \hline \end{aligned}$ | $\begin{array}{\|c\|} \hline 56 \% \\ (43-67 \%) \\ \hline \end{array}$ | $\begin{gathered} \hline 74 \% \\ (n=1) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 74 \% \\ (2019) \\ \hline \end{gathered}$ |

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 which are recovered earliest at the total age of 2. The SRH release group represents the Northern Oregon Coast aggregate, whereas the ELK release group represents the Mid-Oregon Coast aggregate. There have been consistent releases of CWT groups of Chinook salmon from the SRH every year since 1976, with the exception of 1981. 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 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 21\% (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 River hatchery releases. For the last complete brood year, SRH (55\%) has displayed about twice the ocean BYER as the ELK stock (22\%). 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), among the highest average survival tracked coastwide by the CTC, exceeded only by the average survival displayed by CHI (12\%; Table 3.2). Since 2013, the last year with complete broods from which survival can be calculated, the survival rates for the ELK stock have been increasing from long term low observations of survival observed the previous two brood years. Survival rates for SRH had been generally increasing through 2012 with a long-term average of $6 \%$, with survival from the first three BYs averaging $7 \%$. Recently, there has been rapidly declining survival with the SRH stock, declining from 19\% to 1\% during the 2013-2015 brood years. The first available information on the 2016 BY indicates there is an increase in survival following the prior 3 year precipitous decline (Appendix E14).

### 3.10.3 Mortality Distributions

An average of 43\% of SRH (Appendix C53) mortality, and 57\% of the ELK (Appendix C9) mortality, is attributed to escapement for the 2009-present time series (Table 3.6). Mortality to escapement is the proportion of AEQ mortalities in a CY attributable to spawning escapement. Both stocks exhibit slight variation in the proportion which escapes to spawn through the time series, but there is no visible trend. 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\%). WCVI troll used to be a larger component of the impacts on the ELK stock (6\%: 1979-1984) but has impacted this stock less in more recent years (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) PST Agreement periods. The figure on the right only contains data for 2019 due to reporting requirements.

### 3.10.4 Terminal Area Adjustments

Given expectations for sufficient terminal area returns within a return year, a sport fishery generally occurs in Nehalem (Appendix C56), Siletz (Appendix C54), and Siuslaw (Appendix C55) Rivers and the catch in the sport fishery is included in the harvest rate used by the CTC (2019a) (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 their exploitation rate indicator stock (ERIS). More recently (2019 to present), intensity was more variable among the escapement indicators. Consequently, terminal area adjustments are needed to adequately depict the harvest in these areas. The CTC has not previously reported the impact of ISBM fisheries on the Coquille (Appendix C11) or South Umpqua (Appendix C12) stocks. A sport fishery occurs in these rivers when returns are sufficiently large. Estimates of the natural-origin terminal run and spawners for the Coquille River are reported by the CTC in the annual catch and escapement report (e.g., CTC (2021e) 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) PST Agreement periods. The figure on the right only contains data for 2019 due to reporting requirements.


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) PST Agreement periods.

### 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 time of observation and reporting for this document (2009 to present). Both aggregates have suffered precipitous survival declines recently (Appendix E14) with indications of rebound in the most recent year of analysis. 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, both NOC and MOC stocks have experienced a patchwork of escapement goal attainment and failure over the same recent past. That 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 goals in both NOC and MOC stocks in recent years. Whereas terminal fisheries used to consistently apply less pressure in EIS compared to ERIS stocks historically (1999-2008), those fisheries have been subject to varied management and engagement since then which obviates that claim to consistency with much higher exploitation (Siuslaw, Coquille) observed in these stocks than their model stock counterparts in the recently observed past (2019-present).

Table 3.6—Summary of statistics generated by the 2021 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 (range) | Last complete BY |  |  | Mean (range) | Last complete BY | Mean (range) | Mean (range) |  |
| Elk River (ELK) | $\begin{gathered} 21 \% \\ (10 \%-31 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 22 \% \\ (2014) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 7.83 \% \\ (1.04-32.90 \%) \\ \hline \end{gathered}$ | $\begin{aligned} & \hline 1.57 \% \\ & (2014) \\ & \hline \end{aligned}$ | $\begin{gathered} 52 \% \\ (42-65 \%) \\ \hline \end{gathered}$ | $\begin{gathered} 57 \% \\ (n=1) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 57 \% \\ (2019) \\ \hline \end{gathered}$ |
| Salmon River (SRH) | $\begin{gathered} 37 \% \\ (24 \%-63 \%) \end{gathered}$ | $\begin{gathered} 55 \% \\ (2014) \end{gathered}$ | $\begin{gathered} 6.56 \% \\ (0.63-18.67 \%) \end{gathered}$ | $\begin{aligned} & 1.78 \% \\ & (2014) \end{aligned}$ | $\begin{gathered} 44 \% \\ (22-57 \%) \end{gathered}$ | $\begin{gathered} 43 \% \\ (n=1) \end{gathered}$ | $\begin{gathered} \hline 43 \% \\ (2019) \end{gathered}$ |

$1 \%$ 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.

### 3.11 Summary of ERA Metrics

The CTC currently monitors 52 CWT exploitation rate indicator stocks throughout the Treaty area. Estimates of age- and fishery-specific exploitation and maturation rates, from the ERA are combined with data on catches, escapements, and incidental mortalities, to complete the annual calibration of the PSC Chinook Model. Table 3.7 consolidates data from the regional summary tables in this chapter to provide a coastwide summary of how recent BYER, survival rates and percent escapement compare to longer term averages for each stock, including:

1) a comparison of long-term average BYER to the BYER for the last full brood (Appendix D),
2) a comparison of long-term average age-2 or age-3 survival rates, to the survival rate of the last complete brood (Appendix E); for subyearling (ocean-type) stocks, age-2 rate is used, and for yearling (stream-type) stocks, age-3 rates are used, and
3) a comparison of the average calendar year (CY) percent distribution of the total mortality that accrued to escapement during the last annex (2009-2018), compared to the average during the current annex (2019-most recent year)(Appendix C); Note: this is not a measure of performance for the escapement indicator stock(s) represented by the CWT indicator stock, but provides an indication of the proportion of fish returning to the spawning grounds.

The most recent calendar year available for reporting percent distribution of total mortality in escapement is 2020 for Alaska and Canada and 2019 for Southern U.S. 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). For 2021, the most recent complete brood is 2015 for subyearling stocks in Canada, and 2014 for yearling stocks in Alaska and Canada (KLM, NIC) and all stocks in the southern U.S., except LYY and WSH yearlings (2013). Therefore, the 2021 cohort survival rates are for 2017 age-3s for Alaskan, Canadian, and PS yearling stocks, 2016 age-2s for WA, OR and Columbia R subyearling stocks, and 2016 age-3s for LYY and WSH yearlings.

Coastwide trends were variable for all three metrics. For BYERs, most stocks showed a decreasing trend with BQR, NSA, KLM, GAD, NIC, SHU, and ELW showing the largest decreases compared to the long-term mean. The three stocks with the largest increases were SRH, SSF, and LYY. Similarly, nearly all stocks showed a decreasing trend in survival rate compared to their long-term means. Notable exceptions were NIS, NSF, and GAD which showed the highest increases of $>139 \%$ in survival. CY escapement generally showed positive trends for all stocks except RBT, BQR, QUI, HOK, QUE, SOO, SKF, SPS, NIS, GAD, LRW, and SRH.

Table 3．7：Summary of statistics generated by the 2021 exploitation rate analysis．Statistics include brood year exploitation rates（BYERs），cohort survival rates（age 2 and 3），and calendar year（CY）percent distribution of the total mortality in escapement for 2020 （in Alaska and Canada；top figure）and 2019 （in Southern US stocks；bottom figure）．Changes between average and recent values are shown by tertile class symbols for BYERs and quintile class arrows for survival and escapement．（Continued on next page）．

| 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 | $\begin{aligned} & \text { Mean \% } \\ & \text { 2009-18 } \end{aligned}$ | $\begin{aligned} & \text { Mean \% } \\ & \text { 2019-Last } \end{aligned}$ | Points Change |
| Alaska |  |  |  |  |  |  |  |  |  |  |
| SSA | Southern SEAK Spring ${ }^{3}$ | 39\％ | 22\％ | －17 | 8．3\％ | 4．0\％ | v－52\％ | 51\％ | 70\％ | $\uparrow 19$ |
| NSA | Northern SEAK Spring ${ }^{3}$ | 38\％ | 15\％ | －23 | 5．7\％ | 2．6\％ | v－54\％ | 52\％ | 57\％ | 75 |
| CHK | Chilkat River | 17\％ | 7\％ | －10 | 3．4\％ | 3．3\％ | v $-1 \%$ | 85\％ | 97\％ | T 12 |
| STI | Stikine River | 36\％ | 12\％ | －24 | 3．9\％ | 3．2\％ | vy $-18 \%$ | 73\％ | 87\％ | T 14 |
| TAK | Taku River | 17\％ | 7\％ | －10 | 7．3\％ | 1．6\％ | v－77\％ | 82\％ | 96\％ | T 14 |
| TST | Taku and Stikine Rivers | 20\％ | 10\％ | －10 | 6．7\％ | 2．4\％ | v－64\％ | 77\％ | 93\％ | 介 16 |
| UNU | Unuk River | 30\％ | 25\％ | －－5 | 4．7\％ | 6．6\％ | $\Rightarrow 41 \%$ | 65\％ | 81\％ | 个 16 |
| Canada |  |  |  |  |  |  |  |  |  |  |
| KLM | Kitsumkalum | 45\％ | 22\％ | －23 | 0．8\％ | 0．2\％ | v－75\％ | 61\％ | 78\％ | 介 17 |
| ATN | Atnarko | 40\％ | 34\％ | －6 | 2．3\％ | 1．9\％ | y $-15 \%$ | 59\％ | 69\％ | 710 |
| RBT | Robertson Creek Fall ${ }^{3,4}$ | 42\％ | 31\％ | －11 | 4．6\％ | 6．7\％ | 46\％ | 45\％ | 29\％ | $\Rightarrow \quad-16$ |
| BQR | Big Qualicum River Fall | 57\％ | 30\％ | －27 | 2．2\％ | 0．4\％ | v $-81 \%$ | 58\％ | 51\％ | $\Rightarrow \quad-7$ |
| COW | Cowichan River Fall | 67\％ | 54\％ | －13 | 1．8\％ | 1．2\％ | v $-34 \%$ | 37\％ | 58\％ | 1 21 |
| PPS | Puntledge River Summer | 50\％ | 30\％ | －20 | 1．2\％ | 0．9\％ | v $-25 \%$ | 62\％ | 68\％ | 7 6 |
| QUI | Quinsam River Fall | 54\％ | 46\％ | －8 | 2．0\％ | 1．4\％ | v $-31 \%$ | 58\％ | 55\％ | －3 |
| PHI | Phillips River Fall | 29\％ | 19\％ | －10 | 4．1\％ | 1．8\％ | v－58\％ | 69\％ | 82\％ | 1 13 |
| CHI | Chilliwack River Fall | 40\％ | 32\％ | －8 | 11．5\％ | 7．2\％ | v $-38 \%$ | 69\％ | 71\％ | 入 2 |
| HAR | Harrison River | 46\％ | 37\％ | －9 | 3．3\％ | 2．7\％ | v $-19 \%$ | 74\％ | 76\％ | 72 |
| NIC | Nicola River Spring | 26\％ | 5\％ | －21 | 2．7\％ | 1．4\％ | v $-49 \%$ | 77\％ | 84\％ | 入 7 |
| SHU | Lower Shuswap R Summer | 52\％ | 32\％ | －-20 | 2．9\％ | 1．2\％ | v－59\％ | 56\％ | 79\％ | 1 23 |


| Indicator Stock ID／Name |  | BYER（total mortality） |  |  | Age $\mathbf{2}$ or $\mathbf{3}$ Survival Rate |  |  | Calendar Year \％Escapement |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Mean | Last Full Brood ${ }^{1}$ | Points Change | Mean | Last Full Brood ${ }^{1}$ | \％ Change | $\begin{aligned} & \hline \text { Mean \% } \\ & \text { 2009-18 } \end{aligned}$ | $\begin{aligned} & \text { Mean \% } \\ & \text { 2019-Last } \end{aligned}$ | Points Change |
| WA Coast and Salish Sea |  |  |  |  |  |  |  |  |  |  |
| HOK | Hoko Fall Fingerling | 34\％ | 37\％ | 3 | 1．3\％ | 0．9\％ | v $-35 \%$ | 69\％ | 23\％ | v．-46 |
| QUE | Queets Fall Fingerling | 59\％ | 65\％ | 6 | 2．6\％ | 1．7\％ | v $-34 \%$ | 38\％ | 36\％ | 7 －2 |
| SOO | Tsoo－Yess Fall Fingerling | 38\％ | 33\％ | －5 | 0．6\％ | 0．3\％ | V $-59 \%$ | 72\％ | 56\％ | －16 |
| NSF | Nooksack Spring Fingerling ${ }^{3}$ | 40\％ | 36\％ | －4 | 1．5\％ | 3．5\％ | 介 139\％ | 56\％ | 64\％ | 78 |
| SAM | Samish Fall Fingerling ${ }^{3}$ | 43\％ | 43\％ | 0 | 2．5\％ | 2．0\％ | v $-21 \%$ | 29\％ | 32\％ | 73 |
| SKF | Skagit Spring Fingerling ${ }^{3}$ | 29\％ | 29\％ | 0 | 1．6\％ | 2．5\％ | 7 58\％ | 57\％ | 46\％ | －11 |
| SSF | Skagit Summer Fingerling ${ }^{3}$ | 35\％ | 53\％ | 18 | 1．2\％ | 1．9\％ | 7 55\％ | 47\％ | 70\％ | 123 |
| STL | Stillaguamish Fall Fingerling ${ }^{3}$ | 48\％ | 40\％ | －8 | 1．7\％ | 1．4\％ | v $-17 \%$ | 52\％ | 53\％ | त1 |
| SKY | Skykomish Fall Fingerling ${ }^{3}$ | 34\％ | 29\％ | －5 | 1．1\％ | 0．8\％ | \ $-27 \%$ | 66\％ | 75\％ | 入 9 |
| SPS | South Puget Sound Fall Fingerling ${ }^{3}$ | 47\％ | 35\％ | －12 | 2．3\％ | 3．1\％ | 33\％ | 59\％ | 57\％ | 7 －2 |
| NIS | Nisqually Fall Fingerling ${ }^{3}$ | 42\％ | 30\％ | －12 | 1．7\％ | 4．3\％ | 1 146\％ | 47\％ | 30\％ | －17 |
| WRY | White River Spring Yearling ${ }^{3}$ | 21\％ | 2\％ | －19 | 1．4\％ | 0．7\％ | V．$-49 \%$ | 84\％ |  |  |
| ELW | Elwha River ${ }^{3}$ | 58\％ | 38\％ | －20 | 0．7\％ | 0．4\％ | v．$-45 \%$ | 67\％ | 74\％ | 77 |
| GAD | George Adams Fall Fingerling ${ }^{3}$ | 46\％ | 24\％ | －22 | 1．7\％ | 4．1\％ | T 143\％ | 46\％ | 31\％ | －15 |
| Columbia River |  |  |  |  |  |  |  |  |  |  |
| CWF | Cowlitz Fall Tule ${ }^{3}$ | 37\％ | 25\％ | －12 | 0．7\％ | 0．1\％ | v $-85 \%$ | 67\％ | 81\％ | 介 14 |
| HAN | Hanford Wild Brights | 51\％ | 41\％ | －10 | 1．1\％ | 0．1\％ | －90\％ | 44\％ | 65\％ | 21 |
| LRH | Lower River Hatchery Tule | 59\％ | 66\％ | 7 | 1．1\％ | 0．7\％ | v $-34 \%$ | 36\％ | 37\％ | 71 |
| LRW | Lewis River Wild | 43\％ | 43\％ | 0 | 1．1\％ | 1．0\％ | ง $-8 \%$ | 48\％ | 43\％ | －5 |
| LYF | Lyons Ferry Fingerling | 35\％ | 38\％ | 3 | 2．2\％ | 1．8\％ | v $-20 \%$ | 64\％ | 64\％ | 70 |
| LYY | Lyons Ferry Yearling | 47\％ | 61\％ | 14 | 4．4\％ | 2．8\％ | \ $-37 \%$ | 48\％ | 57\％ | 71 |
| SPR | Spring Creek Tule | 72\％ | 80\％ | 8 | 2．0\％ | 1．6\％ | \ $-17 \%$ | 29\％ | 38\％ | 79 |
| SUM | Columbia River Summers | 52\％ | 49\％ | －3 | 1．7\％ | 2．1\％ | $\Rightarrow 19 \%$ | 48\％ | 74\％ | 介 26 |
| URB | Columbia Upriver Bright | 52\％ | 43\％ | －9 | 2．2\％ | 0．4\％ | V．$-81 \%$ | 53\％ | 63\％ | 710 |
| WSH | Willamette Spring ${ }^{3}$ | 12\％ | 11\％ | －－1 | 2．8\％ | 1．7\％ | \ $-39 \%$ | 56\％ | 74\％ | 118 |
| Oregon Coast |  |  |  |  |  |  |  |  |  |  |
| ELK | Elk River ${ }^{3}$ | 21\％ | 22\％ | － 1 | 7．8\％ | 1．6\％ | v $-80 \%$ | 52\％ | 57\％ | 75 |
| SRH | Salmon River ${ }^{3}$ | 37\％ | 55\％ | － 18 | 6．6\％ | 1．8\％ | v $-73 \%$ | 44\％ | 43\％ | 31 |

${ }^{1}$ For 2021，the most recent brood is 2015 for subyearling stocks in Canada，and 2014 for yearling stocks in Alaska and Canada（KLM， NIC）and all stocks in the southern US，except LYY and WSH yearlings（2013）．
${ }^{2} \%$ 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．
${ }^{3}$ BYER is ocean exploitation rate only to better represent natural spawner BYER in the presence of terminal fisheries targeting hatchery fish．
${ }^{4}$ Terminal adjustments to－ER applied because fishing mortality on hatchery fish does not represent fishing mortality on wild fish．

## 4. ISBM Fishery Performance

### 4.1 ISBM Fishery Performance under 2019 PST Agreement

Under the 2019 PST Agreement 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 calendar year exploitation rate (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 paragraph 5 and 7 annually.

### 4.1.1 ISBM Management Framework

Paragraph 5(d) 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 2017-2021 ERA (CTC 2018, CTC 2019a, CTC 2021d, CTC 2021f) showed 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 ISBM indicator stocks, management objectives, and 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 ${ }^{2}$ | 95\% |  |
| Chilko | TBD | CKO ${ }^{9}$ | 95\% |  |
| Lower Shuswap | 12,300 ${ }^{3}$ | SHU | 100\% |  |
| Harrison | 75,100 | HAR | 95\% | 95\% |
| Nooksack Spring | TBD | NSF | 87.5\% | 100\% |
| Skagit Spring | 6903 | 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\% |

${ }^{1}$ TBD = to be determined after review specified in paragraph 2(b)(iv) of Chapter 3 of 2019 Pacific Salmon Treaty.
${ }^{2} \mathrm{TBD}=$ to be determined because the requisite data are not available.
${ }^{3}$ Agency escapement goal has the same status as CTC agreed escapement goal for implementation of Chapter 3.
${ }^{4}$ Natural origin spawners.
${ }^{5}$ CWT stocks and adjustments described in CTC (2016), CTC (2019b), CYERWG (2021), and CTC (2021d).
${ }^{6}$ 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.

Table 4.2-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 South of Falcon Troll 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 |

The CTC will calculate annual CYERs for Attachment I ISBM stocks (Paragraph 5) and, beginning with the 2019-2021 catch years, a 3-year running average of CYER for each ISBM stock listed in Attachment I (paragraph 7(c)). Paragraph 7 evaluation will commence in 2023 when ERA results are available through the 2021 fishing year for both Parties' ISBM fisheries. The CTC is currently seeking clarification from the Commission regarding the methods for calculating the running 3year average and expects to report the relevant averages in the 2023 ERA report, as specified in footnote 17 of the 2019 PST Agreement.

If the running 3 -year average CYER 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" (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)" (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."


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

### 4.2 ISBM Performance Evaluation for 2019

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 per paragraph 5(d). The remaining 16 stocks have management objectives ${ }^{4}$ and for these stocks, the 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 goals (CTC 2021e, Table 2.1). In 2019, 3 of those 16 stocks were below their escapement goals; CYER limits applied to the Harrison and Atnarko for Canadian ISBM fisheries and the Harrison and Siuslaw for U.S. ISBM fisheries.

### 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 do not currently have data that can be evaluated; therefore, CYER limits apply for 9 of the 11 stocks without management objectives. There are 6 stocks that have management objectives listed in Attachment I and CYER limits only apply when these management objectives are not met. In 2019, only the Harrison and Atnarko had escapements below their respective management objectives. Thus for 2019, CYER limits would apply to 11 stocks - the 2 stocks with management objectives that were not met and the 9 stocks without management objectives that can be evaluated (Table 4.3).

Relative to Canadian ISBM fisheries performance for 2019, annual ISBM obligations were met for 8 of the 15 stocks that could be evaluated; 4 that met their management objectives and thus had no applicable CYER limits, and 4 that had CYERs that were below the applicable limits. Annual CYER obligations were not met for 7 stocks—Atnarko, NWVI Natural Aggregate, SWVI Natural Aggregate, East Coast Vancouver Island North, Harrison, Stillaguamish, and Snohomish.

[^4]Table 4.3-Review of performance in the Canadian ISBM fisheries, 2019.
Notes: Escapement indicator stocks correspond to Annex IV, Chapter 3, Attachment I of the 2019 PST Agreement. Grey shaded cells indicate that the CYER qualifies for inclusion in the running 3-year average per paragraph 7c. Green/Red shaded cells indicate whether annual CYER obligations were met for a particular stock. NA = No or insufficient data available.

| Escapement <br> Indicator | Mgmt. <br> Obj. | 2019 <br> Escape- <br> ment | Mgmt. <br> Obj <br> Met? | CYER <br> Limit | 2019 <br> CYER | Obligation <br> Met? |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| Skeena | NA | NA |  | 0.140 | 0.115 | Yes |
| Atnarko | NA | NA |  | 0.085 | 0.099 | No |
| NWVI Natural <br> Aggregate | NA | NA |  | 0.085 | 0.099 | No |
| SWVI Natural <br> Aggregate | NA | NA |  | 0.282 | 0.349 | No |
| East Coast <br> Vancouver Island <br> North | NA | NA |  | 0.101 | 0.078 | Yes |
| Phillips | 6,500 | 15,348 | Yes | 0.381 | 0.503 | Yes |
| Cowichan | NA | NA |  | 0.165 | 0.034 | Yes |
| Nicola |  |  | NA | NA | NA |  |
| Chilcotin |  |  | NA | NA | NA |  |
| Chilko | 12,300 | 29,649 | Yes | 0.199 | 0.117 | Yes |
| Lower Shuswap | 75,100 | 45,186 | No | 0.101 | 0.198 | No |
| Harrison | NA | NA |  | 0.130 | 0.105 | Yes |
| Nooksack Spring | 690 | 1,131 | Yes | 0.070 | 0.049 | Yes |
| Skagit Spring | 9,202 | 11,810 | Yes | 0.082 | 0.045 | Yes |
| Skagit Summer/Fall | NA | NA |  | 0.108 | 0.133 | No |
| Stillaguamish | NA | NA |  | 0.078 | 0.086 | No |
| Snohomish | NA |  |  |  |  |  |

### 4.2.2 U.S. ISBM Fishery Performance

There are 22 Attachment I indicator stocks subject to U.S. ISBM fisheries performance evaluation. Of those, 8 stocks do not have management objectives listed in Attachment I; therefore, CYER limits apply for all 8 stocks without management objectives. There are 14 stocks that have management objectives listed in Attachment I and CYER limits only apply when these management objectives are not met. In 2019, only the Harrison and Siuslaw had escapements below their respective management objectives. Thus for 2019, CYER limits would apply to 10 stocks - the 2 stocks with management objectives that were below their management goals and the 8 stocks without management objectives (Table 4.4).

Relative to U.S. ISBM fisheries performance for 2019, annual ISBM obligations were met for 16 of the 22 stocks listed in Attachment $\mathrm{I} ; 12$ that met their management objectives and thus had no applicable CYER limits, and 4 that had CYERs that were below the applicable limits. Treaty obligations were not met for 6 stocks - Nooksack Spring, Stillaguamish, Hoko, Siuslaw, South Umpqua, and Coquille.

Table 4.4—Review of performance in the United States ISBM fisheries, 2019.
Notes: Escapement indicator stocks correspond to Annex IV, Chapter 3, Attachment I of the 2019 PST Agreement. Grey shaded cells indicate that the CYER qualifies for inclusion in the running 3-year running 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 <br> Indicator | Mgmt. <br> Obj. | 2019 <br> Escape- <br> ment | Mgmt. <br> Obj <br> Met? | CYER <br> Limit | 2019 <br> CYER | Chnual <br> Chigation <br> Met? |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| Cowichan | 6,500 | 15,348 | Yes | 0.103 | 0.067 | Yes |
| Nicola | NA | NA |  | 0.039 | 0.031 | Yes |
| Harrison | NA | NA |  | 0.103 | 0.176 | No |
| Nooksack Spring | 690 | 1,131 | Yes | 0.254 | 0.442 | Yes |
| Skagit Spring | 9,202 | 11,810 | Yes | 0.164 | 0.126 | Yes |
| Skagit Summer/Fall | NA | NA |  | 0.168 | 0.177 | No |
| Stillaguamish | NA | NA |  | 0.186 | 0.101 | Yes |
| Snohomish | NA | NA |  | 0.100 | 0.212 | No |
| Hoko | 13,326 | 14,880 | Yes | 0.160 | 0.101 | Yes |
| Grays Harbor Fall | 2,500 | 2,504 | Yes | 0.140 | 0.024 | Yes |
| Queets Fall | 3,000 | 7,765 | Yes | 0.215 | 0.107 | Yes |
| Quillayute Fall | 1,200 | 1,552 | Yes | 0.154 | 0.166 | Yes |
| Hoh Fall | 40,000 | 95,369 | Yes | 0.228 | 0.176 | Yes |
| Upriver Brights | 5,700 | 14,307 | Yes | 0.195 | 0.026 | Yes |
| Lewis River Fall | NA | NA |  | 0.207 | 0.117 | Yes |
| Coweeman | 12,143 | 41,090 | Yes | 0.263 | 0.168 | Yes |
| Mid-Columbia <br> Summers | 6,989 | 9,746 | Yes | 0.155 | 0.065 | Yes |
| Nehalem | 2,944 | 3,521 | Yes | 0.178 | 0.272 | Yes |
| Siletz | 12,925 | 4,797 | No | 0.206 | 0.392 | No |
| Siuslaw | NA | NA |  | 0.292 | 0.355 | No |
| South Umpqua | NA | NA |  | 0.226 | 0.514 | No |
| Coquille |  |  |  |  |  |  |

## 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 B.C. 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, but ventral fin clips have been used in B.C.) 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 PFMA Subareas 19-1 to 19-4 and 20-4 to 20-7. Typically, the regulation 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 . These management measures are implemented for the protection of spring run Fraser Chinook. Retained catches in this fishery have ranged from 98 to 3,769 marked fish and 8 to 3,612 unmarked.

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.


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 2003-2019.


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 2003-2019.

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 a 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. There is minor savings of the $2 / 1$ regulation over the $2 / 2$ regulation.

### 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. Table 5.1 shows that, for stocks originating in Puget Sound, the proportion of marked harvest in MSFs for regional groupings of CWT indicator stocks increased from 2003 to 2012, then made a moderate decline. 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 B.C. 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 B.C. 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 B.C., Washington, and Oregon, in all net, troll, and sport fisheries for catch years 2019 and averages for 2009-2018, and the percent of the total tagged and marked catch landed in MSFs.

Note: Data for catch years 2009-2018 can be found in CTC 2021d.

| REGION | STOCK | 2009-2018 Average |  | 2019 |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| SOUTHEAST ALASKA | AK Hatcheries | 2301 | 0\% | 1,149 | 0\% |
|  | Chilkat | 29 | 0\% | 8 | 0\% |
|  | Stikine | 45 | 0\% | 12 | 0\% |
|  | Taku | 26 | 0\% | 9 | 0\% |
|  | Unuk | 61 | 0\% | 45 | 0\% |
| SOUTHEAST ALASKA Total |  | 2462 | 0\% | 1,222 | 0\% |
| BRITISH COLUMBIA | Atnarko Spring | 206 | 0\% | 0 | 0\% |
|  | Atnarko Summer | 697 | 0\% | 867 | 0\% |
|  | Big Qualicum | 276 | 1\% | 132 | 0\% |
|  | Chilliwack Fall | 1553 | 5\% | 1,847 | 6\% |
|  | Cowichan Fall | 947 | 3\% | 670 | 4\% |
|  | Nicola River Spring | 148 | 1\% | 70 | 13\% |
|  | Puntledge Summer | 102 | 1\% | 37 | 0\% |
|  | Quinsam Fall | 394 | 0\% | 949 | 0\% |
|  | Robertson Creek | 1728 | 0\% | 9,147 | 0\% |
|  | Lower Shuswap River Summers | 1119 | 1\% | 1,078 | 4\% |
|  | Chehalis (Harrison Fall Stock) | 450 | 6\% | 452 | 6\% |
|  | Kitsumkalum Summer | 123 | 0\% | 119 | 0\% |
| BRITISH COLUMBIA Total |  | 7742 | 2\% | 15,368 | 1\% |
| NORTH PUGET SOUND | Nooksack Spring Fingerling | 429 | 5\% | 352 | 9\% |
|  | Samish Fall Fingerling | 821 | 7\% | 473 | 12\% |
|  | Skagit Spring Fingerling | 566 | 16\% | 645 | 15\% |
|  | Skagit Spring Yearling | 151 | 21\% | 0 | 0\% |
|  | Skagit Summer Fingerling | 298 | 6\% | 292 | 19\% |
|  | Skykomish Fall Fingerling | 202 | 27\% | 136 | 38\% |
|  | Stillaguamish Fall Fingerling | 303 | 15\% | 462 | 21\% |
| NORTH PUGET SOUND Total |  | 2770 | 12\% | 2,360 | 17\% |
| SOUTH PUGET SOUND | George Adams Fall Fingerling | 999 | 22\% | 1,398 | 25\% |
|  | Green River Fall Fingerling | 399 | 21\% | 368 | 58\% |
|  | Grovers Creek Fall Fingerling | 555 | 29\% | 483 | 47\% |
|  | Nisqually Fall Fingerling | 737 | 21\% | 764 | 30\% |
|  | South Puget Sound Fall Yearling | 56 | 32\% | 0 | 0\% |
| SOUTH PUGET SOUND Total |  | 2747 | 23\% | 3,012 | 34\% |
| WASHINGTON COAST | Hoko Fall Fingerling | 193 | 8\% | 312 | 23\% |
|  | Queets Fall Fingerling | 986 | 1\% | 589 | 1\% |
|  | Tsoo-Yess Fall Fingerling | 153 | 4\% | 104 | 11\% |
| WASHINGTON COAST Total |  | 1331 | 2\% | 1,005 | 9\% |
| COLUMBIA RIVER | Columbia Lower River Hatchery | 559 | 5\% | 299 | 10\% |
|  | Columbia Summers | 3701 | 13\% | 1,969 | 43\% |
|  | Cowlitz Fall Tule | 146 | 14\% | 111 | 10\% |
|  | Hanford Wild | 515 | 2\% | 76 | 0\% |


| REGION | STOCK | 2009-2018 | age | 20 |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Lewis River Wild | 88 | 6\% | 63 | 0\% |
|  | Lyons Ferry | 737 | 10\% | 108 | 7\% |
|  | Spring Creek Tule | 2028 | 3\% | 965 | 5\% |
|  | Upriver Brights | 3072 | 3\% | 1,159 | 1\% |
|  | Willamette Spring | 2974 | 58\% | 521 | 64\% |
| COLUMBIA RIVER Total |  | 13820 | 18\% | 5,270 | 25\% |
| OREGON | Elk River | 1466 | 1\% | 1,292 | 0\% |
|  | Salmon River | 2646 | 1\% | 771 | 0\% |
| OREGON Total |  | 4112 | 1\% | 2,063 | 0\% |



Figure 5.4-Percent of total fishery coded-wire tag (CWT) recoveries in mark-selective fisheries (MSFs) for regional groupings of Chinook indicator stocks, 2003-2019.
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.

### 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${ }_{s, f}=1-R M_{s, f}$ ), 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:

$$
\text { MSF Survivors }_{s, f C Y}=\left(\text { CWT Recoveries }{ }_{s, f, C Y}^{*} \text { Surv }_{f}\right)
$$

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 2008-2020, 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 MRP databases. For US 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 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 (2008-2020), 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 NSF 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 (Pacific Fishery Management Area [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, 4 in 2017 and 3 in 2018, that were identifiable to the times and locations of the MSF regulations. Because these recoveries could not be accurately identified as caught in the MSF or NSF, the data analysis proceeded with two assumptions resulting in two MDTs. First all of the incomplete data recoveries were assumed to have been caught in the MSF. Second, all of these recoveries were assumed to be caught in the NSF. 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 of 7 Nicola CWTs, 4 of 6 Middle Shuswap CWTs and 5 of 13 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 ERs did not change for other ocean NSFs. 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 AEQ total fishing mortalities and escapement to represent unmarked fish when recoveries with incomplete data were assumed to have been caught in NSFs.
Note: Troll, Net, and Sport (T,N,S) were combined for SEAK, NBC, and WCVI AABMs; S Falcon ISBM; and SEAK and Southern US Terminal. The green shading identifies the CYER values where MSFs s did not change from the original 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 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | $\begin{array}{r} \text { SEAK } \\ \mathrm{T}, \mathrm{~N}, \mathrm{~S} \\ \hline \end{array}$ | $\begin{gathered} \mathrm{NBC} \\ \mathrm{~T}, \mathrm{~S} \\ \hline \end{gathered}$ | $\begin{gathered} \text { WCVI } \\ \mathrm{T}, \mathrm{~S} \\ \hline \end{gathered}$ | NBC \& CBC <br> T,N,S |  | thern |  | N Fa T | ( S | $\begin{gathered} \text { S Falcon } \\ \text { T\&S } \\ \hline \end{gathered}$ | WAC $\mathrm{N}$ |  |  | $\begin{aligned} & \mathrm{SEAK} \\ & \mathrm{~T}, \mathrm{~N}, \mathrm{~S} \\ & \hline \end{aligned}$ |  |  | $\begin{gathered} \text { US } \\ \text { South } \\ \text { T,N,S } \\ \hline \end{gathered}$ | 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 | 0.6 | 0.0 | 0.0 | 90.6 |
| 2008 | 624 | 3,4,5,6 | 0.0 | 2.1 | 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 | 20.4 | 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 | 724 | 3,4,5,6 | 0.0 | 1.4 | 0.0 | 0.0 | 0.0 | 0.6 | 4.3 | 8.1 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 17.1 | 0.8 | 0.0 | 0.0 | 67.1 |
| 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 | 974 | 3,4,5,6 | 0.2 | 1.7 | 0.9 | 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 | 75.1 |
| 2017 | 1086 | 3,4,5,6 | 0.0 | 1.0 | 1.2 | 0.0 | 0.0 | 0.2 | 2.4 | 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 | 925 | 3,4,5,6 | 0.0 | 0.3 | 1.1 | 0.0 | 0.0 | 1.2 | 3.1 | 1.5 | 0.0 | 0.0 | 0.0 | 0.1 | 0.4 | 0.0 | 17.4 | 0.0 | 0.0 | 0.0 | 74.9 |
| 2019 | 1280 | 3,4,5,6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.9 | 1.2 | 0.9 | 0.0 | 0.0 | 0.0 | 1.1 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 93.4 |
| 2020 | 1892 | 3,4,5,6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 0.0 | 0.2 | 0.2 | 0.0 | 0.0 | 0.0 | 1.2 | 0.0 | 22.0 | 0.0 | 0.0 | 0.0 | 75.5 |
| 09-18 | 1046 | 3,4,5,6 | 0.1 | 0.9 | 0.6 | 0.0 | 0.0 | 0.6 | 4.3 | 2.5 | 0.1 | 0.1 | 0.0 | 0.0 | 0.6 | 0.0 | 10.0 | 2.5 | 0.0 | 0.0 | 77.7 |
| 19-20 | 1586 | 3,4,5,6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 0.5 | 0.7 | 0.5 | 0.0 | 0.0 | 0.0 | 1.1 | 0.0 | 12.0 | 0.0 | 0.0 | 0.0 | 84.5 |

Table 5.3-Percent distribution of Nicola River AEQ total fishing mortalities and escapement to represent unmarked fish when recoveries with incomplete data were assumed to have been caught in MSFs.
Note: Troll, Net, and Sport (T,N,S) were combined for SEAK, NBC, and WCVI AABMs; S Falcon ISBM; and SEAK and Southern US Terminal. The green shading identifies the CYER values where MSFs s did not change from the original 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 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | $\begin{aligned} & \text { SEAK } \\ & \mathrm{T}, \mathrm{~N}, \mathrm{~S} \\ & \hline \end{aligned}$ | $\begin{gathered} \mathrm{NBC} \\ \mathrm{~T}, \mathrm{~S} \\ \hline \end{gathered}$ | $\begin{gathered} \text { WCVI } \\ \mathrm{T}, \mathrm{~S} \\ \hline \end{gathered}$ | NBC \& CBC <br> T,N,S |  | thern |  | N Fa T | con | S Falcon T\&S | WAC N |  |  | $\begin{aligned} & \text { SEAK } \\ & \mathrm{T}, \mathrm{~N}, \mathrm{~S} \\ & \hline \end{aligned}$ |  |  | $\begin{gathered} \text { US } \\ \text { South } \\ \text { T,N,S } \\ \hline \end{gathered}$ | 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 | 0.6 | 0.0 | 0.0 | 90.6 |
| 2008 | 624 | 3,4,5,6 | 0.0 | 2.1 | 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 | 20.4 | 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 | 90.7 |
| 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 | 724 | 3,4,5,6 | 0.0 | 1.4 | 0.0 | 0.0 | 0.0 | 0.6 | 4.3 | 8.1 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 17.1 | 0.8 | 0.0 | 0.0 | 67.1 |
| 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 | 974 | 3,4,5,6 | 0.2 | 1.7 | 0.9 | 0.0 | 0.0 | 0.7 | 8.7 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.2 | 0.0 | 0.0 | 0.0 | 76.4 |
| 2017 | 1086 | 3,4,5,6 | 0.0 | 1.0 | 1.2 | 0.0 | 0.0 | 0.2 | 2.4 | 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 | 925 | 3,4,5,6 | 0.0 | 0.3 | 1.1 | 0.0 | 0.0 | 1.2 | 3.1 | 1.5 | 0.0 | 0.0 | 0.0 | 0.1 | 0.4 | 0.0 | 17.4 | 0.0 | 0.0 | 0.0 | 74.9 |
| 2019 | 1280 | 3,4,5,6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.9 | 1.2 | 0.9 | 0.0 | 0.0 | 0.0 | 1.1 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 93.4 |
| 2020 | 1892 | 3,4,5,6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 0.0 | 0.2 | 0.2 | 0.0 | 0.0 | 0.0 | 1.2 | 0.0 | 22.0 | 0.0 | 0.0 | 0.0 | 75.5 |
| 09-18 | 1046 | 3,4,5,6 | 0.1 | 0.9 | 0.6 | 0.0 | 0.0 | 0.6 | 4.0 | 2.5 | 0.1 | 0.1 | 0.0 | 0.0 | 0.6 | 0.0 | 10.1 | 2.5 | 0.0 | 0.0 | 77.9 |
| 19-20 | 1136 | 3,4,5,6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 0.5 | 0.7 | 0.5 | 0.0 | 0.0 | 0.0 | 1.1 | 0.0 | 12.0 | 0.0 | 0.0 | 0.0 | 84.5 |

Table 5.4-Percent distribution of Lower Shuswap River AEQ total fishing mortalities and escapement to represent unmarked fish when recoveries with incomplete data were assumed to have been caught in NSFs.
Note: Troll, Net, and Sport (T,N,S) were combined for SEAK, NBC, and WCVI AABMs; S Falcon ISBM; and SEAK and Southern US Terminal. The green shading identifies the CYER values where MSFs s did not change from the original MDTs for the marked stock and the yellow shading identifies revised CYERs.

| $\begin{aligned} & \text { Catch } \\ & \text { Year } \\ & \hline \end{aligned}$ | Est \# of CWT | Ages | AABM Fishery |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | $\begin{aligned} & \text { SEAK } \\ & \mathrm{T}, \mathrm{~N}, \mathrm{~S} \\ & \hline \end{aligned}$ | $\begin{gathered} \text { NBC } \\ \mathrm{T}, \mathrm{~S} \\ \hline \end{gathered}$ | $\begin{gathered} \text { WCVI } \\ \mathrm{T}, \mathrm{~S} \\ \hline \end{gathered}$ | NBC \& CBC <br> T,N,S |  | N |  |  |  | $\begin{gathered} \text { S Falcon } \\ \mathrm{T} \& \mathrm{~S} \\ \hline \end{gathered}$ | WAC N |  |  | $\begin{aligned} & \mathrm{SEAK} \\ & \mathrm{~T}, \mathrm{~N}, \mathrm{~S} \\ & \hline \end{aligned}$ |  |  | $\begin{gathered} \text { US } \\ \text { South } \\ \mathrm{T}, \mathrm{~N}, \mathrm{~S} \end{gathered}$ | 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 | 11.4 | 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 | 1856 | 2,3,4,5 | 10.0 | 12.1 | 2.0 | 0.0 | 0.0 | 1.2 | 8.4 | 0.5 | 0.0 | 0.0 | 0.0 | 0.3 | 0.3 | 0.0 | 9.3 | 2.9 | 0.0 | 0.1 | 53.1 |
| 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 | 4.5 | 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 | 0.4 | 0.0 | 2.5 | 2.1 | 0.0 | 0.9 | 60.9 |
| 2014 | 4669 | 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 | 0.5 | 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 | 0.7 | 0.0 | 2.9 | 3.1 | 0.1 | 1.4 | 64.8 |
| 2016 | 2152 | 2,3,4,5 | 12.1 | 11.7 | 2.8 | 0.5 | 0.0 | 0.4 | 5.8 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 2.6 | 2.0 | 0.3 | 0.0 | 61.4 |
| 2017 | 3049 | 2,3,4,5 | 14.0 | 11.2 | 3.6 | 0.0 | 0.0 | 0.2 | 10.8 | 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 | 5075 | 2,3,4,5 | 5.1 | 5.9 | 2.8 | 0.1 | 0.0 | 1.4 | 8.4 | 0.2 | 0.2 | 0.0 | 0.0 | 0.5 | 0.6 | 0.0 | 5.0 | 2.9 | 0.0 | 0.3 | 66.8 |
| 2019 | 6950 | 2,3,4,5 | 3.3 | 1.6 | 0.6 | 1.0 | 0.0 | 0.4 | 4.0 | 0.3 | 0.1 | 0.0 | 0.0 | 0.2 | 0.9 | 0.0 | 3.4 | 2.9 | 0.0 | 0.9 | 80.4 |
| 2020 | 6367 | 2,3,4,5 | 5.9 | 0.5 | 1.2 | 0.4 | 0.0 | 1.0 | 3.2 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 1.7 | 5.9 | 0.1 | 1.2 | 78.5 |
| 09-18 | 3570 | 2,3,4,5 | 10.0 | 10.2 | 2.5 | 0.4 | 0.0 | 0.9 | 8.4 | 0.7 | 0.2 | 0.0 | 0.0 | 0.4 | 0.6 | 0.0 | 5.7 | 2.9 | 0.1 | 0.5 | 56.7 |
| 19-20 | 6658 | 2,3,4,5 | 4.6 | 1.0 | 0.9 | 0.7 | 0.0 | 0.7 | 3.6 | 0.2 | 0.1 | 0.0 | 0.0 | 0.1 | 0.6 | 0.0 | 2.6 | 4.4 | 0.0 | 1.1 | 79.5 |

Table 5.5-Percent distribution of Lower Shuswap River AEQ total fishing mortalities and escapement to represent unmarked fish when recoveries with incomplete data were assumed to have been caught in MSFs.
Note: Troll, Net, and Sport (T,N,S) were combined for SEAK, NBC, and WCVI AABMs; S Falcon ISBM; and SEAK and Southern US Terminal. The green shading identifies the CYER values where MSFs s did not change from the original 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 | Southern BC |  |  | N Falcon |  | $\begin{gathered} \text { S Falcon } \\ \mathrm{T} \& \mathrm{~S} \\ \hline \end{gathered}$ | WAC $\mathrm{N}$ | Puget Sd |  | $\begin{aligned} & \text { SEAK } \\ & \mathrm{T}, \mathrm{~N}, \mathrm{~S} \\ & \hline \end{aligned}$ | Canada |  | $\begin{gathered} \hline \text { US } \\ \text { South } \\ \mathrm{T}, \mathrm{~N}, \mathrm{~S} \\ \hline \end{gathered}$ | 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 | 11.4 | 13.6 | 0.5 | 0.3 | 0.0 | 0.0 | 8.8 | 0.2 | 0.1 | 0.1 | 0.0 | 1.2 | 0.0 | 0.0 | 9.5 | 1.9 | 0.3 | 1.2 | 50.9 |
| 2011 | 1856 | 2,3,4,5 | 10.0 | 12.1 | 2.0 | 0.0 | 0.0 | 1.2 | 8.4 | 0.5 | 0.0 | 0.0 | 0.0 | 0.3 | 0.3 | 0.0 | 9.3 | 2.9 | 0.0 | 0.1 | 53.1 |
| 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 | 4.5 | 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 | 0.4 | 0.0 | 2.5 | 2.1 | 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 | 0.5 | 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 | 0.7 | 0.0 | 2.9 | 3.1 | 0.1 | 1.4 | 64.8 |
| 2016 | 2153 | 2,3,4,5 | 12.1 | 11.7 | 2.8 | 0.5 | 0.0 | 0.4 | 5.8 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 2.6 | 2.0 | 0.3 | 0.0 | 61.4 |
| 2017 | 3049 | 2,3,4,5 | 14.0 | 11.2 | 3.6 | 0.0 | 0.0 | 0.2 | 10.6 | 0.2 | 0.3 | 0.0 | 0.0 | 0.0 | 0.8 | 0.0 | 2.5 | 1.7 | 0.1 | 0.5 | 54.3 |
| 2018 | 5075 | 2,3,4,5 | 5.1 | 5.9 | 2.8 | 0.1 | 0.0 | 1.4 | 8.1 | 0.2 | 0.2 | 0.0 | 0.0 | 0.5 | 0.6 | 0.0 | 5.0 | 2.9 | 0.0 | 0.3 | 67.0 |
| 2019 | 6950 | 2,3,4,5 | 3.3 | 1.6 | 0.6 | 1.0 | 0.0 | 0.4 | 4.0 | 0.3 | 0.1 | 0.0 | 0.0 | 0.2 | 0.9 | 0.0 | 3.4 | 2.9 | 0.0 | 0.9 | 80.4 |
| 2020 | 6367 | 2,3,4,5 | 5.9 | 0.5 | 1.2 | 0.4 | 0.0 | 1.0 | 3.2 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 1.7 | 5.9 | 0.1 | 1.2 | 78.5 |
| 09-18 | 3570 | 0 | 10.0 | 10.2 | 2.5 | 0.4 | 0.0 | 0.9 | 8.3 | 0.7 | 0.2 | 0.0 | 0.0 | 0.4 | 0.6 | 0.0 | 5.7 | 2.9 | 0.1 | 0.5 | 56.7 |
| 19-20 | 6658 | 0 | 4.6 | 1.0 | 0.9 | 0.7 | 0.0 | 0.7 | 3.6 | 0.2 | 0.1 | 0.0 | 0.0 | 0.1 | 0.6 | 0.0 | 2.6 | 4.4 | 0.0 | 1.1 | 79.5 |

Table 5.6-Percent distribution of Middle Shuswap River AEQ total fishing mortalities and escapement to represent unmarked fish when recoveries with incomplete data were assumed to have been caught in NSFs.
Note: Troll, Net, and Sport (T,N,S) were combined for SEAK, NBC, and WCVI AABMs; S Falcon ISBM; and SEAK and US South Terminal. The green shading identifies the CYER values where MSFs s did not change from the original MDTs for the marked stock and the yellow shading identifies revised CYERs.

| 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 | Puget Sd |  | SEAK | Canada |  | US South |  |  |
|  |  |  | T,N,S | T, S | T, S | T,N,S | T | N | S | T | S | T, S | N | N | S | T,N,S | N | S | 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 | 295 | 2,3,4 | 9.8 | 19.0 | 2.4 | 0.3 | 0.0 | 0.7 | 13.6 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.0 | 2.7 | 0.0 | 1.4 | 36.2 |
| 2013 | 1700 | 2,3,4,5 | 2.9 | 11.5 | 0.9 | 0.1 | 0.0 | 1.1 | 14.7 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.1 | 3.7 | 0.0 | 1.3 | 60.6 |
| 2014 | 1218 | 2,3,4,5 | 10.3 | 12.4 | 5.3 | 0.5 | 0.0 | 1.5 | 7.7 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.1 | 4.9 | 0.0 | 0.5 | 53.1 |
| 2015 | 2079 | 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 | 4.8 | 61.7 |
| 2016 | 407 | 2,3,4,5 | 4.2 | 11.5 | 0.7 | 2.5 | 0.0 | 0.5 | 13.8 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.3 | 0.0 | 0.0 | 4.9 | 50.9 |
| 2017 | 473 | 2,3,4,5 | 9.7 | 8.0 | 1.5 | 0.8 | 0.0 | 0.0 | 15.4 | 0.4 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 4.2 | 3.8 | 0.0 | 0.8 | 54.8 |
| 2018 | 1322 | 2,3,4,5 | 1.2 | 3.0 | 3.0 | 0.0 | 0.0 | 1.2 | 15.6 | 0.3 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 6.7 | 1.8 | 0.0 | 0.8 | 66.3 |
| 2019 | 1044 | 2,3,4,5 | 0.5 | 0.9 | 0.7 | 0.8 | 0.0 | 0.5 | 1.9 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 0.0 | 0.8 | 3.8 | 0.0 | 5.2 | 84.1 |
| 2020 | 1809 | 2,3,4,5 | 3.3 | 0.0 | 0.0 | 5.2 | 0.0 | 1.3 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 0.0 | 5.5 | 9.6 | 0.0 | 1.8 | 69.9 |
| 99-08 | 1071 | 2,3,4,5 | 6.4 | 9.9 | 2.1 | 0.6 | 0.0 | 0.9 | 12.4 | 0.8 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 | 8.4 | 2.7 | 0.0 | 1.8 | 53.8 |
| 09-18 | 1426 | 2,3,4,5 | 1.9 | 0.4 | 0.3 | 3.0 | 0.0 | 0.9 | 2.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 3.1 | 6.7 | 0.0 | 3.5 | 77.0 |

Table 5.7-Percent distribution of Middle Shuswap River AEQ total fishing mortalities and escapement to represent unmarked fish when recoveries with incomplete data were assumed to have been caught in MSFs.
Note: Troll, Net, and Sport (T,N,S) were combined for SEAK, NBC, and WCVI AABMs; S Falcon ISBM; and SEAK and US South Terminal. The pink shading identifies the CYER values where MSFs s did not change from the original MDTs for the marked stock and the yellow shading identifies revised CYERs.

| Catch <br> Year | Est <br> \# of CWT | Ages | AABM Fishery |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEAK | NBC | WCVI | NBC \& CBC | Southern BC |  |  | N Falcon |  | S Falcon T,S | WAC <br> N | Puget Sd |  | SEAK | Canada |  | US South T,N,S |  |  |
|  |  |  | T,N,S | T, S | T, S | T,N,S | T | N | S | T | S |  |  | N | S | T,N,S | 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 | 295 | 2,3,4 | 9.8 | 19.0 | 2.4 | 0.3 | 0.0 | 0.7 | 12.2 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.3 | 2.8 | 0.0 | 1.4 | 37.2 |
| 2013 | 1700 | 2,3,4,5 | 2.9 | 11.5 | 0.9 | 0.1 | 0.0 | 1.1 | 14.7 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.1 | 3.7 | 0.0 | 1.3 | 60.6 |
| 2014 | 1218 | 2,3,4,5 | 10.3 | 12.4 | 5.3 | 0.5 | 0.0 | 1.5 | 7.7 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.1 | 4.9 | 0.0 | 0.5 | 53.1 |
| 2015 | 2079 | 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 | 4.8 | 61.7 |
| 2016 | 407 | 2,3,4,5 | 4.2 | 11.5 | 0.7 | 2.5 | 0.0 | 0.5 | 13.8 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.3 | 0.0 | 0.0 | 4.9 | 50.9 |
| 2017 | 473 | 2,3,4,5 | 9.7 | 8.0 | 1.5 | 0.8 | 0.0 | 0.0 | 14.4 | 0.4 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 4.3 | 3.9 | 0.0 | 0.8 | 55.7 |
| 2018 | 1322 | 2,3,4,5 | 1.2 | 3.0 | 3.0 | 0.0 | 0.0 | 1.2 | 15.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 6.8 | 1.8 | 0.0 | 0.8 | 66.8 |
| 2019 | 1044 | 2,3,4,5 | 0.5 | 0.9 | 0.7 | 0.8 | 0.0 | 0.5 | 1.9 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 0.0 | 0.8 | 3.8 | 0.0 | 5.2 | 84.1 |
| 2020 | 1809 | 2,3,4,5 | 3.3 | 0.0 | 0.0 | 5.2 | 0.0 | 1.3 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 0.0 | 5.5 | 9.6 | 0.0 | 1.8 | 69.9 |
| 99-08 | 1071 | 2,3,4,5 | 6.4 | 9.9 | 2.1 | 0.6 | 0.0 | 0.9 | 12.0 | 0.8 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 | 8.4 | 2.8 | 0.0 | 1.8 | 54.1 |
| 09-18 | 1041 | 2,3,4,5 | 1.9 | 0.4 | 0.3 | 3.0 | 0.0 | 0.9 | 2.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 3.1 | 6.7 | 0.0 | 3.5 | 77.0 |

Table 5.8-Average absolute changes in Nicola, Lower Shuswap, and Middle Shuswap CYERs (2002, 2008-2020) when CWT recoveries with incomplete data were assumed to have been caught in NSF or MSF.

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

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# Appendix A: ReLationship between exploitation rate indicator stocks, escapement indicator stocks, and model stocks in the Pacific Salmon Treaty 

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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/Acronym |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Transboundary Rivers (TBR) | Spring | Yes | Taku (19,000-36,000) | Taku | TAK | Taku and Stikine |  |
|  |  | Yes | Stikine (14,000-28,000) | Stikine | STI | Taku and Stikine |  |
|  |  | Yes | Alsek (3,500-5,300) |  |  | Alsek | ALS |
| Southeast <br> Alaska (SEAK) |  | Yes | Situk (500-1,000) |  |  | 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 <br> 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 /Acronym |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Northern BC (NBC) | Summer | No | Nass | Kitsumkalum (Deep Creek Hatchery) | KLM | Northern BC | NBC |
|  |  | Yes | Skeena (TBD) |  |  |  |  |
| $\begin{aligned} & \text { Central BC } \\ & \text { (CBC) } \end{aligned}$ | Fall | No | Wannock | Atnarko <br> (Snootli Hatchery) | ATN | Central BC | CBC |
|  | Summer |  | 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 (2016), CTC (2019; ISBM Subgroup Technical Note) and CTC 2021d.

## 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 /Ac |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Fraser River | Spring | Yes | Nicola (TBD) | Nicola (Spius Creek Hatchery) | NIC | Fraser Spring 1.2 | FS2 |
|  |  |  |  | Dome (Penny Creek Hatchery) | 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 |
|  |  |  |  | Middle Shuswap (Shuswap Falls Hatchery) | MSH |  |  |
|  |  | Yes | Chilko (TBD) | Chilko (in development) | CKO | Fraser Summer Streamtype 1.3 | FSS |
|  | Fall |  |  | 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 | QUI | Upper Strait of Georgia | UGS |
|  |  | Yes | East Vancouver Island North (TBD) |  | $\begin{array}{\|l\|} \hline \text { QUI } \\ (\text { (adj })^{1} \end{array}$ |  |  |
|  |  | Yes | Phillips | Phillips <br> (Gillard Pass Hatchery) | PHI |  |  |
| South Strait of Georgia | Fall |  | Cowichan (6,500) | Big Qualicum Hatchery | BQR | Middle Strait of Georgia | MGS |
|  |  | Yes |  | Cowichan Hatchery | COW | Lower Strait of Georgia | LGS |
|  |  |  |  | Nanaimo Hatchery | NAN |  |  |
|  | Summer |  |  | Puntledge Hatchery | PPS | Puntledge Hatchery | PPS |

${ }^{1}$ CWT indicator stocks and fishery adjustments described in CTC (2016), CTC (2019; ISBM Subgroup Technical Note) and CTC 2021d.

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 |  |  |
|  | Fall |  |  | 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 Puget Sound | Fall | No | Lake Washington |  |  | Puget Sound Natural Fingerling | PSN |
|  |  | No | Green | Green River Fingerling ${ }^{1}$ (Soos Creek Hatchery) | GRN ${ }^{1}$ |  |  |
| Hood Canal |  |  |  | George Adams Hatchery Fall Fingerling | GAD | Puget Sound Hatchery Fingerling | PSF |
| Southern <br> Puget Sound (SPS) |  |  |  | SPS Fall Fingerling ${ }^{1}$ | SPS ${ }^{1}$ |  |  |
|  |  |  |  | Nisqually Fall Fingerling (Clear Creek Hatchery) | NIS |  |  |
|  |  |  |  |  |  | Puget Sound Hatchery Yearling | PSY |
|  | Spring |  |  | White River Hatchery Spring Yearling | WRY |  |  |

${ }^{1}$ 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.

## 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 |  |  | Elwha Fall Fingerling (Lower Elwha Hatchery) | ELW |  |  |
| Washington Coast (WAC) |  | Yes | Hoko (TBD) | Hoko Fall Fingerling (Hoko Falls Hatchery) | HOK |  |  |
|  |  | Yes | Queets Fall $(2,500)$ | Queets Fall Fingerling <br> (Salmon River brood stock) | $\begin{aligned} & \text { QUE } \\ & \text { QUE } \\ & \text { (adj) } \end{aligned}$ | WA Coastal Wild | WCN |
|  |  | Yes | Grays Harbor Fall $(13,326)$ |  |  |  |  |
|  |  | Yes | Quillayute Fall $(3,000)$ |  |  |  |  |
|  |  | Yes | Hoh Fall (1,200) |  |  |  |  |
|  |  |  |  |  |  | WA Coastal Hatchery | WCH |
|  |  |  |  | Tsoo-Yess Fall Fingerling (Makah National Fish Hatchery) | SOO |  |  |
|  | Spring | No | Grays Harbor Spring ${ }^{1}$ |  |  |  |  |
|  | Spring/ Summer | No | Queets Spring/Summer (700) ${ }^{1}$ |  |  |  |  |
|  | Summer | No | Quillayute Summer ${ }^{1}$ |  |  |  |  |
|  | Spring/ Summer | No | Hoh Spring/Summer (900) ${ }^{1}$ |  |  |  |  |

[^5]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 /Acronym |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Columbia River | Spring |  |  |  |  | Cowlitz Spring Hatchery | CWS |
|  |  |  |  | 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 |
|  | Fall | Yes | Upriver Brights (40,000) | Columbia Upriver Brights (Priest Rapids Hatchery) | URB | Mid-Columbia Brights | MCB |
|  |  |  |  |  |  | Columbia Upriver Brights | URB |
|  |  |  |  | Hanford Wild | HAN |  |  |
|  |  |  |  | Lyons Ferry Fingerling | LYF | Lyons Ferry Hatchery | LYF |
|  |  |  |  | Lyons Ferry Year | LYY |  |  |
|  |  | Yes | Lewis (5,700) | Lewis River Wild | LRW | Lewis River | LRW |
|  |  | Yes | Coweeman (TBD) | Cowlitz Hatchery Fall Tule | CWF | Cowlitz Hatchery | CWF |
|  |  |  |  | Spring Creek National Fish Hatchery | SPR | Spring Creek | SPR |
|  |  |  |  | Lower River Hatchery (Big Creek Hatchery) | LRH | Bonneville Hatchery | BON |
| North Oregon Coast (NOC) | Fall | Yes | Nehalem (6,989) | Salmon River Hatchery (adj) | $\begin{aligned} & \text { SRH } \\ & \text { (adj) } \end{aligned}$ | North Oregon Coast | NOC |
|  |  | Yes | Siletz ( 2,944 ) |  |  |  |  |
|  |  | Yes | Siuslaw (12,925) |  |  |  |  |
| Mid-Oregon Coast (MOC) |  | Yes | Coquille (TBD) | Elk River Hatchery (adj) | ELK <br> (adj) | Mid-Oregon Coast | MOC |
|  |  | Yes | South Umpqua (TBD) |  |  |  |  |

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

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

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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 |
| $\begin{aligned} & A E Q_{B Y, a, f} \\ & A E Q_{B Y, M a x a g e, f}=1.0 \end{aligned}$ | 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 |
| $B^{\prime}$ P $^{\text {BY, } f}$ | brood year exploitation rate in adult equivalents for brood year $B Y$ and fishery $f$ |
| BY | brood year |
| Cohort $_{\text {Br,a }}$ | cohort by brood year BY and age $a$ (where stock is implied from context) |
| Cohort ${ }_{\text {s, }, \text { Y,a }}$ | cohort by stock s, brood year BY and age a (where stocks are defined explicitly in a summation) |
| CohSurv $_{\text {BV }, ~}^{\text {a }}$ =2or 3 | cohort survival of CWT fish to age 2 or 3 for brood year BY |
| CY | calendar year |
| CYDist $_{\text {CY,F }}$ | 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 $a$ |
| $E R_{s, a, f, c Y}$ | 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 |
| $f \in\left\{F_{p, 1 \text { ISM }}\right\}$ | a fishery $f$ within the set of each party's ( $p$ ) ISBM fisheries $F$ |
| $F I_{f, C \gamma}$ | 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 $f$ |
| $N M_{a}$ | 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 |
| $S^{\text {Surva }}$ | survival rate (1-NMa) by age |
| TotMorts ${ }_{s, r, r, f}$ | 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 |  |
| :--- | :--- |
| $A_{t, C Y}$ | 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 YEARMortality distribution tables show the percent of estimated landed catch or total mortality for individual stocks attributed to specific fisheries. 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 non-retention (CNR) 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 $100 \%$.

Minimum criteria for reporting of distributions were applied to each calendar year and data that did not meet the minimum criteria (at least 3 ages and 105 estimated CWT recoveries) were either omitted or shaded. 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 interdam 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

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

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.

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Appendix C1— Percent distribution of Atnarko River 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 | 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 | 788 | 2,3,4,5 | 11.8 | 0.1 | 0.6 | 3.0 | 1.8 | 0.0 | 0.0 | 0.0 | 13.8 | 7.0 | 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 | 6.2 | 2.2 | 0.0 | 0.0 | 0.0 | 0.0 | 52.9 |
| 2011 | 558 | 2,3,4,5 | 14.2 | 0.0 | 0.5 | 8.4 | 3.2 | 0.0 | 0.0 | 0.0 | 22.0 | 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 | 2417 | 2,3,4,5 | 5.5 | 0.5 | 0.5 | 1.9 | 3.2 | 0.0 | 0.0 | 0.0 | 11.3 | 1.5 | 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 | 5.5 | 7.1 | 0.0 | 0.0 | 0.0 | 0.0 | 62.7 |
| 2014 | 3228 | 2,3,4,5 | 6.4 | 0.6 | 0.4 | 2.8 | 2.1 | 0.2 | 0.2 | 0.0 | 7.0 | 4.1 | 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 | 7.0 | 4.9 | 0.0 | 0.0 | 0.0 | 0.0 | 64.3 |
| 2015 | 8416 | 2,3,4,5 | 3.9 | 0.0 | 0.7 | 1.0 | 2.5 | 0.2 | 0.0 | 0.0 | 7.9 | 3.5 | 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 | 4.4 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 73.9 |
| 2016 | 4695 | 2,3,4,5 | 4.9 | 1.3 | 0.9 | 1.1 | 3.1 | 0.3 | 0.0 | 0.0 | 4.3 | 4.0 | 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 | 6.0 | 4.9 | 0.0 | 0.0 | 0.0 | 0.0 | 69.2 |
| 2017 | 1958 | 2,3,4,5 | 5.9 | 0.2 | 0.8 | 2.2 | 2.1 | 0.2 | 0.0 | 0.0 | 12.7 | 3.3 | 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 | 9.2 | 4.2 | 0.0 | 0.0 | 0.0 | 0.0 | 58.9 |
| 2018 | 2122 | 2,3,4,5 | 2.8 | 0.0 | 0.5 | 0.8 | 1.1 | 0.1 | 0.0 | 0.0 | 18.0 | 1.1 | 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 | 5.8 | 2.2 | 0.0 | 0.0 | 0.0 | 0.0 | 67.2 |
| 2019 | 2259 | 2,3,4,5 | 1.5 | 0.0 | 0.8 | 0.0 | 2.5 | 0.0 | 0.8 | 0.0 | 17.0 | 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 | 5.7 | 8.3 | 0.0 | 0.0 | 0.0 | 0.0 | 59.5 |
| 2020 | 2361 | 3,4,5 | 2.8 | 0.2 | 0.1 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 9.2 | 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 | 3.5 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 77.8 |
| 79-84 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - | - | - | - | - | - | - | - |  | - |
| 85-95 | 1215 |  | 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 | 1429 |  | 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 | 2570 |  | 7.8 | 0.3 | 0.6 | 2.7 | 2.5 | 0.1 | 0.0 | 0.0 | 13.7 | 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 | 3.1 | 0.0 | 0.0 | 0.0 | 0.0 | 58.6 |
| 19-28 | 2310 |  | 2.2 | 0.1 | 0.4 | 0.0 | 1.3 | 0.0 | 0.4 | 0.0 | 13.1 | 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 | 4.6 | 4.6 | 0.0 | 0.0 | 0.0 | 0.0 | 68.6 |

Appendix C2- Percent distribution of Atnarko Yearling AEQ total fishing mortalities and escapement.

| Catch Year | $\begin{aligned} & \hline \text { Est } \\ & \text { \# of } \\ & \text { CWT } \\ & \hline \end{aligned}$ | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | on |  | S Falcon |  | $\begin{gathered} \text { WAC } \\ \mathrm{N} \end{gathered}$ | Puget Sd |  | SEAK |  |  | Canada |  | Southern US |  |  | Stray | Esc. |
|  |  |  | T | N | S | T | 5 | T | S | T | N | S | T | N | S | T | S | T | S |  | N | S | T | N | s | N | S | T | N | S |  |  |
| 2009 | 2 | 2 | Failed Criteria |  |  | - |  | - | - |  | - | - | - | - | - | - | - | - - |  | - | - - |  |  | - | - | - | - | - | - - |  | - - |  |
| 2010 | 36 | 2,3 | 25.0 | 2.8 | 5.6 | 8.3 | 13.9 | 0.0 | 0.0 | 0.0 | 0.0 | 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 | 2.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 36.1 |
| 2011 | 95 | 2,3,4 | 22.1 | 5.3 | 2.1 | 5.3 | 5.3 | 0.0 | 0.0 | 0.0 | 2.1 | 12.6 | 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 | 5.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 40.0 |
| 2012 | 808 | 2,3,4,5 | 11.5 | 0.9 | 1.5 | 6.1 | 3.6 | 0.0 | 0.0 | 0.0 | 20.5 | 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 | 7.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 46.0 |
| 2013 | 2316 | 2,3,4,5 | 4.7 | 0.3 | 0.7 | 2.1 | 4.5 | 0.3 | 0.0 | 0.0 | 11.8 | 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 | 4.7 | 3.2 | 0.0 | 0.0 | 0.0 | 0.0 | 66.0 |
| 2014 | 1349 | 3,4,5 | 8.1 | 0.2 | 0.7 | 4.4 | 3.7 | 0.0 | 0.0 | 0.0 | 9.6 | 2.4 | 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 | 5.7 | 6.2 | 0.0 | 0.0 | 0.0 | 0.0 | 58.8 |
| 2015 | 1915 | 4,5 | 3.2 | 0.2 | 0.7 | 0.3 | 2.8 | 0.2 | 0.0 | 0.0 | 9.2 | 3.8 | 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 | 4.3 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 74.2 |
| 2016 | 430 | 5 |  | ed Crit | eria | - | - |  | - | - | - | - | - | - | - |  | - | - | - | - | - | - |  | - | - | - |  |  |  | - |  |  |
| 2017 | NA |  | - | - | - | - | - |  | - | - | - | - | - | - | - |  | - | - | - | - | - |  |  | - | - | - |  |  |  | - |  |  |
| 2018 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - |
| 2019 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  |  |
| 2020 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - |
| 79-84 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - |
| 85-95 | 345 |  | 9.0 | 0.0 | 0.0 | 3.2 | 3.5 | 0.0 | 0.0 | 0.0 | 24.9 | 1.4 | 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 | 3.8 | 2.3 | 0.0 | 0.0 | 0.0 | 0.0 | 51.6 |
| 96-98 | 623 |  | 5.3 | 0.5 | 0.2 | 0.3 | 0.6 | 0.0 | 0.0 | 0.0 | 14.8 | 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 | 5.1 | 5.3 | 0.0 | 0.0 | 0.0 | 0.0 | 66.8 |
| 99-08 | NA |  | - | - | - | - | - | - |  | - | - | - | - | - | - | - | - | - | - | - | - |  | - | - | - | - | - | - | - | - | - |  |
| 09-18 | 1491 |  | 8.1 | 0.4 | 1.0 | 4.2 | 3.9 | 0.1 | 0.0 | 0.0 | 14.0 | 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 | 5.8 | 3.2 | 0.0 | 0.0 | 0.0 | 0.0 | 56.9 |
| 19-28 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - | - | - | - | - | - | - | - | - | - |

Appendix C3 - Percent distribution of Big Qualicum River Fall 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 | 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 | 904 | 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 | 26.9 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.6 | 0.0 | 0.2 | 60.7 |
| 2014 | 1939 | 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 | 0.1 | 44.3 |
| 2015 | 2055 | 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 | 1134 | 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 | 696 | 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 | 18.4 | 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 | 0.1 | 73.1 |
| 2018 | 265 | 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 | 33.2 | 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 | 61.1 |
| 2019 | 382 | 2,3,4,5 | 1.3 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.7 | 0.0 | 0.0 | 38.2 | 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 | 49.2 |
| 2020 | 464 | 2,3,4,5 | 3.0 | 0.4 | 0.2 | 0.6 | 0.0 | 0.0 | 2.6 | 0.0 | 0.0 | 6.9 | 0.0 | 0.0 | 33.2 | 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 | 1.1 | 51.9 |
| 79-84 | 1930 |  | 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 | 26.2 | 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 | 423 |  | 2.2 | 0.6 | 0.1 | 0.3 | 0.0 | 0.0 | 1.3 | 0.0 | 0.0 | 8.3 | 0.0 | 0.0 | 35.7 | 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 | 0.5 | 50.6 |

Appendix C4- Percent distribution of Chilliwack River Fall 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 | 2986 | 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 | 6390 | 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 | 5879 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 3.7 | 2.4 | 0.0 | 0.0 | 0.2 | 0.0 | 0.9 | 3.8 | 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 | 79.9 |
| 2012 | 5612 | 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 | 13025 | 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 | 11945 | 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 | 6332 | 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 | 1.0 | 71.6 |
| 2016 | 6941 | 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 | 5664 | 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 | 5890 | 2,3,4,5 | 0.2 | 0.0 | 0.0 | 0.3 | 0.0 | 0.5 | 1.1 | 0.0 | 0.0 | 0.2 | 0.0 | 0.8 | 23.2 | 5.2 | 0.3 | 0.0 | 0.0 | 0.0 | 0.4 | 1.0 | 0.0 | 0.0 | 0.0 | 1.4 | 2.6 | 0.0 | 0.1 | 0.0 | 0.0 | 62.7 |
| 2019 | 10765 | 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 | 0.3 | 8.5 | 1.8 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 1.9 | 0.0 | 0.0 | 0.0 | 0.2 | 7.4 | 0.0 | 0.0 | 0.0 | 0.1 | 77.9 |
| 2020 | 8485 | 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 | 0.4 | 14.9 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 2.1 | 15.3 | 0.0 | 0.0 | 0.0 | 0.4 | 64.8 |
| 79-84 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 85-95 | 2270 |  | 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 | 2458 |  | 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 | 3971 |  | 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 | 7066 |  | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 1.7 | 1.9 | 0.0 | 0.0 | 0.1 | 0.0 | 0.7 | 11.3 | 3.4 | 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 | 69.1 |
| 19-28 | 9625 |  | 0.2 | 0.2 | 0.0 | 0.1 | 0.0 | 0.5 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 11.7 | 0.9 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 0.0 | 0.0 | 0.0 | 1.1 | 11.4 | 0.0 | 0.0 | 0.0 | 0.2 | 71.4 |

Appendix C5 - Percent distribution of Chilkat River 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 | 567 | 3,4,5,6 | 3.5 | 1.8 | 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 | 303 | 3,4,5,6 | 4.6 | 10.6 | 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 | 75.6 |
| 2011 | 355 | 3,4,5,6 | 7.3 | 7.0 | 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 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 79.2 |
| 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 | 339 | 3,4,5,6 | 1.5 | 10.6 | 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 | 87.9 |
| 2014 | 229 | 3,4,5,6 | 0.0 | 21.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 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 |
| 2015 | 297 | 3,4,5,6 | 2.4 | 8.1 | 5.7 | 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 | 83.8 |
| 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 | 215 | 3,4,5,6 | 4.2 | 3.3 | 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 | 90.2 |
| 2018 | 219 | 3,4,5,6 | 0.0 | 9.6 | 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 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 87.2 |
| 2019 | 348 | 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 | 385 | 4,5,6 | 0.8 | 2.1 | 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 |
| 79-84 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 85-95 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - | - |
| 96-98 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 99-08 | 451 |  | 4.6 | 5.7 | 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 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 78.5 |
| 09-18 | 289 |  | 3.4 | 8.5 | 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 | 84.5 |
| 19-28 | 366 |  | 1.7 | 1.0 | 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 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 96.9 |

Appendix C6- Percent distribution of Cowichan River Fall 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 | 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 | 1249 | 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 | 1929 | 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 | 3380 | 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 | 3658 | 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 | 34.4 | 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 | 2705 | 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 | 44.4 | 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 | 1.2 | 28.5 |
| 2015 | 1316 | 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 | 3355 | 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 | 36.2 | 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 | 50.3 |
| 2017 | 3014 | 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 | 24.6 | 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 | 1.1 | 51.1 |
| 2018 | 3513 | 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 | 45.5 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 2.0 | 0.0 | 0.0 | 0.0 | 15.9 | 0.0 | 0.0 | 1.3 | 0.0 | 1.1 | 26.8 |
| 2019 | 1490 | 2,3,4,5 | 0.4 | 0.4 | 0.1 | 0.5 | 0.0 | 1.7 | 3.1 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 45.2 | 0.9 | 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 | 36.4 |
| 2020 | 3263 | 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 | 17.9 | 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 | 0.3 | 78.9 |
| 79-84 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 85-95 | 3009 |  | 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 | 2472 |  | 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 | 2376 |  | 0.3 | 0.2 | 0.0 | 0.4 | 0.0 | 1.0 | 1.6 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 31.5 | 0.4 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 2.6 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 1.1 | 0.0 | 0.4 | 57.6 |

Appendix C7- Percent distribution of Cowlitz Fall Tule 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 | 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 | 1377 | 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 | 451 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 4.7 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.9 | 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 | 13.1 | 0.4 | 69.8 |
| 2019 | 732 | 2,3,4,5 | 2.2 | 1.9 | 0.0 | 0.0 | 0.0 | 0.4 | 1.2 | 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 | 81.0 |
| 2020 | 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 | 732 |  | 2.2 | 1.9 | 0.0 | 0.0 | 0.0 | 0.4 | 1.2 | 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 | 81.0 |

Appendix C8- Percent distribution of Dome Creek Spring AEQ total fishing mortalities and escapement.

| Catch Year | $\begin{aligned} & \text { Est } \\ & \text { \# of } \\ & \text { cwt } \end{aligned}$ | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEAK |  |  | NBC |  | WCV |  | NBC \& CBC |  |  | Southern BC |  |  | N Falcon |  | S Falcon |  | $\begin{gathered} \mathrm{WAC} \\ \mathrm{~N} \end{gathered}$ | 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 | NA |  | - | - | - | - | - | - | - |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2010 | NA |  | - | - | - | - | - | - | - |  | - - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - | - | - | - |  | - |
| 2011 | NA |  | - | - | - | - | - | - | - |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2012 | NA |  | - | - | - | - | - | - | - |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2013 | NA |  | - | - | - | - | - | - | - |  | - - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2014 | NA |  | - | - | - | - | - | - | - |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - |
| 2015 | NA |  | - | - | - | - | - | - | - |  | - - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  |  |
| 2016 | NA |  | - | - | - | - | - | - | - |  | - - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  |  |
| 2017 | NA |  | - | - | - | - | - | - | - |  | - - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  |
| 2018 | NA |  | - | - | - | - | - | - | - |  | - - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - |
| 2019 | NA |  | - | - | - | - | - | - | - |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2020 | NA |  | - | - | - | - | - | - | - |  | - - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  |
| 79-84 | NA |  | - | - | - | - | - | - | - |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 85-95 | 300 |  | 0.1 | 0.0 | 0.0 | 0.2 | 0.3 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 0.4 | 6.4 | 0.9 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 4.2 | 0.0 | 0.0 | 0.0 | 29.0 | 2.9 | 0.0 | 0.0 | 0.0 | 0.5 | 52.2 |
| 96-98 | 306 |  | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.3 | 0.1 | 0.0 | 0 | 0.0 | 0.0 | 0.9 | 7.2 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.7 | 0.0 | 0.0 | 0.0 | 38.1 | 3.9 | 0.0 | 0.0 | 0.0 | 0.0 | 47.7 |
| 99-08 | 204 |  | 0.0 | 0.0 | 0.0 | 5.5 | 0.0 | 3.4 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.9 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 49.0 | 2.5 | 0.0 | 0.0 | 0.0 | 0.0 | 25.7 |
| 09-18 | NA |  | - | - | - | - | - | - | - |  | - - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 19-28 | NA |  | - | - | - | - | - | - | - |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Appendix C9- Percent distribution of Elk River 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 | 3008 | 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 | 3795 | 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 | 1969 | 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 | 2781 | 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 | 5647 | 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 | 4500 | 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 | 6487 | 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 | 5763 | 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 | 2453 | 2,3,4,5 | 2.9 | 0.0 | 0.0 | 7.7 | 1.0 | 2.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 1.5 | 0.2 | 1.2 | 0.2 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.2 | 0.0 | 15.1 | 0.0 | 57.1 |
| 2018 | 1387 | 2,3,4,5 | 6.9 | 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 | 15.6 | 0.0 | 13.3 | 0.0 | 46.9 |
| 2019 | 3496 | 2,3,4,5 | 8.0 | 0.0 | 0.2 | 5.3 | 0.3 | 2.9 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 3.3 | 0.2 | 5.4 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.4 | 0.0 | 7.8 | 0.0 | 56.9 |
| 2020 | NA |  |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - | - | - |
| 79-84 | 2504 |  | 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 | 1437 |  | 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 | 5035 |  | 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 | 4666 |  | 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 | 3779 |  | 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 | 3496 |  | 8.0 | 0.0 | 0.2 | 5.3 | 0.3 | 2.9 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 3.3 | 0.2 | 5.4 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.4 | 0.0 | 7.8 | 0.0 | 56.9 |

Appendix C10- Percent distribution of South Umpqua AEQ total fishing mortalities and escapement Elk River (ELK) 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 | 3008 | 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 | 3795 | 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 | 28.7 | 0.0 | 53.9 |
| 2011 | 1969 | 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 | 32.9 | 0.1 | 44.8 |
| 2012 | 2781 | 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 | 30.5 | 0.0 | 45.8 |
| 2013 | 5647 | 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 | 27.4 | 0.0 | 45.2 |
| 2014 | 4500 | 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 | 24.8 | 0.0 | 47.3 |
| 2015 | 6487 | 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 | 18.6 | 0.1 | 71.5 |
| 2016 | 5763 | 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 | 25.5 | 0.4 | 47.4 |
| 2017 | 2453 | 2,3,4,5 | 2.9 | 0.0 | 0.0 | 7.7 | 1.0 | 2.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 1.5 | 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 | 21.1 | 0.0 | 60.3 |
| 2018 | 1387 | 2,3,4,5 | 6.9 | 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 | 19.6 | 0.0 | 56.3 |
| 2019 | 3496 | 2,3,4,5 | 8.0 | 0.0 | 0.2 | 5.3 | 0.3 | 2.9 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 3.3 | 0.2 | 5.4 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 26.4 | 0.0 | 47.8 |
| 2020 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 79-84 | 2504 |  | 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 | 1437 |  | 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 | 5035 |  | 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 |
| $9 \mathrm{f8}$ | 4666 |  | 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 | 3779 |  | 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 | 25.0 | 0.1 | 53.4 |
| 19-28 | 3496 |  | 8.0 | 0.0 | 0.2 | 5.3 | 0.3 | 2.9 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 3.3 | 0.2 | 5.4 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 26.4 | 0.0 | 47.8 |

Appendix C11- Percent distribution of Coquille AEQ total fishing mortalities and escapement Elk River (ELK) CWT recoveries with terminal adjustments for basin-specific performance.

|  | Est |  | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Catch | \# of |  | 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 | 3008 | 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 | 3795 | 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 | 8.0 | 0.0 | 74.6 |
| 2011 | 1969 | 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 | 2781 | 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 | 21.7 | 0.0 | 54.6 |
| 2013 | 5647 | 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 | 4500 | 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 | 53.9 |
| 2015 | 6487 | 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 | 62.1 |
| 2016 | 5763 | 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 | 14.5 | 0.4 | 58.4 |
| 2017 | 2453 | 2,3,4,5 | 2.9 | 0.0 | 0.0 | 7.7 | 1.0 | 2.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 1.5 | 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 | 17.4 | 0.0 | 64.1 |
| 2018 | 1387 | 2,3,4,5 | 6.9 | 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 | 45.3 | 0.0 | 30.7 |
| 2019 | 3496 | 2,3,4,5 | 8.0 | 0.0 | 0.2 | 5.3 | 0.3 | 2.9 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 3.3 | 0.2 | 5.4 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 42.3 | 0.0 | 31.9 |
| 2020 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 79-84 | 2504 |  | 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 | 1437 |  | 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 | 5035 |  | 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 | 4666 |  | 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 | 60.9 |
| 09-18 | 3779 |  | 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 | 20.6 | 0.1 | 57.8 |
| 19-28 | 3496 |  | 8.0 | 0.0 | 0.2 | 5.3 | 0.3 | 2.9 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 3.3 | 0.2 | 5.4 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 42.3 | 0.0 | 31.9 |

Appendix C12- Percent distribution of Elwha River 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 |  | $\begin{gathered} \text { WAC } \\ \mathrm{N} \end{gathered}$ | 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 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2010 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2011 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2012 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2013 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2014 | 16 | 2 |  | ed Cri | teria | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 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 | 309 | 2,3,4 | 4.9 | 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 | 0.0 | 69.6 |
| 2017 | 212 | 2,3,4,5 | 4.2 | 0.0 | 1.9 | 1.9 | 2.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 15.6 | 0.0 | 2.4 | 0.0 | 0.0 | 0.0 | 0.0 | 10.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.3 | 57.5 |
| 2018 | 575 | 2,3,4,5 | 1.0 | 0.0 | 0.0 | 0.3 | 1.0 | 0.9 | 4.7 | 0.0 | 0.0 | 3.1 | 0.0 | 0.0 | 4.3 | 0.7 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 5.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.1 | 74.4 |
| 2019 | 725 | 2,3,4,5 | 2.8 | 0.4 | 0.7 | 0.4 | 0.4 | 0.0 | 2.6 | 0.0 | 0.0 | 1.8 | 0.0 | 0.0 | 0.0 | 1.4 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 13.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 1.4 | 73.8 |
| 2020 | 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 | 365 |  | 3.4 | 0.3 | 0.7 | 2.6 | 1.8 | 0.4 | 1.7 | 0.0 | 0.0 | 1.8 | 0.0 | 0.0 | 8.9 | 0.3 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 7.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.1 | 67.2 |
| 19-28 | 725 |  | 2.8 | 0.4 | 0.7 | 0.4 | 0.4 | 0.0 | 2.6 | 0.0 | 0.0 | 1.8 | 0.0 | 0.0 | 0.0 | 1.4 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 13.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 1.4 | 73.8 |

Appendix C13- Percent distribution of George Adams Fall Fingerling 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 | 1600 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 5.6 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.6 | 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 | 1937 | 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 | 2762 | 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 | 3137 | 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 | 1946 | 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 | 1061 | 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 | 1431 | 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 | 2323 | 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 | 3754 | 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 | 4.5 | 2.5 | 0.9 | 0.1 | 0.0 | 0.0 | 12.3 | 9.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.9 | 0.0 | 0.2 | 52.9 |
| 2018 | 4056 | 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 | 12.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.5 | 0.0 | 0.1 | 45.0 |
| 2019 | 2212 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 3.4 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 2.8 | 2.0 | 0.3 | 0.1 | 0.0 | 0.0 | 12.6 | 21.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 26.1 | 0.0 | 0.1 | 30.7 |
| 2020 | 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 | 1225 |  | 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 | 2401 |  | 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 | 2212 |  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 3.4 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 2.8 | 2.0 | 0.3 | 0.1 | 0.0 | 0.0 | 12.6 | 21.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 26.1 | 0.0 | 0.1 | 30.7 |

Appendix C14- Percent distribution of Green River 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 | 1300 | 2,3,4,5 | 0.0 | 0.1 | 0.0 | 0.2 | 0.0 | 3.6 | 5.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.6 | 1.7 | 0.5 | 0.0 | 0.0 | 0.0 | 3.0 | 10.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 23.7 | 0.5 | 0.3 | 45.3 |
| 2010 | 878 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 7.5 | 6.2 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 2.8 | 2.4 | 2.4 | 0.0 | 0.0 | 0.0 | 0.0 | 9.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.8 | 0.0 | 0.0 | 65.8 |
| 2011 | 943 | 2,3,4,5 | 0.3 | 0.1 | 0.0 | 0.0 | 0.0 | 4.9 | 6.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.3 | 1.6 | 0.4 | 0.3 | 0.0 | 0.0 | 1.5 | 20.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 17.8 | 0.0 | 0.1 | 38.8 |
| 2012 | 978 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 4.0 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.1 | 4.0 | 0.6 | 0.5 | 0.0 | 0.0 | 0.1 | 17.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.9 | 0.0 | 0.2 | 58.5 |
| 2013 | 595 | 2,3,4,5 | 0.0 | 0.8 | 0.0 | 0.0 | 0.0 | 4.4 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.2 | 5.7 | 1.3 | 0.0 | 0.0 | 0.0 | 0.7 | 14.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.5 | 0.0 | 0.0 | 57.8 |
| 2014 | 270 | 2,3,4,5 | 1.5 | 2.2 | 0.0 | 0.0 | 0.0 | 5.6 | 8.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.5 | 6.3 | 2.6 | 0.7 | 0.0 | 0.0 | 1.1 | 12.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.4 | 0.0 | 0.4 | 49.6 |
| 2015 | 592 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.4 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.9 | 10.1 | 2.4 | 0.2 | 0.0 | 0.0 | 1.4 | 19.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.4 | 0.0 | 0.2 | 45.9 |
| 2016 | 1214 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.4 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.6 | 2.4 | 0.2 | 0.0 | 0.0 | 0.0 | 0.7 | 12.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 0.0 | 0.4 | 67.4 |
| 2017 | 2162 | 2,3,4,5 | 0.3 | 0.0 | 0.2 | 0.0 | 0.0 | 3.4 | 5.5 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 4.1 | 4.2 | 1.5 | 0.8 | 0.0 | 0.0 | 0.7 | 9.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.6 | 0.0 | 0.2 | 60.0 |
| 2018 | 1963 | 2,3,4,5 | 0.2 | 0.1 | 0.3 | 0.2 | 0.3 | 2.2 | 3.5 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 10.9 | 6.0 | 0.9 | 0.1 | 0.0 | 0.0 | 0.9 | 17.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 18.3 | 0.0 | 0.0 | 38.4 |
| 2019 | 1191 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 5.9 | 0.0 | 0.0 | 0.9 | 0.0 | 0.0 | 3.6 | 2.1 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 24.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 61.1 |
| 2020 | NA |  | - | - | - | - | - | - | - |  | - | - | - | - | - | - | - | - | - | - | - |  | - | - | - | - | - | - | - | - | - | - |
| 79-84 | 1256 |  | 0.2 | 0.0 | 0.0 | 0.8 | 0.0 | 19.9 | 0.0 | 1.9 | 0.6 | 0.2 | 1.5 | 1.9 | 9.5 | 2.4 | 0.1 | 0.1 | 0.0 | 0.0 | 15.6 | 22.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.2 | 0.3 | 0.0 | 12.0 |
| 85-95 | 1298 |  | 0.3 | 0.1 | 0.0 | 0.1 | 0.0 | 15.1 | 2.7 | 0.3 | 0.6 | 0.0 | 0.4 | 2.2 | 4.5 | 6.6 | 0.2 | 0.4 | 0.0 | 0.0 | 12.3 | 17.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.0 | 0.1 | 0.1 | 24.7 |
| 96-98 | 888 |  | 1.2 | 0.0 | 0.0 | 1.0 | 0.0 | 2.6 | 2.3 | 0.0 | 0.8 | 0.1 | 0.0 | 0.2 | 4.2 | 1.8 | 0.0 | 0.3 | 0.0 | 0.0 | 8.4 | 17.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 7.0 | 0.5 | 0.1 | 52.4 |
| 99-08 | 1004 |  | 0.5 | 0.0 | 0.0 | 0.5 | 0.0 | 9.9 | 3.4 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 4.0 | 4.6 | 0.5 | 0.4 | 0.0 | 0.0 | 6.3 | 13.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.8 | 0.1 | 0.1 | 35.0 |
| 09-18 | 1090 |  | 0.2 | 0.3 | 0.0 | 0.1 | 0.1 | 3.9 | 4.7 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 7.2 | 4.4 | 1.3 | 0.3 | 0.0 | 0.0 | 1.0 | 14.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.9 | 0.1 | 0.2 | 52.8 |
| 19-28 | 1191 |  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 5.9 | 0.0 | 0.0 | 0.9 | 0.0 | 0.0 | 3.6 | 2.1 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 24.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 61.1 |

Appendix C15- Percent distribution of Hanford Wild Brights 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 | 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 | 1692 | 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 | 2250 | 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 | 2124 | 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 | 1455 | 2,3,4,5 | 15.5 | 0.5 | 2.4 | 4.8 | 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 | 12.7 | 0.0 | 3.0 | 3.4 | 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 | 5.8 | 0.0 | 2.6 | 5.8 | 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 | 188 | 2,3,4,5 | 12.2 | 0.0 | 0.0 | 12.2 | 1.6 | 1.1 | 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 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.3 | 1.1 | 0.5 | 65.4 |
| 2020 | 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 | 684 |  | 17.6 | 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 | 1044 |  | 14.4 | 0.4 | 1.9 | 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 | 188 |  | 12.2 | 0.0 | 0.0 | 12.2 | 1.6 | 1.1 | 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 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.3 | 1.1 | 0.5 | 65.4 |

Appendix C16- Percent distribution of Harrison River 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 | 2202 | 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 | 2003 | 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 | 2722 | 2,3,4,5 | 0.3 | 0.0 | 0.0 | 0.1 | 0.4 | 3.3 | 5.3 | 0.0 | 0.0 | 0.1 | 0.0 | 0.8 | 4.9 | 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 | 2075 | 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 | 3473 | 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 | 1.3 | 74.4 |
| 2014 | 2274 | 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 | 1850 | 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 | 2670 | 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 | 1732 | 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 | 2578 | 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 | 12.4 | 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 | 69.5 |
| 2019 | 1860 | 2,3,4,5 | 0.3 | 0.2 | 0.0 | 0.0 | 0.0 | 1.5 | 0.9 | 0.0 | 0.0 | 0.2 | 0.0 | 0.8 | 15.9 | 4.1 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 0.0 | 0.0 | 0.0 | 2.0 | 0.8 | 0.0 | 0.0 | 0.0 | 1.0 | 70.2 |
| 2020 | 2031 | 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 | 10.0 | 0.7 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 0.0 | 0.0 | 0.0 | 2.8 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 82.5 |
| 79-84 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 85-95 | 1457 |  | 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 | 1080 |  | 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 | 719 |  | 0.7 | 0.1 | 0.0 | 0.3 | 0.0 | 13.0 | 4.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 6.3 | 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 | 2358 |  | 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 | 1946 |  | 0.4 | 0.1 | 0.0 | 0.0 | 0.0 | 1.2 | 0.4 | 0.0 | 0.0 | 0.1 | 0.0 | 0.8 | 13.0 | 2.4 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 1.5 | 0.0 | 0.0 | 0.0 | 2.4 | 0.4 | 0.0 | 0.2 | 0.0 | 0.5 | 76.3 |

Appendix C17- Percent distribution of Hoko Fall Fingerling 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 | 1122 | 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 | 1241 | 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 | 1.3 | 69.1 |
| 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 | 1185 | 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 | 692 | 2,3,4,5 | 10.3 | 0.0 | 1.4 | 15.2 | 7.8 | 2.2 | 1.3 | 0.0 | 0.0 | 1.7 | 0.0 | 0.0 | 7.8 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 46.0 |
| 2019 | 439 | 3,4,5 | 12.3 | 2.1 | 1.4 | 3.2 | 4.3 | 8.9 | 1.8 | 0.0 | 0.0 | 0.9 | 0.0 | 0.0 | 20.7 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 19.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 23.2 |
| 2020 | 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 | 2.3 | 66.0 |
| 09-18 | 854 |  | 8.6 | 0.7 | 1.1 | 7.1 | 2.4 | 0.8 | 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 | 2.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.9 | 69.0 |
| 19-28 | 439 |  | 12.3 | 2.1 | 1.4 | 3.2 | 4.3 | 8.9 | 1.8 | 0.0 | 0.0 | 0.9 | 0.0 | 0.0 | 20.7 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 19.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 23.2 |

Appendix C18- Percent distribution of Kitsumkalum River Summer 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 | 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 | 413 | 3,4,5,6 | 15.7 | 0.0 | 1.5 | 2.4 | 5.1 | 0.0 | 0.0 | 0.0 | 8.7 | 13.8 | 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 | 49.9 |
| 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 | 248 | 3,4,5,6 | 11.7 | 0.4 | 2.0 | 1.6 | 5.2 | 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 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.7 | 0.0 | 0.0 | 0.0 | 0.0 | 63.3 |
| 2015 | 461 | 3,4,5,6 | 11.3 | 7.6 | 3.3 | 2.8 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.9 | 0.0 | 0.0 | 0.0 | 0.0 | 59.9 |
| 2016 | 606 | 3,4,5,6 | 8.9 | 5.6 | 2.1 | 1.3 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.5 | 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 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 58.6 |
| 2017 | 262 | 3,4,5,6 | 10.7 | 0.0 | 2.3 | 6.9 | 1.9 | 0.0 | 0.0 | 0.0 | 0.0 | 24.8 | 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 | 3.8 | 0.0 | 0.0 | 0.0 | 0.0 | 49.6 |
| 2018 | 227 | 3,4,5,6 | 6.2 | 0.0 | 0.0 | 3.1 | 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 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 87.7 |
| 2019 | 513 | 3,4,5,6 | 6.8 | 4.7 | 2.7 | 0.8 | 3.5 | 0.0 | 0.0 | 0.0 | 0.0 | 11.5 | 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 | 69.8 |
| 2020 | 240 | 4,5,6 | 2.5 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 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 | 0.0 | 85.8 |
| 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 | 402 |  | 11.7 | 1.9 | 2.9 | 3.1 | 4.5 | 0.1 | 0.0 | 0.0 | 1.3 | 9.5 | 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 | 3.6 | 0.0 | 0.0 | 0.0 | 0.0 | 61.3 |
| 19-28 | 376 |  | 4.7 | 2.5 | 1.4 | 0.4 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 11.4 | 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 | 77.8 |

Appendix C19- Percent distribution of Kitsumkalum Yearling 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 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 | 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 | 586 | 3,4,5,6 | 18.1 | 3.1 | 1.0 | 2.9 | 3.1 | 0.0 | 0.0 | 0.0 | 0.0 | 2.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.3 | 0.0 | 0.0 | 0.0 | 0.0 | 65.2 |
| 2015 | 1274 | 3,4,5,6 | 9.9 | 1.0 | 3.9 | 1.3 | 5.9 | 0.0 | 0.0 | 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 | 7.0 | 0.0 | 0.0 | 0.0 | 0.0 | 67.7 |
| 2016 | 592 | 3,4,5,6 | 5.2 | 6.8 | 4.2 | 3.4 | 5.9 | 0.0 | 0.0 | 0.0 | 0.0 | 6.8 | 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 | 10.8 | 0.0 | 0.0 | 0.0 | 0.0 | 56.9 |
| 2017 | 665 | 3,4,5,6 | 4.7 | 5.0 | 4.1 | 3.3 | 2.9 | 0.0 | 0.0 | 0.0 | 0.5 | 6.8 | 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 | 7.5 | 0.0 | 0.0 | 0.0 | 0.0 | 65.4 |
| 2018 | 1314 | 3,4,5,6 | 2.8 | 0.2 | 1.1 | 0.5 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 4.9 | 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 | 86.0 |
| 2019 | 484 | 3,4,5,6 | 4.8 | 8.5 | 0.8 | 0.0 | 4.5 | 0.0 | 0.0 | 0.0 | 0.0 | 11.6 | 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 | 69.8 |
| 2020 | 328 | 4,5,6 | 3.4 | 2.1 | 1.2 | 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 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 85.1 |
| 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 | 652 |  | 12.7 | 1.8 | 3.0 | 2.0 | 4.0 | 0.0 | 0.0 | 0.0 | 1.0 | 7.2 | 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 | 0.0 | 5.5 | 0.0 | 0.0 | 0.0 | 0.0 | 62.7 |
| 19-28 | 406 |  | 4.1 | 5.3 | 1.0 | 0.0 | 2.3 | 0.0 | 0.0 | 0.0 | 0.0 | 9.9 | 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 | 77.4 |

Appendix C20- Percent distribution of Lower River Hatchery Tule 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 | 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 | 1597 | 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 | 2474 | 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 | 1470 | 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 | 459 | 2,3,4,5 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 8.5 | 11.5 | 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 | 13.9 | 7.8 | 0.7 | 41.4 |
| 2017 | 646 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.5 | 10.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.7 | 22.0 | 10.8 | 2.2 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.0 | 5.4 | 0.8 | 28.3 |
| 2018 | 604 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.8 | 5.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.6 | 18.2 | 7.5 | 7.0 | 0.7 | 0.0 | 0.3 | 2.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.6 | 7.8 | 0.5 | 28.0 |
| 2019 | 536 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.6 | 10.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.5 | 6.9 | 5.6 | 3.9 | 1.7 | 0.0 | 0.0 | 6.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 15.1 | 5.0 | 0.6 | 37.3 |
| 2020 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 79-84 | 2204 |  | 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 | 1929 |  | 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 | 1028 |  | 0.2 | 0.0 | 0.0 | 0.1 | 0.1 | 6.0 | 6.5 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 2.4 | 11.8 | 8.4 | 3.9 | 0.4 | 0.3 | 0.0 | 3.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 16.0 | 4.2 | 0.2 | 35.8 |
| 19-28 | 536 |  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.6 | 10.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.5 | 6.9 | 5.6 | 3.9 | 1.7 | 0.0 | 0.0 | 6.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 15.1 | 5.0 | 0.6 | 37.3 |

Appendix C21 - Percent distribution of Lewis River Wild 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 | 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 | 6.3 | 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 | 272 | 2,3,4,5 | 12.5 | 2.2 | 0.4 | 3.3 | 3.3 | 6.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.7 | 1.8 | 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 | 43.4 |
| 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 | 4.3 | 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 | 13.0 | 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 | 341 | 2,3,4,5 | 2.3 | 43.7 | 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 | 1.2 | 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 | 43.1 |
| 2020 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 79-84 | 1079 |  | 7.7 | 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 | 806 |  | 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 | 1.2 | 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 | 0.3 | 0.5 | 5.7 | 1.9 | 3.4 | 4.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 2.7 | 2.4 | 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 | 341 |  | 2.3 | 43.7 | 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 | 1.2 | 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 | 43.1 |

Appendix C22- Percent distribution of Lyons Ferry 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 | 4917 | 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 | 3104 | 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 | 2217 | 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 | 2761 | 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 | 3496 | 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 | 2352 | 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 | 2321 | 2,3,4,5 | 3.6 | 0.2 | 1.5 | 1.2 | 0.0 | 0.4 | 0.3 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.4 | 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 | 2206 | 2,3,4,5 | 3.3 | 0.2 | 0.5 | 5.8 | 0.5 | 2.7 | 2.7 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 1.5 | 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 | 1054 | 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 | 17.9 | 16.4 | 0.1 | 41.0 |
| 2018 | 724 | 2,3,4,5 | 2.8 | 0.1 | 0.6 | 4.0 | 0.8 | 1.8 | 2.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 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 | 414 | 2,3,4,5 | 6.0 | 3.9 | 0.0 | 0.7 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 3.4 | 0.0 | 0.0 | 0.0 | 2.4 | 0.0 | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.8 | 7.7 | 4.6 | 63.8 |
| 2020 | 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 | 1113 |  | 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 | 2515 |  | 2.2 | 0.1 | 0.3 | 1.9 | 0.3 | 2.5 | 1.8 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.4 | 4.4 | 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 | 5.3 | 0.2 | 64.5 |
| 19-28 | 414 |  | 6.0 | 3.9 | 0.0 | 0.7 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 3.4 | 0.0 | 0.0 | 0.0 | 2.4 | 0.0 | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.8 | 7.7 | 4.6 | 63.8 |

Appendix C23- Percent distribution of Lyons Ferry Yearling 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 | 13873 | 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 | 8001 | 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 | 6525 | 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 | 5232 | 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 | 7127 | 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 | 6228 | 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 | 5533 | 3,4,5,6 | 2.3 | 0.5 | 0.3 | 1.2 | 0.0 | 1.0 | 1.3 | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 | 0.6 | 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 | 4005 | 3,4,5,6 | 3.5 | 0.5 | 0.4 | 4.3 | 0.3 | 6.5 | 2.7 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.7 | 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 | 2816 | 3,4,5,6 | 1.3 | 0.2 | 0.2 | 5.4 | 1.5 | 5.0 | 2.4 | 0.0 | 0.0 | 1.7 | 0.0 | 0.0 | 0.7 | 9.9 | 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 | 14.5 | 0.6 | 32.5 |
| 2018 | 3398 | 3,4,5,6 | 1.9 | 0.2 | 0.1 | 4.4 | 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 | 1207 | 3,4,5,6 | 2.1 | 0.7 | 0.0 | 2.0 | 0.0 | 3.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 8.9 | 3.5 | 1.6 | 0.9 | 0.0 | 0.0 | 2.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.2 | 4.1 | 0.1 | 56.7 |
| 2020 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  |  | - |
| 79-84 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 85-95 | 2726 |  | 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 | 3552 |  | 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 | 7946 |  | 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 | 6274 |  | 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 | 1207 |  | 2.1 | 0.7 | 0.0 | 2.0 | 0.0 | 3.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 8.9 | 3.5 | 1.6 | 0.9 | 0.0 | 0.0 | 2.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.2 | 4.1 | 0.1 | 56.7 |

Appendix C24- Percent distribution of Middle Shuswap River Summer 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 | NA |  | Failed Criteria |  |  |  | - |  |  |  |  |  |  |  |  |  |  | - |  |  | - |  | - | - | - |  |  |  |  |  |  |  |
| 2010 | 3 | 2 |  |  |  | - | - |  |  | - | - |  |  | - |  |  | - |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 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 | 295 | 2,3,4 | 8.1 | 0.0 | 1.7 | 10.2 | 8.8 | 2.0 | 0.3 | 0.0 | 0.0 | 0.3 | 0.0 | 0.7 | 13.6 | 2.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.9 | 2.7 | 0.0 | 0.0 | 0.0 | 1.4 | 35.9 |
| 2013 | 1700 | 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 | 1218 | 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 | 2079 | 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 | 407 | 2,3,4,5 | 3.9 | 0.0 | 0.2 | 6.1 | 5.4 | 0.7 | 0.0 | 0.0 | 0.0 | 2.5 | 0.0 | 0.5 | 13.8 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.3 | 0.0 | 0.0 | 0.0 | 0.0 | 4.9 | 50.9 |
| 2017 | 473 | 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 | 15.4 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 4.2 | 3.8 | 0.0 | 0.0 | 0.0 | 0.8 | 54.8 |
| 2018 | 1322 | 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 | 15.6 | 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 | 66.3 |
| 2019 | 1044 | 2,3,4,5 | 0.5 | 0.0 | 0.0 | 0.0 | 0.9 | 0.0 | 0.7 | 0.0 | 0.0 | 0.8 | 0.0 | 0.5 | 1.9 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 0.0 | 0.0 | 0.0 | 0.8 | 3.8 | 0.0 | 0.0 | 0.0 | 5.2 | 84.1 |
| 2020 | 1809 | 2,3,4,5 | 2.2 | 0.0 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.2 | 0.0 | 1.3 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 0.0 | 0.0 | 0.0 | 5.5 | 9.6 | 0.0 | 0.0 | 0.0 | 1.8 | 69.9 |
| 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 | 1282 |  | 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 | 1071 |  | 5.2 | 0.0 | 0.9 | 5.9 | 4.0 | 1.5 | 0.8 | 0.0 | 0.0 | 0.7 | 0.0 | 0.8 | 13.6 | 0.9 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.2 | 0.0 | 0.0 | 0.0 | 5.9 | 2.9 | 0.0 | 0.0 | 0.0 | 2.1 | 54.5 |
| 19-28 | 1426 |  | 1.3 | 0.0 | 0.5 | 0.0 | 0.4 | 0.0 | 0.3 | 0.0 | 0.0 | 3.0 | 0.0 | 0.9 | 2.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 3.1 | 6.7 | 0.0 | 0.0 | 0.0 | 3.5 | 77.0 |

Appendix C25- Percent distribution of Nanaimo River Fall 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 |  | $\begin{gathered} \text { WAC } \\ \mathrm{N} \end{gathered}$ | 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 | 6 | 5 |  | ailed Cr | eria | - | - | - | - | - | - | - | - | - |  |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2010 | NA |  | - | - - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2011 | NA |  | - | - - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2012 | NA |  | - | - - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2013 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2014 | NA |  | - | - - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  |
| 2015 | NA |  | - | - - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  |
| 2016 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2017 | NA |  | - | - - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2018 | NA |  | - | - - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2019 | NA |  |  | - - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2020 | NA |  |  | - - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 79-84 | 540 |  | 4.3 | 0.0 | 0.0 | 1.9 | 0.0 | 1.7 | 0.0 | 12.6 | 3.0 | 0.0 | 1.1 | 16.3 | 46.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 11.1 |
| 85-95 | 1460 |  | 0.2 | 0.2 | 0.0 | 0.8 | 0.1 | 3.0 | 0.1 | 0.7 | 1.6 | 0.3 | 4.4 | 4.0 | 48.6 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 1.2 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.1 | 0.0 | 0.3 | 33.4 |
| 96-98 | 499 |  | 2.5 | 2. 1.9 | 0.0 | 3.4 | 0.0 | 0.5 | 0.3 | 0.9 | 1.3 | 0.6 | 0.0 | 1.0 | 51.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.3 | 0.8 | 2.5 | 0.0 | 0.0 | 0.0 | 1.2 | 0.0 | 0.0 | 0.7 | 0.0 | 1.9 | 29.1 |
| 99-08 | 696 |  | 0.5 | 50.1 | 0.1 | 0.4 | 0.3 | 2.8 | 0.6 | 0.0 | 0.0 | 1.7 | 0.0 | 0.3 | 31.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 3.2 | 0.1 | 0.0 | 0.0 | 5.5 | 0.1 | 0.0 | 1.6 | 0.0 | 1.8 | 49.5 |
| 09-18 | NA |  |  | - - | - | - | - | - |  | - |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 19-28 | NA |  | - | - - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Appendix C26- Percent distribution of Nicola River Spring AEQ total fishing mortalities and escapement.

|  | Est |  | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Catch | \# 0 |  | 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 | 2328 | 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 | 724 | 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 | 4.3 | 8.1 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 17.1 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 67.1 |
| 2013 | 1466 | 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 | 1549 | 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 | 974 | 3,4,5,6 | 0.2 | 0.0 | 0.0 | 1.7 | 0.0 | 0.9 | 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 | 75.1 |
| 2017 | 1086 | 3,4,5,6 | 0.0 | 0.0 | 0.0 | 1.0 | 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 | 84.7 |
| 2018 | 925 | 3,4,5,6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 4.9 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.6 | 0.0 | 0.0 | 0.0 | 17.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 73.3 |
| 2019 | 1280 | 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 | 0.5 | 0.9 | 1.2 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 93.4 |
| 2020 | 1892 | 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 | 0.0 | 0.2 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 0.0 | 0.0 | 0.0 | 22.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 75.5 |
| 79-84 | NA |  | - | - | - | - | - | - | - |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 85-95 | 1236 |  | 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 | 1265 |  | 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 | 1046 |  | 0.1 | 0.0 | 0.0 | 0.8 | 0.2 | 0.6 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 4.6 | 2.5 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.8 | 0.0 | 0.0 | 0.0 | 10.0 | 2.4 | 0.0 | 0.0 | 0.0 | 0.0 | 77.3 |
| 19-28 | 1586 |  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 0.5 | 0.7 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 0.0 | 0.0 | 0.0 | 12.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 84.5 |

Appendix C27- Percent distribution of Nisqually Fall Fingerling AEQ total fishing mortalities and escapement.

|  | Est |  | 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. |
| 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 | 1645 | 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 | 1719 | 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 | 1455 | 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 | 1489 | 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 | 2218 | 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 | 2455 | 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 | 3152 | 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 | 27.3 | 0.0 | 0.0 | 42.3 |
| 2018 | 1969 | 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 | 20.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 21.2 | 0.0 | 0.1 | 40.0 |
| 2019 | 1220 | 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 | 1.6 | 3.7 | 0.2 | 0.2 | 0.0 | 0.0 | 0.6 | 25.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 32.8 | 0.0 | 0.0 | 29.9 |
| 2020 | 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 | 1036 |  | 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 | 1698 |  | 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 | 1791 |  | 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 | 0.8 | 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 | 1220 |  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 4.3 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 1.6 | 3.7 | 0.2 | 0.2 | 0.0 | 0.0 | 0.6 | 25.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 32.8 | 0.0 | 0.0 | 29.9 |

Appendix C28- Percent distribution of Nooksack Spring Yearling AEQ total fishing mortalities and escapement.

| Catch Year | $\begin{array}{\|c\|} \hline \text { Est } \\ \text { \# of } \\ \text { CWT } \\ \hline \end{array}$ | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEAK |  |  | NBC |  | WCVI |  | NBC \& CBC |  |  | Southern BC |  |  | N Falcon |  | S Falcon |  | $\begin{gathered} \mathrm{WAC} \\ \mathrm{~N} \end{gathered}$ | 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 | NA |  | - | - | - | - |  | - | - | - |  | - | - | - | - |  | - |  | - | - | - | - | - |  |  | - | - | - | - | - | - |  |
| 2010 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  |
| 2011 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2012 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2013 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2014 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  |
| 2015 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - |  |
| 2016 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2017 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2018 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2019 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  |
| 2020 | NA |  | - | - | - | - | - | - |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 79-84 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 85-95 | 443 |  | 0.3 | 0.3 | 0.0 | 0.0 | 0.0 | 4.8 | 1.6 | 0.2 | 0.2 | 0.0 | 1.9 | 2.1 | 23.8 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 2.3 | 8.4 | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 2.4 | 0.0 | 0.0 | 50.5 |
| 96-98 | 164 |  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.5 | 0.0 | 0.0 | 0.5 | 0.0 | 0.4 | 18.5 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 1.6 | 13.6 | 0.0 | 0.0 | 0.0 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 62.3 |
| 99-08 | 178 |  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.8 | 1.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 30.3 | 3.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.1 | 0.0 | 0.0 | 54.5 |
| 09-18 | NA |  | - | - | - | - | - | - |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  |
| 19-28 | NA |  | - | - | - | - | - | - |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Appendix C29- Percent distribution of Northern Southeast Alaska Spring AEQ total fishing mortalities and escapement.

| Catch Year | Est <br> \# of <br> CWT | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEA |  |  | 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 | 403 | 3,4,5,6 | 30.5 | 27.0 | 6.0 | 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 | 0.7 | 0.5 | 3.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 31.3 |
| 2010 | 389 | 3,4,5,6 | 20.8 | 24.9 | 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 | 0.3 | 0.3 | 3.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 41.6 |
| 2011 | 464 | 3,4,5,6 | 14.0 | 23.3 | 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 | 0.0 | 0.0 | 0.0 | 3.0 | 0.9 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.5 | 44.2 |
| 2012 | 332 | 3,4,5,6 | 20.8 | 26.2 | 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 | 0.0 | 0.9 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 44.3 |
| 2013 | 701 | 3,4,5,6 | 6.0 | 25.7 | 5.3 | 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 | 2.1 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 59.5 |
| 2014 | 516 | 3,4,5,6 | 18.6 | 17.8 | 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 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 1.6 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 56.6 |
| 2015 | 714 | 3,4,5,6 | 13.2 | 24.9 | 6.6 | 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 | 0.1 | 5.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 47.3 |
| 2016 | 532 | 3,4,5,6 | 20.7 | 10.0 | 6.6 | 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 | 1.9 | 0.0 | 10.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 50.4 |
| 2017 | 702 | 3,4,5,6 | 7.1 | 8.5 | 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 | 1.6 | 1.1 | 3.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 71.1 |
| 2018 | 623 | 3,4,5,6 | 9.5 | 8.3 | 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 | 1.3 | 2.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 76.6 |
| 2019 | 871 | 3,4,5,6 | 5.6 | 48.5 | 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 | 0.2 | 0.9 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 42.9 |
| 2020 | 593 | 3,4,5,6 | 15.3 | 9.6 | 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 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 70.8 |
| 79-84 | 2704 |  | 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 | 1947 |  | 29.5 | 11.9 | 8.2 | 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 | 8.5 | 0.1 | 2.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 39.0 |
| 96-98 | 1309 |  | 11.3 | 10.5 | 16.0 | 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 | 0.0 | 0.0 | 0.0 | 0.0 | 7.2 | 0.2 | 14.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 40.0 |
| 99-08 | 1116 |  | 15.3 | 12.0 | 12.7 | 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 | 2.3 | 0.3 | 9.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 47.8 |
| 09-18 | 538 |  | 16.1 | 19.7 | 5.9 | 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 | 1.0 | 0.9 | 3.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 52.3 |
| 19-28 | 732 |  | 10.5 | 29.0 | 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 | 0.0 | 0.0 | 0.0 | 0.1 | 0.5 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 56.9 |

Appendix C30- Percent distribution of Nooksack Spring Fingerling 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 | 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 | 927 | 2,3,4,5 | 1.1 | 1.6 | 0.5 | 0.0 | 0.0 | 5.7 | 8.7 | 0.0 | 0.0 | 1.1 | 0.0 | 0.0 | 15.0 | 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 | 52.6 |
| 2014 | 1392 | 2,3,4,5 | 4.5 | 0.8 | 0.0 | 0.3 | 0.4 | 9.3 | 8.3 | 0.0 | 0.0 | 3.5 | 0.0 | 0.0 | 20.3 | 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 | 0.3 | 39.9 |
| 2015 | 1654 | 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 | 1779 | 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 | 2137 | 2,3,4,5 | 1.3 | 0.1 | 0.0 | 0.6 | 0.6 | 11.9 | 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 | 1923 | 2,3,4,5 | 1.6 | 0.8 | 0.0 | 0.0 | 0.0 | 3.3 | 2.9 | 0.0 | 0.4 | 2.2 | 0.0 | 0.0 | 12.9 | 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 | 62.7 |
| 2019 | 1055 | 2,3,4,5 | 2.5 | 0.2 | 0.0 | 0.3 | 0.2 | 2.7 | 2.2 | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 | 10.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 4.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.0 | 0.0 | 0.2 | 63.6 |
| 2020 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 79-84 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - | - | - | - | - | - |  |  |  |
| 85-95 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 96-98 | 1555 |  | 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 | 975 |  | 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 | 1253 |  | 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 | 1055 |  | 2.5 | 0.2 | 0.0 | 0.3 | 0.2 | 2.7 | 2.2 | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 | 10.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 4.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.0 | 0.0 | 0.2 | 63.6 |

Appendix C31- Percent distribution of Phillips River Fall 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 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 | 20 | 2 | Fail | ed Crit | teria | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 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 | 1341 | 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 | 1692 | 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 | 1859 | 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 | 1791 | 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 | 786 | 2,3,4,5 | 6.7 | 2.2 | 1.3 | 0.4 | 2.4 | 0.0 | 0.0 | 0.0 | 0.8 | 9.9 | 0.0 | 0.0 | 12.3 | 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 | 64.0 |
| 2019 | 1427 | 2,3,4,5 | 3.1 | 5.0 | 0.3 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 6.0 | 0.0 | 0.0 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 83.5 |
| 2020 | 1583 | 2,3,4,5 | 11.1 | 1.5 | 0.4 | 0.0 | 0.8 | 0.0 | 0.1 | 0.0 | 0.0 | 5.1 | 0.0 | 0.0 | 1.3 | 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 | 79.8 |
| 79-84 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - | - | - | - | - |
| 85-95 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 96-98 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 99-08 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 09-18 | 1352 |  | 9.9 | 3.2 | 1.7 | 0.5 | 1.7 | 0.0 | 0.0 | 0.0 | 0.2 | 6.7 | 0.0 | 0.0 | 6.6 | 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 | 69.3 |
| 19-28 | 1505 |  | 7.1 | 3.3 | 0.3 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 5.5 | 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 | 0.0 | 0.0 | 0.0 | 0.0 | 81.7 |

Appendix C32 - Percent distribution of Puntledge River Summer 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 | 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 | 367 | 2,3,4,5 | 7.6 | 0.5 | 0.5 | 0.0 | 1.6 | 1.4 | 0.0 | 0.0 | 0.3 | 9.0 | 0.0 | 0.0 | 38.7 | 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 | 40.3 |
| 2018 | 464 | 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 | 30.2 | 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 | 60.1 |
| 2019 | 317 | 2,3,4,5 | 6.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.5 | 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 | 82.6 |
| 2020 | 327 | 2,3,4,5 | 8.9 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.3 | 0.0 | 0.0 | 25.1 | 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 | 53.5 |
| 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 | 176 |  | 7.4 | 0.6 | 2.9 | 8.0 | 1.0 | 0.8 | 1.4 | 2.7 | 8.2 | 1.1 | 4.2 | 2.2 | 31.3 | 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 | 28.2 |
| 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 | 402 |  | 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 | 322 |  | 7.9 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.9 | 0.0 | 0.0 | 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 | 0.0 | 0.0 | 68.1 |

Appendix C33 - Percent distribution of Queets Fall Fingerling 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 | 1700 | 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 | 2695 | 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 | 2750 | 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 | 2761 | 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 | 1795 | 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 | 2256 | 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 | 2226 | 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 | 1520 | 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 | 1283 | 2,3,4,5 | 13.3 | 0.0 | 3.2 | 8.8 | 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 | 24.4 | 0.0 | 0.0 | 44.7 |
| 2018 | 1452 | 2,3,4,5 | 20.6 | 0.0 | 5.5 | 20.4 | 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 | 34.1 |
| 2019 | 1039 | 3,4,5 | 25.3 | 0.3 | 0.9 | 24.4 | 5.9 | 1.2 | 0.9 | 0.0 | 0.0 | 1.2 | 0.0 | 0.0 | 1.8 | 1.4 | 0.4 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 35.8 |
| 2020 | 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 | 1761 |  | 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 | 2044 |  | 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 | 1039 |  | 25.3 | 0.3 | 0.9 | 24.4 | 5.9 | 1.2 | 0.9 | 0.0 | 0.0 | 1.2 | 0.0 | 0.0 | 1.8 | 1.4 | 0.4 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 35.8 |

Appendix C34- Percent distribution of Quillayute AEQ total fishing mortalities and escapement Queets River Fall (QUE) 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 | 1700 | 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 | 3.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 21.3 | 0.0 | 0.3 | 27.9 |
| 2010 | 2695 | 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 | 5.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 16.6 | 0.0 | 0.0 | 42.7 |
| 2011 | 2750 | 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 | 7.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 17.7 | 0.0 | 0.0 | 36.1 |
| 2012 | 2761 | 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 | 2.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 16.7 | 0.0 | 0.4 | 20.9 |
| 2013 | 1795 | 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 | 7.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.2 | 0.0 | 0.0 | 26.2 |
| 2014 | 2256 | 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 | 3.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 31.1 | 0.0 | 0.0 | 21.0 |
| 2015 | 2226 | 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 | 7.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.4 | 0.0 | 0.7 | 29.7 |
| 2016 | 1520 | 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 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.9 | 0.0 | 0.0 | 35.5 |
| 2017 | 1283 | 2,3,4,5 | 13.3 | 0.0 | 3.2 | 8.8 | 2.2 | 1.3 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 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 | 34.4 | 0.0 | 0.0 | 31.3 |
| 2018 | 1452 | 2,3,4,5 | 20.6 | 0.0 | 5.5 | 20.4 | 3.6 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.2 | 5.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.6 | 0.0 | 0.0 | 28.1 |
| 2019 | 1039 | 3,4,5 | 25.3 | 0.3 | 0.9 | 24.4 | 5.9 | 1.2 | 0.9 | 0.0 | 0.0 | 1.2 | 0.0 | 0.0 | 1.8 | 1.4 | 3.4 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.4 | 0.0 | 0.0 | 27.5 |
| 2020 | 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 | 0.5 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.5 | 0.0 | 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 | 2.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.0 | 0.0 | 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 | 3.2 | 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 | 50.7 |
| 99-08 | 1761 |  | 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 | 4.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.6 | 0.0 | 1.2 | 47.1 |
| 09-18 | 2044 |  | 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 | 4.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 19.9 | 0.0 | 0.1 | 29.9 |
| 19-28 | 1039 |  | 25.3 | 0.3 | 0.9 | 24.4 | 5.9 | 1.2 | 0.9 | 0.0 | 0.0 | 1.2 | 0.0 | 0.0 | 1.8 | 1.4 | 3.4 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.4 | 0.0 | 0.0 | 27.5 |

Appendix C35- Percent distribution of Grays Harbor AEQ total fishing mortalities and escapement Queets River Fall (QUE) 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 | 1700 | 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 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.7 | 0.0 | 0.3 | 35.9 |
| 2010 | 2695 | 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 | 6.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.2 | 0.0 | 0.0 | 46.4 |
| 2011 | 2750 | 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 | 6.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.7 | 0.0 | 0.0 | 40.8 |
| 2012 | 2761 | 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 | 6.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.0 | 0.0 | 0.4 | 24.0 |
| 2013 | 1795 | 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 | 8.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.1 | 0.0 | 0.0 | 30.9 |
| 2014 | 2256 | 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 | 2.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.6 | 0.0 | 0.0 | 38.1 |
| 2015 | 2226 | 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 | 6.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 17.9 | 0.0 | 0.7 | 33.3 |
| 2016 | 1520 | 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 | 7.0 | 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 | 35.9 |
| 2017 | 1283 | 2,3,4,5 | 13.3 | 0.0 | 3.2 | 8.8 | 2.2 | 1.3 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.0 | 0.0 | 0.0 | 52.1 |
| 2018 | 1452 | 2,3,4,5 | 20.6 | 0.0 | 5.5 | 20.4 | 3.6 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 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 | 4.5 | 0.0 | 0.0 | 37.2 |
| 2019 | 1039 | 3,4,5 | 25.3 | 0.3 | 0.9 | 24.4 | 5.9 | 1.2 | 0.9 | 0.0 | 0.0 | 1.2 | 0.0 | 0.0 | 1.8 | 1.4 | 3.8 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.4 | 0.0 | 0.0 | 28.1 |
| 2020 | 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 | 0.5 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.9 | 0.0 | 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 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 22.1 | 0.0 | 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 | 9.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.5 | 0.0 | 0.0 | 37.5 |
| 99-08 | 1761 |  | 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 | 5.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.4 | 0.0 | 1.2 | 50.2 |
| 09-18 | 2044 |  | 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 | 6.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.9 | 0.0 | 0.1 | 37.5 |
| 19-28 | 1039 |  | 25.3 | 0.3 | 0.9 | 24.4 | 5.9 | 1.2 | 0.9 | 0.0 | 0.0 | 1.2 | 0.0 | 0.0 | 1.8 | 1.4 | 3.8 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.4 | 0.0 | 0.0 | 28.1 |

Appendix C36- Percent distribution of Hoh River AEQ total fishing mortalities and escapement Queets River Fall (QUE) 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 | 1700 | 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 | 2.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.2 | 0.0 | 0.3 | 39.6 |
| 2010 | 2695 | 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 | 6.0 | 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 | 52.2 |
| 2011 | 2750 | 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 | 10.7 | 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 | 36.8 |
| 2012 | 2761 | 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 | 2.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.3 | 0.0 | 0.4 | 25.5 |
| 2013 | 1795 | 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 | 6.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 22.1 | 0.0 | 0.0 | 17.8 |
| 2014 | 2256 | 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 | 3.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.5 | 0.0 | 0.0 | 40.0 |
| 2015 | 2226 | 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 | 4.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.9 | 0.0 | 0.7 | 42.3 |
| 2016 | 1520 | 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 | 0.7 | 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 | 45.8 |
| 2017 | 1283 | 2,3,4,5 | 13.3 | 0.0 | 3.2 | 8.8 | 2.2 | 1.3 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 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 | 14.2 | 0.0 | 0.0 | 49.1 |
| 2018 | 1452 | 2,3,4,5 | 20.6 | 0.0 | 5.5 | 20.4 | 3.6 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.2 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.4 | 0.0 | 0.0 | 43.8 |
| 2019 | 1039 | 3,4,5 | 25.3 | 0.3 | 0.9 | 24.4 | 5.9 | 1.2 | 0.9 | 0.0 | 0.0 | 1.2 | 0.0 | 0.0 | 1.8 | 1.4 | 4.4 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.4 | 0.0 | 0.0 | 21.6 |
| 2020 | 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 | 1.1 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.1 | 0.0 | 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 | 2.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.3 | 0.0 | 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 | 3.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.6 | 0.0 | 0.0 | 43.1 |
| 99-08 | 1761 |  | 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 | 6.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.3 | 0.0 | 1.2 | 46.5 |
| 09-18 | 2044 |  | 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 | 4.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.6 | 0.0 | 0.1 | 39.3 |
| 19-28 | 1039 |  | 25.3 | 0.3 | 0.9 | 24.4 | 5.9 | 1.2 | 0.9 | 0.0 | 0.0 | 1.2 | 0.0 | 0.0 | 1.8 | 1.4 | 4.4 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.4 | 0.0 | 0.0 | 21.6 |

Appendix C37- Percent distribution of Quinsam River Fall AEQ total fishing mortalities and escapement.

| Catch Year | Est <br> \# of <br> CWT | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SEA |  |  | 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 | 5 | 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 | 500 | 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 | 0.8 | 69.4 |
| 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 | 2487 | 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 | 2556 | 2,3,4,5 | 11.2 | 1.4 | 2.5 | 1.1 | 2.5 | 0.0 | 0.3 | 0.0 | 0.0 | 10.7 | 0.0 | 0.0 | 12.9 | 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 | 57.3 |
| 2018 | 2007 | 2,3,4,5 | 10.0 | 2.4 | 1.4 | 2.3 | 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 | 2345 | 2,3,4,5 | 8.3 | 10.2 | 2.0 | 0.4 | 3.5 | 0.0 | 0.4 | 0.0 | 0.0 | 19.4 | 0.0 | 0.0 | 7.0 | 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 | 1764 | 2,3,4,5 | 13.6 | 6.7 | 0.9 | 1.4 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.1 | 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 | 0.4 | 61.1 |
| 79-84 | 1504 |  | 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 | 1184 |  | 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 | 1159 |  | 11.5 | 5.5 | 1.7 | 0.6 | 2.3 | 0.0 | 0.2 | 0.0 | 0.1 | 8.5 | 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 | 0.2 | 57.7 |
| 19-28 | 2054 |  | 10.9 | 8.5 | 1.4 | 0.9 | 2.2 | 0.0 | 0.2 | 0.0 | 0.0 | 12.3 | 0.0 | 0.0 | 7.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.2 | 0.0 | 0.0 | 0.1 | 0.4 | 0.0 | 0.0 | 0.0 | 0.2 | 54.6 |

## Appendix C38- Percent distribution of East Vancouver Island North AEQ total fishing mortalities and escapement Quinsam River Fall (QUI)

 CWT recoveries with terminal adjustments for basin-specific performance.| Catch <br> Year | $\begin{array}{\|c} \text { Est } \\ \text { \# of } \\ \text { CWT } \\ \hline \end{array}$ | 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 | 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 | 500 | 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 | 0.8 | 70.6 |
| 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 | 2487 | 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 | 2556 | 2,3,4,5 | 11.2 | 1.4 | 2.5 | 1.1 | 2.5 | 0.0 | 0.3 | 0.0 | 0.0 | 10.7 | 0.0 | 0.0 | 9.4 | 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 | 0.1 | 60.8 |
| 2018 | 2007 | 2,3,4,5 | 10.0 | 2.4 | 1.4 | 2.3 | 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 | 2345 | 2,3,4,5 | 8.3 | 10.2 | 2.0 | 0.4 | 3.5 | 0.0 | 0.4 | 0.0 | 0.0 | 19.4 | 0.0 | 0.0 | 6.3 | 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 | 1764 | 2,3,4,5 | 13.6 | 6.7 | 0.9 | 1.4 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.1 | 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 | 0.4 | 65.8 |
| 79-84 | 1504 |  | 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 | 1184 |  | 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 | 1159 |  | 11.5 | 5.5 | 1.7 | 0.6 | 2.3 | 0.0 | 0.2 | 0.0 | 0.1 | 8.5 | 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 | 0.2 | 60.7 |
| 19-28 | 2054 |  | 10.9 | 8.5 | 1.4 | 0.9 | 2.2 | 0.0 | 0.2 | 0.0 | 0.0 | 12.3 | 0.0 | 0.0 | 5.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.2 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 57.3 |

Appendix C39- Percent distribution of Robertson Creek Fall 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 | 1419 | 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 | 1343 | 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 | 2363 | 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 | 2006 | 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 | 1424 | 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 | 2366 | 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 | 3516 | 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 | 10.4 | 9.2 | 0.0 | 0.0 | 0.0 | 0.3 | 50.4 |
| 2016 | 5292 | 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 | 0.1 | 45.7 |
| 2017 | 7403 | 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 | 1.3 | 36.2 |
| 2018 | 9076 | 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 | 29.0 | 9.8 | 0.0 | 0.0 | 0.0 | 0.4 | 26.8 |
| 2019 | 13496 | 2,3,4,5 | 4.9 | 5.5 | 2.1 | 2.6 | 5.1 | 0.8 | 2.5 | 0.0 | 0.0 | 3.5 | 0.0 | 0.0 | 6.4 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 34.8 | 9.0 | 0.0 | 0.0 | 0.0 | 0.1 | 22.7 |
| 2020 | 12351 | 2,3,4,5 | 6.1 | 2.4 | 1.9 | 2.2 | 1.5 | 0.3 | 1.6 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 3.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 35.7 | 6.4 | 0.0 | 0.0 | 0.0 | 1.3 | 35.2 |
| 79-84 | 4281 |  | 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 | 5661 |  | 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 | 2077 |  | 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 | 2229 |  | 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 | 3621 |  | 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 | 12924 |  | 5.5 | 4.0 | 2.0 | 2.4 | 3.3 | 0.5 | 2.1 | 0.0 | 0.0 | 2.8 | 0.0 | 0.0 | 4.9 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 35.2 | 7.7 | 0.0 | 0.0 | 0.0 | 0.7 | 28.9 |

## Appendix C40— Percent distribution of Northwest Vancouver AEQ total fishing mortalities and escapement Robertson Creek Fall (RBT) CWT

recoveries with terminal adjustments for basin-specific performance.

| Catch <br> Year | Est <br> \# of 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 | 1419 | 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 | 1343 | 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 | 2363 | 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 | 2006 | 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 | 1424 | 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 | 2366 | 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 | 3516 | 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 | 5292 | 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 | 0.1 | 57.9 |
| 2017 | 7403 | 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 | 1.3 | 61.8 |
| 2018 | 9076 | 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 | 0.4 | 65.5 |
| 2019 | 13496 | 2,3,4,5 | 4.9 | 5.5 | 2.1 | 2.6 | 5.1 | 0.8 | 2.5 | 0.0 | 0.0 | 3.5 | 0.0 | 0.0 | 6.4 | 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 | 66.5 |
| 2020 | 12351 | 2,3,4,5 | 6.1 | 2.4 | 1.9 | 2.2 | 1.5 | 0.3 | 1.6 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 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 | 1.3 | 77.2 |
| 79-84 | 4281 |  | 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 | 5661 |  | 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 | 2077 |  | 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 | 2229 |  | 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 | 3621 |  | 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 | 12924 |  | 5.5 | 4.0 | 2.0 | 2.4 | 3.3 | 0.5 | 2.1 | 0.0 | 0.0 | 2.8 | 0.0 | 0.0 | 4.9 | 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 | 0.7 | 71.8 |

Appendix C41- Percent distribution of Southwest Vancouver Island AEQ total fishing mortalities and escapement Robertson Creek Fall (RBT) 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 | 1419 | 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 | 1343 | 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 | 2363 | 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 | 2006 | 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 | 1424 | 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 | 2366 | 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 | 3516 | 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 | 5292 | 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 | 0.1 | 57.9 |
| 2017 | 7403 | 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 | 1.3 | 61.8 |
| 2018 | 9076 | 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 | 0.4 | 65.5 |
| 2019 | 13496 | 2,3,4,5 | 4.9 | 5.5 | 2.1 | 2.6 | 5.1 | 0.8 | 2.5 | 0.0 | 0.0 | 3.5 | 0.0 | 0.0 | 6.4 | 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 | 66.5 |
| 2020 | 12351 | 2,3,4,5 | 6.1 | 2.4 | 1.9 | 2.2 | 1.5 | 0.3 | 1.6 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 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 | 1.3 | 77.2 |
| 79-84 | 4281 |  | 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 | 5661 |  | 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 | 2077 |  | 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 | 2229 |  | 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 | 3621 |  | 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 | 12924 |  | 5.5 | 4.0 | 2.0 | 2.4 | 3.3 | 0.5 | 2.1 | 0.0 | 0.0 | 2.8 | 0.0 | 0.0 | 4.9 | 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 | 0.7 | 71.8 |

Appendix C42- Percent distribution of Samish Fall Fingerling 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 | 1621 | 2,3,4,5 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 3.3 | 4.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.5 | 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 | 1797 | 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 | 6.0 | 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 | 29.8 | 0.0 | 1.0 | 28.3 |
| 2011 | 1326 | 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 | 9.7 | 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 | 35.5 | 0.0 | 0.5 | 31.5 |
| 2012 | 1841 | 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 | 6.8 | 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 | 51.8 | 0.0 | 0.2 | 18.4 |
| 2013 | 1785 | 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 | 1574 | 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 | 11.3 | 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 | 24.9 | 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 | 1385 | 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 | 24.0 | 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 | 19.1 |
| 2018 | 1024 | 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 | 21.5 | 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 | 23.6 | 0.0 | 0.2 | 33.3 |
| 2019 | 790 | 2,3,4,5 | 0.6 | 0.5 | 0.0 | 0.0 | 0.0 | 1.3 | 5.6 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 11.3 | 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 | 0.3 | 32.0 |
| 2020 | NA |  |  | - | - | - | - | - | - |  | - |  |  | - | - | - | - | - | - | - | - | - |  | - | - | - | - | - | - |  |  |  |
| 79-84 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 85-95 | 1330 |  | 0.1 | 0.0 | 0.0 | 0.2 | 0.0 | 12.9 | 3.0 | 0.1 | 0.4 | 0.0 | 2.0 | 1.9 | 14.3 | 6.4 | 0.7 | 0.2 | 0.0 | 0.0 | 2.2 | 12.9 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 21.4 | 0.1 | 0.1 | 21.0 |
| 96-98 | 1130 |  | 1.4 | 0.1 | 0.0 | 0.1 | 0.0 | 1.8 | 1.3 | 0.2 | 0.4 | 0.0 | 0.0 | 0.2 | 12.2 | 1.1 | 4.9 | 0.0 | 0.0 | 0.1 | 0.8 | 10.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 33.6 | 0.0 | 0.1 | 31.1 |
| 99-08 | 1123 |  | 0.8 | 0.0 | 0.0 | 0.3 | 0.0 | 8.2 | 6.0 | 0.0 | 0.1 | 0.3 | 0.0 | 0.0 | 10.3 | 4.7 | 2.4 | 0.1 | 0.0 | 0.0 | 0.3 | 7.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 34.4 | 0.0 | 0.2 | 24.6 |
| 09-18 | 1403 |  | 0.3 | 0.1 | 0.0 | 0.3 | 0.1 | 3.6 | 4.2 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 12.7 | 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 | 28.8 |
| 19-28 | 790 |  | 0.6 | 0.5 | 0.0 | 0.0 | 0.0 | 1.3 | 5.6 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 11.3 | 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 | 0.3 | 32.0 |

Appendix C43- Percent distribution of Lower Shuswap River Summer 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 | 1691 | 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 | 2026 | 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 | 1856 | 2,3,4,5 | 8.1 | 0.1 | 1.8 | 7.6 | 4.5 | 1.3 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 8.4 | 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 | 52.9 |
| 2012 | 1945 | 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 | 8225 | 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 | 4670 | 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 | 5012 | 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 | 2153 | 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 | 3049 | 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 | 11.0 | 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 | 5075 | 2,3,4,5 | 4.4 | 0.0 | 0.6 | 3.3 | 2.6 | 0.9 | 1.9 | 0.0 | 0.0 | 0.1 | 0.0 | 1.4 | 9.4 | 0.2 | 0.2 | 0.0 | 0.0 | 0.0 | 0.5 | 0.9 | 0.0 | 0.0 | 0.0 | 4.9 | 2.8 | 0.0 | 0.0 | 0.0 | 0.3 | 65.7 |
| 2019 | 6950 | 2,3,4,5 | 1.8 | 1.2 | 0.4 | 0.2 | 1.3 | 0.4 | 0.3 | 0.0 | 0.0 | 1.0 | 0.0 | 0.4 | 4.0 | 0.3 | 0.1 | 0.0 | 0.0 | 0.0 | 0.2 | 0.9 | 0.0 | 0.0 | 0.0 | 3.4 | 2.9 | 0.0 | 0.0 | 0.0 | 0.9 | 80.4 |
| 2020 | 6367 | 2,3,4,5 | 5.2 | 0.1 | 0.6 | 0.1 | 0.4 | 0.3 | 0.9 | 0.0 | 0.0 | 0.4 | 0.0 | 1.0 | 3.2 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 1.7 | 5.9 | 0.0 | 0.1 | 0.0 | 1.2 | 78.5 |
| 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 | 1173 |  | 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 | 3570 |  | 8.6 | 0.1 | 1.3 | 7.0 | 3.2 | 1.1 | 1.3 | 0.0 | 0.0 | 0.4 | 0.0 | 0.9 | 8.6 | 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 | 6658 |  | 3.5 | 0.6 | 0.5 | 0.2 | 0.9 | 0.3 | 0.6 | 0.0 | 0.0 | 0.7 | 0.0 | 0.7 | 3.6 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.6 | 0.0 | 0.0 | 0.0 | 2.6 | 4.4 | 0.0 | 0.0 | 0.0 | 1.1 | 79.5 |

Appendix C44- Percent distribution of Skagit Spring Fingerling 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 | 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 | 1462 | 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 | 1301 | 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 | 1575 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.2 | 2.9 | 0.0 | 0.0 | 0.8 | 0.0 | 0.0 | 11.2 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 18.4 | 0.0 | 0.3 | 54.3 |
| 2013 | 1211 | 2,3,4,5 | 0.7 | 0.6 | 0.0 | 0.0 | 0.0 | 2.8 | 3.6 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 7.8 | 0.4 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 25.8 | 0.0 | 0.2 | 52.5 |
| 2014 | 1045 | 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 | 1676 | 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 | 10.0 | 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 | 61.0 |
| 2017 | 1844 | 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 | 1213 | 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 | 12.4 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 5.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 23.6 | 0.0 | 0.4 | 48.6 |
| 2019 | 1051 | 2,3,4,5 | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 2.8 | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 | 4.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 31.9 | 0.0 | 0.0 | 46.0 |
| 2020 | 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 | 1498 |  | 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 | 1321 |  | 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 | 19.3 | 0.0 | 0.3 | 57.4 |
| 19-28 | 1051 |  | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 2.8 | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 | 4.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 31.9 | 0.0 | 0.0 | 46.0 |

Appendix C45- Percent distribution of Skagit Spring Yearling AEQ total fishing mortalities and escapement.

| Catch Year | $\begin{array}{\|c\|} \hline \text { Est } \\ \text { \# of } \\ \text { cWT } \\ \hline \end{array}$ | 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 | 391 | 2,3,4,5 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.5 | 12.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.6 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 9.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.1 | 0.0 | 0.3 | 54.0 |
| 2010 | 413 | 2,3,4,5 | 0.2 | 0.0 | 0.0 | 0.0 | 1.2 | 0.0 | 1.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 17.9 | 0.0 | 0.5 | 65.1 |
| 2011 | 595 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 1.7 | 0.0 | 0.0 | 0.7 | 0.0 | 0.0 | 10.3 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.1 | 0.0 | 0.2 | 59.7 |
| 2012 | 850 | 2,3,4,5 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 3.4 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 7.5 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 15.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.8 | 0.0 | 0.0 | 54.5 |
| 2013 | 430 | 3,4,5 | 0.0 | 0.0 | 0.9 | 0.0 | 0.0 | 2.1 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.7 | 0.9 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 8.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 16.7 | 0.0 | 0.9 | 56.7 |
| 2014 | 444 | 4,5 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 2.9 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.9 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 35.1 | 0.0 | 0.0 | 45.7 |
| 2015 | 79 | 5 |  | ed Cri | eria | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  |  |  |  | - |
| 2016 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - |  |  |
| 2017 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - |  | - |
| 2018 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  |  |
| 2019 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - | - | - | - | - | - | - | - | - | - | - |  |  |  |  |
| 2020 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 79-84 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - |  |
| 85-95 | 447 |  | 0.3 | 0.0 | 0.0 | 0.8 | 0.0 | 4.7 | 1.6 | 0.9 | 3.3 | 0.1 | 1.7 | 7.4 | 23.6 | 2.0 | 0.0 | 0.0 | 0.0 | 0.1 | 11.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 3.4 | 0.0 | 0.0 | 18.9 |
| 96-98 | 924 |  | 0.4 | 0.1 | 0.0 | 0.0 | 0.0 | 2.1 | 6.0 | 0.0 | 0.4 | 1.1 | 0.0 | 1.7 | 18.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.4 | 26.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 0.0 | 0.1 | 40.9 |
| 99-08 | 990 |  | 0.4 | 0.0 | 0.0 | 0.1 | 0.0 | 6.9 | 4.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.2 | 0.5 | 0.2 | 0.0 | 0.0 | 0.0 | 0.3 | 13.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.1 | 59.6 |
| 09-18 | 536 |  | 0.4 | 0.0 | 0.2 | 0.0 | 0.2 | 1.4 | 4.2 | 0.0 | 0.0 | 0.1 | 0.0 | 0.3 | 7.3 | 0.7 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 11.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.9 | 0.0 | 0.4 | 58.0 |
| 19-28 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Appendix C46- Percent distribution of Skykomish Fall Fingerling 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 |  | $\begin{gathered} \text { WAC } \\ \mathrm{N} \end{gathered}$ | 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 | 351 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.3 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 16.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 71.2 |
| 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 | 1026 | 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 | 1543 | 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 | 1346 | 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 | 730 | 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 | 10.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 70.3 |
| 2019 | 736 | 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 | 8.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 4.3 | 74.6 |
| 2020 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 79-84 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 85-95 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 96-98 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 99-08 | 744 |  | 0.6 | 0.0 | 0.0 | 0.2 | 0.0 | 14.5 | 4.1 | 0.0 | 0.2 | 0.3 | 0.0 | 0.0 | 7.1 | 2.4 | 0.1 | 0.0 | 0.0 | 0.0 | 0.6 | 7.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.8 | 61.5 |
| 09-18 | 764 |  | 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 | 12.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 1.3 | 0.3 | 66.2 |
| 19-28 | 736 |  | 0.1 | 0.8 | 0.0 | 0.0 | 0.0 | 0.3 | 1.2 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 8.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 4.3 | 74.6 |

Appendix C47- Percent distribution of Similkameen Summer Yearling AEQ total fishing mortalities and escapement.

| Catch <br> Year | Est <br> \# of 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 | 5 | T | N | S |  |  |
| 2009 | 8477 | 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 | 7383 | 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 | 12378 | 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 | 9795 | 3,4,5,6 | 12.9 | 0.5 | 0.7 | 3.0 | 1.2 | 4.7 | 2.4 | 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 | 8100 | 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 | 10683 | 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 | 18544 | 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 | 16541 | 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 | 7233 | 3,4,5,6 | 6.2 | 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 | 0.9 | 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 | 57.1 |
| 2018 | 5273 | 3,4,5,6 | 6.7 | 0.1 | 1.0 | 2.4 | 1.0 | 2.7 | 0.7 | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 | 0.3 | 4.6 | 0.7 | 0.5 | 0.3 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 15.9 | 4.1 | 0.1 | 58.1 |
| 2019 | 8719 | 3,4,5,6 | 3.4 | 0.4 | 0.1 | 0.7 | 0.3 | 0.2 | 0.2 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.1 | 0.9 | 1.0 | 0.3 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.3 | 7.2 | 0.4 | 79.8 |
| 2020 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 79-84 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 85-95 | 3081 |  | 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 | 2485 |  | 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 | 5155 |  | 10.2 | 0.5 | 1.5 | 4.0 | 2.6 | 3.7 | 0.4 | 0.0 | 0.2 | 0.3 | 0.0 | 0.0 | 0.3 | 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 | 10441 |  | 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 | 1.3 | 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 | 55.3 |
| 19-28 | 8719 |  | 3.4 | 0.4 | 0.1 | 0.7 | 0.3 | 0.2 | 0.2 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.1 | 0.9 | 1.0 | 0.3 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.3 | 7.2 | 0.4 | 79.8 |

Appendix C48- Percent distribution of Tsoo-Yess Fall Fingerling 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 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 | 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 | 1128 | 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 | 1346 | 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 | 270 | 2,3,4,5 | 10.0 | 0.0 | 0.0 | 15.6 | 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 | 1.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 66.3 |
| 2018 | 637 | 2,3,4,5 | 4.1 | 0.0 | 0.0 | 10.5 | 2.8 | 0.6 | 0.3 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 8.3 | 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 | 69.4 |
| 2019 | 277 | 2,3,4,5 | 11.2 | 0.0 | 0.0 | 0.0 | 4.0 | 10.8 | 9.7 | 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 | 55.6 |
| 2020 | 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 | 515 |  | 17.1 | 0.7 | 3.6 | 11.8 | 2.2 | 0.6 | 0.9 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 1.7 | 0.2 | 0.7 | 0.0 | 0.0 | 0.0 | 0.1 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.5 | 0.0 | 0.9 | 55.2 |
| 09-18 | 699 |  | 7.8 | 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 | 277 |  | 11.2 | 0.0 | 0.0 | 0.0 | 4.0 | 10.8 | 9.7 | 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 | 55.6 |

Appendix C49- Percent distribution of Spring Creek Tule 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 | 2573 | 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 | 4141 | 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 | 2245 | 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 | 2514 | 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 | 2850 | 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 | 5070 | 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 | 6874 | 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 | 2320 | 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 | 2671 | 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 | 28.5 | 6.7 | 0.3 | 23.3 |
| 2018 | 1840 | 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 | 1810 | 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 | 5.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 29.2 | 5.3 | 2.6 | 38.2 |
| 2020 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 79-84 | 4267 |  | 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 | 1482 |  | 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 | 3253 |  | 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 | 3310 |  | 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 | 1810 |  | 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 | 5.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 29.2 | 5.3 | 2.6 | 38.2 |

Appendix C50- Percent distribution of South Puget Sound Fall Fingerling 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 | 2906 | 2,3,4,5 | 0.1 | 0.0 | 0.0 | 0.2 | 0.0 | 5.2 | 8.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 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 | 11.3 | 0.2 | 0.3 | 50.9 |
| 2010 | 2920 | 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 | 2821 | 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 | 2774 | 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 | 2905 | 2,3,4,5 | 0.1 | 0.4 | 0.0 | 0.1 | 0.0 | 3.0 | 2.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.8 | 3.4 | 0.7 | 0.0 | 0.0 | 0.0 | 1.5 | 12.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 0.0 | 0.0 | 70.5 |
| 2014 | 2043 | 2,3,4,5 | 1.2 | 0.6 | 0.0 | 0.2 | 0.0 | 6.1 | 3.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.8 | 4.1 | 2.1 | 0.5 | 0.0 | 0.0 | 0.4 | 14.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 0.0 | 0.1 | 58.1 |
| 2015 | 1978 | 2,3,4,5 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 2.7 | 3.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 12.6 | 10.1 | 0.9 | 0.3 | 0.0 | 0.2 | 1.9 | 18.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.0 | 0.4 | 47.9 |
| 2016 | 3012 | 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 | 8.6 | 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 | 0.4 | 62.9 |
| 2017 | 4554 | 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 | 67.5 |
| 2018 | 3973 | 2,3,4,5 | 0.5 | 0.1 | 0.1 | 0.2 | 0.2 | 2.0 | 4.3 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 9.9 | 5.6 | 0.9 | 0.0 | 0.0 | 0.0 | 1.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.3 | 0.0 | 0.1 | 45.6 |
| 2019 | 2081 | 2,3,4,5 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 1.5 | 3.6 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 3.8 | 2.8 | 0.4 | 0.0 | 0.0 | 0.0 | 4.0 | 24.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.3 | 57.0 |
| 2020 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - |
| 79-84 | 3947 |  | 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 | 2501 |  | 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 | 3262 |  | 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 | 2908 |  | 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 | 2989 |  | 0.3 | 0.1 | 0.0 | 0.1 | 0.0 | 3.8 | 4.4 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 6.2 | 4.4 | 0.9 | 0.2 | 0.0 | 0.0 | 1.3 | 15.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.7 | 0.0 | 0.2 | 58.8 |
| 19-28 | 2081 |  | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 1.5 | 3.6 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 3.8 | 2.8 | 0.4 | 0.0 | 0.0 | 0.0 | 4.0 | 24.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.3 | 57.0 |

Appendix C51- Percent distribution of South Puget Sound Fall Yearling AEQ total fishing mortalities and escapement.

| Catch Year | $\begin{array}{\|l\|} \hline \text { Est } \\ \text { \# of } \\ \text { CWT } \\ \hline \end{array}$ | 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 | 208 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.3 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 2.9 | 59.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 3.4 | 0.0 | 15.9 |
| 2010 | 171 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.3 | 0.6 | 1.8 | 0.0 | 0.0 | 0.0 | 5.3 | 33.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.9 | 52.0 |
| 2011 | 241 | 3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.1 | 0.4 | 0.8 | 0.0 | 2.1 | 23.2 | 63.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.4 | 0.0 | 0.0 | 1.2 |
| 2012 | 217 | 2,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.4 | 5.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.3 | 3.7 | 3.7 | 1.4 | 0.0 | 0.0 | 31.8 | 46.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.1 |
| 2013 | 37 | 2,3,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 21.6 | 48.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 21.6 |
| 2014 | 9 | 2,3,4 | 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 | 0.0 | 0.0 | 0.0 | 66.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 33.3 |
| 2015 | 10 | 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 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 60.0 |
| 2016 | 6 | 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 | 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 | 66.7 |
| 2017 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - |  | - | - | - |  |  |  |  |  |  |
| 2018 | NA |  | - | - | - | - | - | - | - | - |  | - | - | - | - | - |  | - | - | - |  |  |  | - | - | - | - | - | - | - |  | - |
| 2019 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  |  |
| 2020 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - |
| 79-84 | 385 |  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.1 | 0.0 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 1.6 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 13.9 | 67.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.4 | 0.3 | 0.0 | 7.9 |
| 85-95 | 890 |  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.2 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 1.0 | 1.8 | 0.1 | 0.1 | 0.0 | 0.0 | 15.1 | 64.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.6 | 0.1 | 12.4 |
| 96-98 | 694 |  | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 0.6 | 1.0 | 0.3 | 0.0 | 0.0 | 2.9 | 80.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.2 | 0.0 | 11.8 |
| 99-08 | 346 |  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.8 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 0.5 | 0.0 | 0.2 | 0.0 | 9.0 | 56.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.6 | 0.0 | 0.4 | 26.4 |
| 09-18 | 209 |  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 4.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 1.7 | 1.5 | 0.6 | 0.0 | 0.5 | 15.8 | 50.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.6 | 0.8 | 0.7 | 18.3 |
| 19-28 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Appendix C52- Percent distribution of Squaxin Pens Fall Yearling AEQ total fishing mortalities and escapement.

| Catch Year | $\begin{array}{\|c\|} \hline \text { Est } \\ \text { \# of } \\ \text { CWT } \\ \hline \end{array}$ | 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 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - |  |  |  | - | - | - | - |  |  | - |  |  |  | - | - | - | - |  |  |
| 2010 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - |  |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  |
| 2011 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2012 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2013 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2014 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - |
| 2015 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - |
| 2016 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2017 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2018 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - |  |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2019 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - |
| 2020 | NA |  | - | - | - | - | - | - |  | - | - | - | - | - | - | - |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | $-$ |
| 79-84 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 85-95 | 820 |  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.2 | 1.7 | 0.0 | 0.2 | 0.0 | 0.2 | 1.7 | 3.3 | 7.9 |  | 0.3 | 0.0 | 0.0 | 0.0 | 19.1 | 47.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 0.0 | 1.2 | 7.2 |
| 96-98 | 336 |  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 0.1 |  | 0.0 | 1.4 |  | 0.0 | 4.8 | 89.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 |  | 0.3 | 0.9 |
| 99-08 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 09-18 | NA |  | - | - | - | - | - | - |  | - | - | - | - | - |  |  |  | - | - | - | - | - |  | - | - | - | - | - | - | - | - | - | - |
| 19-28 | NA |  | - | - | - | - | - | - |  | - | - | - | - | - | - | - |  | - | - | - | - | - |  | - | - | - | - | - | - | - | - | - | - |

Appendix C53- Percent distribution of Salmon River 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 | 2584 | 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 | 4015 | 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 | 5395 | 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 | 4145 | 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 | 8404 | 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 | 11703 | 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 | 14034 | 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 | 9627 | 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 | 3887 | 2,3,4,5 | 11.0 | 0.0 | 0.7 | 15.9 | 3.4 | 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 | 53.7 |
| 2018 | 1161 | 2,3,4,5 | 26.3 | 0.0 | 1.7 | 27.2 | 8.4 | 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 | 1537 | 2,3,4,5 | 6.4 | 0.0 | 1.3 | 12.2 | 2.7 | 1.7 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 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 | 29.2 | 0.0 | 43.5 |
| 2020 | 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 | 2070 |  | 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 | 3366 |  | 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 | 3374 |  | 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 | 6496 |  | 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 | 1537 |  | 6.4 | 0.0 | 1.3 | 12.2 | 2.7 | 1.7 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 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 | 29.2 | 0.0 | 43.5 |

Appendix C54- Percent distribution of Siletz River AEQ total fishing mortalities and escapement based on Salmon River (SRH) CWT recoveries with terminal adjustments for basin-specific performance.

| Catch <br> Year | Est <br> \# of 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 | 2584 | 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 | 4015 | 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 | 5.6 | 0.1 | 69.8 |
| 2011 | 5395 | 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 | 27.4 | 0.0 | 45.7 |
| 2012 | 4145 | 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 | 11.3 | 0.1 | 46.4 |
| 2013 | 8404 | 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 | 15.6 | 0.0 | 59.5 |
| 2014 | 11703 | 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 | 16.1 | 0.0 | 61.0 |
| 2015 | 14034 | 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 | 34.0 | 0.2 | 45.4 |
| 2016 | 9627 | 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 | 13.4 | 0.0 | 49.6 |
| 2017 | 3887 | 2,3,4,5 | 11.0 | 0.0 | 0.7 | 15.9 | 3.4 | 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 | 45.9 |
| 2018 | 1161 | 2,3,4,5 | 26.3 | 0.0 | 1.7 | 27.2 | 8.4 | 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 | 1537 | 2,3,4,5 | 6.4 | 0.0 | 1.3 | 12.2 | 2.7 | 1.7 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 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 | 47.8 |
| 2020 |  |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 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 | 2070 |  | 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 | 3366 |  | 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 | 3374 |  | 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 | 6496 |  | 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 | 16.2 | 0.1 | 49.4 |
| 19-28 | 1537 |  | 6.4 | 0.0 | 1.3 | 12.2 | 2.7 | 1.7 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 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 | 47.8 |

Appendix C55- Percent distribution of Siuslaw River AEQ total fishing mortalities and escapement based on Salmon River (SRH) CWT recoveries with terminal adjustments for basin-specific performance.

| 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 | 2584 | 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 | 4015 | 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 | 17.0 | 0.1 | 58.4 |
| 2011 | 5395 | 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 | 24.1 | 0.0 | 49.0 |
| 2012 | 4145 | 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 | 11.9 | 0.1 | 45.8 |
| 2013 | 8404 | 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 | 27.4 | 0.0 | 47.7 |
| 2014 | 11703 | 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 | 14034 | 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 | 28.8 | 0.2 | 50.6 |
| 2016 | 9627 | 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 | 3887 | 2,3,4,5 | 11.0 | 0.0 | 0.7 | 15.9 | 3.4 | 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 | 24.2 | 0.1 | 41.5 |
| 2018 | 1161 | 2,3,4,5 | 26.3 | 0.0 | 1.7 | 27.2 | 8.4 | 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 | 16.6 |
| 2019 | 1537 | 2,3,4,5 | 6.4 | 0.0 | 1.3 | 12.2 | 2.7 | 1.7 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 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 | 36.9 | 0.0 | 35.8 |
| 2020 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 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 | 2070 |  | 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 | 3366 |  | 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 | 3374 |  | 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 | 6496 |  | 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 | 20.6 | 0.1 | 45.1 |
| 19-28 | 1537 |  | 6.4 | 0.0 | 1.3 | 12.2 | 2.7 | 1.7 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 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 | 36.9 | 0.0 | 35.8 |

## Appendix C56- Percent distribution of Nehalem River AEQ total fishing mortalities and escapement based on Salmon River (SRH) 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 | 2584 | 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 | 4015 | 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 | 7.9 | 0.1 | 67.5 |
| 2011 | 5395 | 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 | 13.9 | 0.0 | 59.2 |
| 2012 | 4145 | 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 | 11.3 | 0.1 | 46.4 |
| 2013 | 8404 | 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 | 18.8 | 0.0 | 56.3 |
| 2014 | 11703 | 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 | 22.6 | 0.0 | 54.5 |
| 2015 | 14034 | 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 | 26.2 | 0.2 | 53.2 |
| 2016 | 9627 | 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 | 52.3 |
| 2017 | 3887 | 2,3,4,5 | 11.0 | 0.0 | 0.7 | 15.9 | 3.4 | 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 | 12.7 | 0.1 | 53.0 |
| 2018 | 1161 | 2,3,4,5 | 26.3 | 0.0 | 1.7 | 27.2 | 8.4 | 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 | 6.3 | 0.1 | 24.1 |
| 2019 | 1537 | 2,3,4,5 | 6.4 | 0.0 | 1.3 | 12.2 | 2.7 | 1.7 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 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 | 4.3 | 0.0 | 68.4 |
| 2020 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 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 | 2070 |  | 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 | 3366 |  | 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 | 3374 |  | 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 | 6496 |  | 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 | 13.1 | 0.1 | 52.5 |
| 19-28 | 1537 |  | 6.4 | 0.0 | 1.3 | 12.2 | 2.7 | 1.7 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 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 | 4.3 | 0.0 | 68.4 |

Appendix C57- Percent distribution of Southern Southeast Alaska Spring AEQ total fishing mortalities and escapement.

| Catch Year | Est <br> \# of <br> CWT | Ages | AABM Fishery |  |  |  |  |  |  | ISBM Fishery |  |  |  |  |  |  |  |  |  |  |  |  | Terminal Fishery |  |  |  |  |  |  |  | Escapement |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | SE |  |  | 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 | 7803 | 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 | 5926 | 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 | 6103 | 3,4,5,6 | 13.1 | 8.3 | 3.7 | 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 | 0.8 | 57.7 |
| 2012 | 3783 | 3,4,5,6 | 27.4 | 9.4 | 4.3 | 0.5 | 0.3 | 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 | 0.0 | 13.9 | 5.1 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.3 | 34.8 |
| 2013 | 5869 | 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 | 3.2 | 45.0 |
| 2014 | 4826 | 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 | 1.5 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 53.8 |
| 2015 | 5436 | 3,4,5,6 | 26.9 | 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 | 3.5 | 38.9 |
| 2016 | 3564 | 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 | 18.7 | 0.4 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.2 | 37.3 |
| 2017 | 4142 | 3,4,5,6 | 21.1 | 9.0 | 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 | 2543 | 3,4,5,6 | 8.4 | 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 | 5.5 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 66.0 |
| 2019 | 2288 | 3,4,5,6 | 4.8 | 21.2 | 0.3 | 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 | 3.4 | 0.7 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.9 | 64.2 |
| 2020 | 3252 | 3,4,5,6 | 8.7 | 7.0 | 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 | 0.0 | 0.0 | 0.0 | 0.0 | 3.4 | 1.1 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 76.6 |
| 79-84 | 4738 |  | 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 | 12219 |  | 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 | 4890 |  | 26.9 | 7.1 | 10.4 | 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 | 8060 |  | 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 | 5000 |  | 19.9 | 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 | 1.9 | 50.8 |
| 19-28 | 2770 |  | 6.7 | 14.1 | 0.9 | 0.0 | 0.2 | 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 | 3.4 | 0.9 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.5 | 70.4 |

Appendix C58- Percent distribution of Skagit Summer Fingerling 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 | 5 | 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 | 922 | 2,3,4,5 | 5.5 | 1.8 | 0.7 | 0.5 | 2.6 | 6.7 | 24.0 | 0.0 | 0.0 | 2.1 | 0.0 | 0.0 | 15.6 | 0.4 | 0.7 | 0.0 | 0.0 | 0.0 | 1.5 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.4 | 0.0 | 0.1 | 29.6 |
| 2018 | 1338 | 2,3,4,5 | 4.6 | 1.0 | 0.3 | 1.3 | 0.8 | 2.3 | 12.6 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 12.0 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 10.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.1 | 0.0 | 0.8 | 49.8 |
| 2019 | 1128 | 2,3,4,5 | 1.1 | 0.3 | 0.0 | 0.3 | 0.2 | 0.0 | 9.3 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 3.5 | 0.4 | 0.3 | 0.0 | 0.0 | 0.0 | 0.3 | 7.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.4 | 0.0 | 1.5 | 70.3 |
| 2020 | 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 | 1016 |  | 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 | 1.1 | 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 | 1128 |  | 1.1 | 0.3 | 0.0 | 0.3 | 0.2 | 0.0 | 9.3 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 3.5 | 0.4 | 0.3 | 0.0 | 0.0 | 0.0 | 0.3 | 7.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.4 | 0.0 | 1.5 | 70.3 |

Appendix C59- Percent distribution of Stikine River 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 | 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 | 13.3 | 2.8 | 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 | 1.6 | 2.8 | 0.0 | 15.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 62.5 |
| 2011 | 387 | 3,4,5,6 | 4.7 | 5.7 | 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 | 0.5 | 8.3 | 0.0 | 12.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 65.6 |
| 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 | 1.6 | 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 | 0.4 | 12.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 75.9 |
| 2014 | 559 | 3,4,5,6 | 3.9 | 3.6 | 0.2 | 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 | 0.0 | 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 | 604 | 3,4,5,6 | 3.5 | 0.2 | 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 | 0.3 | 0.5 | 0.0 | 14.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 78.8 |
| 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 | 181 | 3,4,5,6 | 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 | 0.0 | 0.6 | 0.0 | 2.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 96.7 |
| 2019 | 357 | 3,4,5,6 | 4.5 | 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 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 92.2 |
| 2020 | 228 | 4,5,6 | 2.2 | 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 | 14.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 82.5 |
| 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 | 46.5 |
| 09-18 | 439 |  | 6.1 | 2.5 | 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 | 0.3 | 3.5 | 0.3 | 12.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 73.4 |
| 19-28 | 292 |  | 3.3 | 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 | 7.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 87.3 |

Appendix C60- Percent distribution of Stillaguamish Fall Fingerling 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 | 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 | 1412 | 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 | 1004 | 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 | 6.3 | 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 | 964 | 2,3,4,5 | 1.2 | 0.5 | 0.2 | 0.0 | 0.7 | 7.9 | 4.9 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 9.2 | 1.5 | 0.1 | 0.0 | 0.0 | 0.0 | 2.4 | 10.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 0.0 | 9.9 | 49.4 |
| 2018 | 1486 | 2,3,4,5 | 1.7 | 0.1 | 0.0 | 0.3 | 0.0 | 3.4 | 5.3 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 13.2 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 3.2 | 10.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.4 | 0.0 | 3.1 | 55.2 |
| 2019 | 1228 | 2,3,4,5 | 1.4 | 2.2 | 0.0 | 0.0 | 0.0 | 1.0 | 4.1 | 0.0 | 0.0 | 1.5 | 0.0 | 0.0 | 11.7 | 0.2 | 0.2 | 0.0 | 0.0 | 0.0 | 2.7 | 9.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 7.5 | 52.9 |
| 2020 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - |
| 79-84 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 85-95 | 735 |  | 1.0 | 0.0 | 0.0 | 0.4 | 0.0 | 11.0 | 4.8 | 1.4 | 3.0 | 0.2 | 0.2 | 1.9 | 7.6 | 3.8 | 0.1 | 0.0 | 0.0 | 0.0 | 3.3 | 18.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 0.0 | 0.6 | 41.2 |
| 96-98 | 1082 |  | 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 | 916 |  | 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 | 11.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.0 | 4.4 | 51.9 |
| 19-20 | 1228 |  | 1.4 | 2.2 | 0.0 | 0.0 | 0.0 | 1.0 | 4.1 | 0.0 | 0.0 | 1.5 | 0.0 | 0.0 | 11.7 | 0.2 | 0.2 | 0.0 | 0.0 | 0.0 | 2.7 | 9.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 7.5 | 52.9 |

Appendix C61- Percent distribution of Columbia River Summers 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 | 4365 | 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 | 6057 | 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 | 4957 | 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 | 5680 | 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 | 0.8 | 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 | 5974 | 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 | 6808 | 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 | 10440 | 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 | 12172 | 2,3,4,5 | 19.6 | 0.5 | 0.5 | 2.8 | 0.6 | 8.6 | 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 | 44.8 |
| 2017 | 7217 | 2,3,4,5 | 7.5 | 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 | 13.9 | 7.7 | 0.0 | 54.1 |
| 2018 | 5002 | 2,3,4,5 | 9.8 | 0.3 | 0.8 | 3.6 | 1.2 | 3.8 | 0.5 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.4 | 4.5 | 0.3 | 0.6 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.9 | 6.6 | 0.0 | 46.5 |
| 2019 | 3460 | 3,4,5 | 5.5 | 1.5 | 0.3 | 0.6 | 0.3 | 0.3 | 0.0 | 0.0 | 0.0 | 0.8 | 0.0 | 0.0 | 0.2 | 2.3 | 0.4 | 0.3 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.4 | 0.2 | 0.0 | 73.6 |
| 2020 | 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 | 1085 |  | 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 | 5574 |  | 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 | 6867 |  | 10.4 | 0.4 | 0.6 | 2.0 | 0.9 | 5.2 | 1.5 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.5 | 4.0 | 0.8 | 2.4 | 0.2 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 16.7 | 5.6 | 0.0 | 48.2 |
| 19-28 | 3460 |  | 5.5 | 1.5 | 0.3 | 0.6 | 0.3 | 0.3 | 0.0 | 0.0 | 0.0 | 0.8 | 0.0 | 0.0 | 0.2 | 2.3 | 0.4 | 0.3 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.4 | 0.2 | 0.0 | 73.6 |

Appendix C62- Percent distribution of Taku River 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 | 343 | 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 | 12.2 | 0.0 | 15.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 60.9 |
| 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 | 335 | 3,4,5,6 | 6.9 | 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 | 3.9 | 0.0 | 7.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 77.9 |
| 2012 | 272 | 3,4,5,6 | 9.9 | 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 | 10.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 77.6 |
| 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 | 364 | 3,4,5,6 | 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 | 0.5 | 0.0 | 9.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 86.5 |
| 2015 | 432 | 3,4,5,6 | 7.4 | 1.6 | 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 | 1.4 | 0.0 | 6.5 | 0.0 | 0.0 | 0.0 | 0.0 | 1.9 | 78.2 |
| 2016 | 261 | 3,4,5,6 | 0.8 | 0.0 | 4.2 | 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 | 9.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 85.4 |
| 2017 | 189 | 3,4,5,6 | 4.2 | 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 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 90.5 |
| 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 | 2.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 97.2 |
| 2019 | 567 | 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 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 96.5 |
| 2020 | 629 | 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 | 4.1 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 94.9 |
| 79-84 | 328 |  | 5.7 | 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 | 0.4 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 5.3 | 84.6 |
| 85-95 | 373 |  | 2.7 | 0.0 | 7.8 | 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 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 7.0 | 80.4 |
| 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 | 1062 |  | 3.3 | 0.1 | 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 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.6 | 0.1 | 6.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 78.3 |
| 09-18 | 291 |  | 4.8 | 0.7 | 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 | 2.2 | 0.0 | 8.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 82.2 |
| 19-28 | 598 |  | 0.2 | 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 | 0.0 | 0.0 | 0.0 | 0.0 | 2.9 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 95.7 |

Appendix C63- Percent distribution of Taku And Stikine Rivers 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 | 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 | 1.7 | 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 | 0.8 | 2.1 | 0.0 | 14.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 70.3 |
| 2011 | 725 | 3,4,5,6 | 5.9 | 3.4 | 2.6 | 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 | 6.3 | 0.0 | 10.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 71.0 |
| 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 | 1.6 | 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 | 0.2 | 8.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 81.1 |
| 2014 | 916 | 3,4,5,6 | 3.5 | 2.1 | 0.1 | 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 | 0.0 | 9.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 81.3 |
| 2015 | 1158 | 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 | 834 | 3,4,5,6 | 2.9 | 0.1 | 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 | 0.2 | 0.4 | 0.0 | 13.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 80.1 |
| 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 | 323 | 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 | 2.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 96.9 |
| 2019 | 926 | 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 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 95.0 |
| 2020 | 853 | 4,5,6 | 0.8 | 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 | 3.0 | 0.0 | 3.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 91.7 |
| 79-84 | 315 |  | 5.9 | 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 | 0.4 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 89.2 |
| 85-95 | 347 |  | 2.9 | 0.0 | 8.4 | 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 | 0.0 | 0.0 | 0.0 | 0.0 | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 86.5 |
| 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 | 1283 |  | 3.8 | 0.2 | 5.0 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 7.6 | 1.0 | 8.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 72.8 |
| 09-18 | 725 |  | 5.6 | 1.7 | 1.3 | 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 | 0.1 | 11.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 76.8 |
| 19-28 | 890 |  | 1.3 | 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 | 2.0 | 0.0 | 2.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 93.4 |

Appendix C64- Percent distribution of Unuk River 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 | 401 | 3,4,5,6 | 14.5 | 1.5 | 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 | 77.6 |
| 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 | 283 | 3,4,5,6 | 20.1 | 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 | 72.1 |
| 2012 | 206 | 3,4,5,6 | 35.0 | 7.3 | 6.8 | 0.0 | 1.0 | 0.0 | 0.0 | 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 | 1.9 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 41.3 |
| 2013 | 190 | 3,4,5,6 | 17.9 | 13.7 | 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 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 60.0 |
| 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 | 152 | 3,4,5,6 | 21.7 | 14.5 | 5.3 | 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 | 54.6 |
| 2017 | 132 | 3,4,5,6 | 8.3 | 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 | 85.6 |
| 2018 | 285 | 3,4,5,6 | 10.5 | 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 | 68.4 |
| 2019 | 456 | 3,4,5,6 | 4.2 | 4.4 | 0.9 | 0.0 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 2.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 2.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 83.1 |
| 2020 | 322 | 4,5,6 | 7.8 | 3.1 | 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 | 1.2 | 5.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 79.8 |
| 79-84 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 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 | 4.5 | 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 | 80.7 |
| 99-08 | 856 |  | 11.4 | 3.9 | 7.4 | 0.4 | 0.6 | 0.0 | 0.0 | 0.0 | 0.4 | 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 | 2.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 72.8 |
| 09-18 | 249 |  | 19.9 | 6.5 | 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 | 65.0 |
| 19-28 | 389 |  | 6.0 | 3.7 | 1.8 | 0.0 | 0.7 | 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 | 0.8 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 81.5 |

Appendix C65- Percent distribution of Columbia River Upriver Bright 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 | 1339 | 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 | 1736 | 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 | 3024 | 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 | 5093 | 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 | 14463 | 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 | 16368 | 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 | 13248 | 2,3,4,5 | 8.9 | 0.8 | 0.9 | 2.3 | 1.5 | 0.5 | 0.6 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.2 | 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 | 8739 | 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 | 4787 | 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 | 2411 | 2,3,4,5 | 6.1 | 0.0 | 0.3 | 5.6 | 3.2 | 0.5 | 0.3 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.8 | 0.5 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.8 | 3.9 | 0.0 | 66.1 |
| 2019 | 3227 | 2,3,4,5 | 6.8 | 0.7 | 0.7 | 7.1 | 1.9 | 1.1 | 0.6 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.4 | 0.7 | 0.7 | 0.0 | 0.1 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.7 | 3.1 | 0.1 | 62.8 |
| 2020 | NA |  | - | - | - | - | - |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 79-84 | 2507 |  | 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 | 1557 |  | 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 | 1635 |  | 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 | 54.3 |
| 09-18 | 7121 |  | 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 | 3227 |  | 6.8 | 0.7 | 0.7 | 7.1 | 1.9 | 1.1 | 0.6 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.4 | 0.7 | 0.7 | 0.0 | 0.1 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.7 | 3.1 | 0.1 | 62.8 |

Appendix C66- Percent distribution of University Of Washington Accelerated AEQ total fishing mortalities and escapement.

| Catch Year | $\begin{array}{\|l} \hline \text { Est } \\ \text { \# of } \end{array}$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 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - | - | - | - |  | - |  | - | - |  |  |  | - | - | - | - |
| 2010 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - | - | - | - | - | - | - | - | - |
| 2011 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - | - | - | - | - | - | - | - | - |
| 2012 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2013 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2014 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2015 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - | - | - | - | - | - | - | - | - |
| 2016 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2017 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2018 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2019 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2020 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 79-84 | 4093 |  | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 12.9 | 0.1 | 0.4 | 0.0 | 0.0 | 0.6 | 1.9 | 3.7 | 1.8 | 0.2 | 0.0 | 0.0 | 0.2 | 10.3 | 44.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 1.9 | 0.0 | 0.0 | 20.9 |
| 85-95 | 932 |  | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 15.9 | 0.9 | 0.1 | 0.3 | 0.0 | 0.5 | 4.0 | 4.7 | 2.7 | 0.1 | 0.1 | 0.0 | 0.0 | 14.2 | 23.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.4 | 0.0 | 0.1 | 20.0 |
| 96-98 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  |  | - | - | - | - | - | - | - | - | - |
| 99-08 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 09-18 | NA |  | - | - | - | - | - | - |  | - | - | - | - | - | - | - | - | - | - | - | - |  |  | - | - | - | - | - | - | - | - | - |
| 19-28 | NA |  | - | - | - | - | - | - |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Appendix C67- Percent distribution of White River Spring Yearling AEQ total fishing mortalities and escapement.

| Catch <br> Year | $\begin{array}{\|c\|} \hline \text { Est } \\ \text { \# of } \\ \text { CWT } \end{array}$ | 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 | 207 | 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 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.4 | 0.0 | 1.0 | 83.6 |
| 2010 | 212 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 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 | 2.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.5 | 0.0 | 0.0 | 88.2 |
| 2011 | 216 | 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 | 0.0 | 0.0 | 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 | 0.5 | 94.0 |
| 2012 | 202 | 2,3,4,5 | 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 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 15.8 | 0.0 | 0.0 | 73.3 |
| 2013 | 94 | 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 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.8 | 0.0 | 0.0 | 86.2 |
| 2014 | 116 | 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 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 6.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.9 | 0.0 | 0.0 | 86.2 |
| 2015 | 224 | 2,3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 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 | 0.9 | 3.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.2 | 0.0 | 0.4 | 81.7 |
| 2016 | 125 | 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 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 27.2 | 0.0 | 0.0 | 68.0 |
| 2017 | 168 | 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 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.2 | 0.0 | 0.0 | 95.2 |
| 2018 | 56 | 3,4,5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.6 | 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 | 39.3 | 0.0 | 1.8 | 55.4 |
| 2019 | 14 | 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 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.3 | 0.0 | 0.0 | 85.7 |
| 2020 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  |  |  |  |
| 79-84 | NA |  | - | - | - | - | - | - | - | - |  |  |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  | - |  |
| 85-95 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |  |
| 96-98 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 99-08 | 672 |  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.2 | 15.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.6 | 0.0 | 0.1 | 77.7 |
| 09-18 | 184 |  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.0 | 0.0 | 0.2 | 83.8 |
| 19-28 | NA |  | - |  |  | - | - | - |  |  |  | - | - |  | - | - | - | - | - | - | - |  | - | - | - | - | - | - | - | - | - |  |

Appendix C68- Percent distribution of Willamette Spring AEQ total fishing mortalities and escapement.

| Catch <br> Year | Est <br> \# of 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 | 5 | T | N | S |  |  |
| 2009 | 3530 | 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 | 10376 | 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 | 7422 | 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 | 5860 | 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 | 6289 | 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 | 14285 | 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 | 16807 | 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 | 5818 | 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 | 6472 | 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 | 62.0 |
| 2018 | 5472 | 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 | 24.5 | 0.0 | 67.1 |
| 2019 | 2089 | 3,4,5,6 | 3.7 | 0.3 | 0.1 | 0.2 | 0.4 | 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 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.2 | 14.9 | 0.0 | 74.2 |
| 2020 | NA |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 79-84 | 4860 |  | 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 | 2817 |  | 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 | 2475 |  | 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 | 7900 |  | 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 | 8233 |  | 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 | 2089 |  | 3.7 | 0.3 | 0.1 | 0.2 | 0.4 | 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 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.2 | 14.9 | 0.0 | 74.2 |

## Appendix D: Brood Year Exploitation Rate Plots

The brood year exploitation rate (BYER) 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 adult equivalent (AEQ) total fishing mortality to AEQ total fishing mortality plus escapement.

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

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

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

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.

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


Northern Southeast Alaska Spring Ocean Exploitation Rates

Southern Southeast Alaska Spring Ocean Exploitation Rates

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 B.C. 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 IM are shown. Only completed brood years are included.




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


Harrison River
Total Exploitation Rates

Chilliwack River Fall Total Exploitation Rates

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.


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 CWT indicator stocks.


## Appendix D9 continued.



Skagit Spring Yearling Ocean Exploitation Rates
$\square$ landed catch $\quad$ incidental mortality

Skagit Summer Fingerling Ocean Exploitation Rates
$\square$ landed catch $\quad$ incidental mortality

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


Appendix D11 - Brood year exploitation rate in terms of landed catch and incidental mortality for Southern Puget Sound CWT indicator stocks.
$\square$ landed catch $\quad$ incidental mortality

South Puget Sound Fall Fingerling Ocean Exploitation Rates


White River Spring Yearling
Ocean Exploitation Rates


South Puget Sound Fall Yearling Ocean Exploitation Rates


Nisqually Fall Fingerling
Ocean Exploitation Rates


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


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


## Appendix D13 continued.



## Appendix D13 continued.




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


## 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-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:

$$
\operatorname{CohSurv}_{B Y, a=2 o r 3}=\frac{\text { Cohort }_{B Y, a=20 r 3}}{\text { TotCWTRelease }_{B Y}}
$$

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 $_{B Y, \text { Maxage }-1}=\frac{\sum_{f \in \text { Preterminal }} \text { TotMorts }_{\text {BY,Maxage }-1, f}+\frac{\text { Esc }_{\text {BY,Maxage }-1}+\sum_{f \in \text { Terminal }} \text { TotMorts }_{B Y, M a x a g e-1, f}}{\text { AvgMatRte }_{\text {Maxage }-1}}}{1-N M_{\text {Maxage }-1}}$

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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 and transboundary wild indicator stocks.


Appendix E2 continued.


Appendix E3- Smolt-to-age 3 survival rates for Northern and Central B.C. stocks.


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


## 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 CWT indicator stocks of Hoko, Queets, and Tsoo-Yess Fall Fingerling.


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


## Appendix E9 continued.



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


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


Appendix E12-Smolt-to-youngest age survival rates for Juan de Fuca and Hood Canal CWT 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 CWT indicator stocks.


## Appendix E13 continued.



## Appendix E13 continued.



Appendix E14- Smolt-to-youngest age survival rates for North Oregon Coast CWT indicator stocks.


## Appendix F: Terminal Area Adjustment Data

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| 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 |

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, 1979-2020.

| 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 | $\begin{gathered} \hline \text { TWCVI } \\ \text { FS } \end{gathered}$ |
| 1979 | 0\% | 5\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 1980 | 10\% | 3\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 1981 | 10\% | 4\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 1982 | 13\% | 6\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 1983 | 15\% | 5\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 1984 | 15\% | 15\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 1985 | 1\% | 15\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 1986 | 0\% | 28\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 1987 | 0\% | 20\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 1988 | 7\% | 12\% | 1\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 1989 | 17\% | 16\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 1990 | 7\% | 8\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 1991 | 13\% | 13\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 1992 | 0\% | 5\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 1993 | 7\% | 12\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 1994 | 11\% | 15\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 1995 | 6\% | 8\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 1996 | 0\% | 2\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 1997 | 6\% | 17\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 1998 | 4\% | 16\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 1999 | 6\% | 18\% | 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 | 7\% | 15\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 2003 | 8\% | 16\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 2004 | 12\% | 13\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 2005 | 31\% | 6\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 2006 | 25\% | 10\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 2007 | 25\% | 12\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 2008 | 20\% | 13\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 2009 | 6\% | 12\% | 1\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 2010 | 4\% | 2\% | 1\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 2011 | 17\% | 16\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 2012 | 14\% | 15\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 2013 | 0\% | 2\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 2014 | 0\% | 5\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 2015 | 10\% | 9\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 2016 | 6\% | 7\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 2017 | 15\% | 10\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 2018 | 29\% | 10\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 2019 | 35\% | 9\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| 2020 | 36\% | 6\% | 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, 1979-2020.

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

|  | Queets River Fall |  |  | Grays Harbor |  |  | Hoh |  |  | Quillayute |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Year | TWAC FN | $\begin{aligned} & \text { WA } \\ & \text { CST N } \end{aligned}$ | $\begin{gathered} \text { TNF } \\ \text { TERM } \\ \mathrm{S} \\ \hline \end{gathered}$ | TWAC FN | $\begin{aligned} & \text { WA } \\ & \text { CST N } \end{aligned}$ | $\begin{gathered} \text { TNF } \\ \text { TERM } \\ \mathrm{S} \\ \hline \end{gathered}$ | TWAC FN | $\begin{aligned} & \text { WA } \\ & \text { CST N } \end{aligned}$ | $\begin{gathered} \text { TNF } \\ \text { TERM } \\ \mathrm{S} \\ \hline \end{gathered}$ | TWAC FN | $\begin{gathered} \text { WA } \\ \text { CST N } \end{gathered}$ | $\begin{gathered} \text { TNF } \\ \text { TERM } \\ \mathrm{S} \\ \hline \end{gathered}$ |
| 1979 | 0\% | 0\% | 0\% | 19\% | 0\% | 0\% | 21\% | 0\% | 1\% | 38\% | 0\% | 3\% |
| 1980 | 0\% | 0\% | 0\% | 48\% | 0\% | 0\% | 21\% | 0\% | 1\% | 10\% | 0\% | 2\% |
| 1981 | 27\% | 0\% | 0\% | 42\% | 0\% | 1\% | 23\% | 0\% | 0\% | 15\% | 0\% | 1\% |
| 1982 | 26\% | 0\% | 0\% | 59\% | 0\% | 1\% | 22\% | 0\% | 0\% | 26\% | 0\% | 1\% |
| 1983 | 16\% | 0\% | 0\% | 39\% | 0\% | 1\% | 19\% | 0\% | 5\% | 43\% | 0\% | 2\% |
| 1984 | 26\% | 0\% | 0\% | 7\% | 0\% | 2\% | 24\% | 0\% | 3\% | 12\% | 0\% | 1\% |
| 1985 | 13\% | 0\% | 0\% | 35\% | 0\% | 3\% | 36\% | 0\% | 1\% | 25\% | 0\% | 2\% |
| 1986 | 7\% | 0\% | 0\% | 34\% | 0\% | 2\% | 14\% | 0\% | 3\% | 21\% | 0\% | 4\% |
| 1987 | 20\% | 0\% | 0\% | 38\% | 0\% | 1\% | 30\% | 0\% | 5\% | 38\% | 0\% | 2\% |
| 1988 | 13\% | 0\% | 0\% | 24\% | 0\% | 5\% | 37\% | 0\% | 3\% | 27\% | 0\% | 4\% |
| 1989 | 27\% | 0\% | 0\% | 50\% | 0\% | 4\% | 38\% | 0\% | 3\% | 40\% | 0\% | 3\% |
| 1990 | 13\% | 0\% | 0\% | 52\% | 0\% | 5\% | 31\% | 0\% | 3\% | 17\% | 0\% | 2\% |
| 1991 | 15\% | 0\% | 0\% | 44\% | 0\% | 11\% | 41\% | 0\% | 5\% | 13\% | 0\% | 5\% |
| 1992 | 15\% | 0\% | 0\% | 40\% | 0\% | 8\% | 19\% | 0\% | 4\% | 16\% | 0\% | 3\% |
| 1993 | 14\% | 0\% | 0\% | 46\% | 0\% | 11\% | 17\% | 0\% | 6\% | 8\% | 0\% | 1\% |
| 1994 | 20\% | 0\% | 0\% | 40\% | 0\% | 12\% | 6\% | 0\% | 2\% | 9\% | 0\% | 5\% |
| 1995 | 26\% | 0\% | 0\% | 41\% | 0\% | 17\% | 18\% | 0\% | 7\% | 9\% | 0\% | 9\% |
| 1996 | 17\% | 0\% | 0\% | 17\% | 0\% | 22\% | 21\% | 0\% | 5\% | 16\% | 0\% | 5\% |
| 1997 | 20\% | 0\% | 0\% | 31\% | 0\% | 9\% | 36\% | 0\% | 5\% | 6\% | 0\% | 5\% |
| 1998 | 10\% | 0\% | 4\% | 21\% | 0\% | 14\% | 16\% | 0\% | 5\% | 11\% | 0\% | 4\% |
| 1999 | 9\% | 0\% | 0\% | 16\% | 0\% | 1\% | 21\% | 0\% | 14\% | 26\% | 0\% | 4\% |
| 2000 | 2\% | 0\% | 0\% | 29\% | 0\% | 11\% | 16\% | 0\% | 18\% | 15\% | 0\% | 8\% |
| 2001 | 15\% | 0\% | 0\% | 33\% | 0\% | 17\% | 23\% | 0\% | 14\% | 23\% | 0\% | 9\% |
| 2002 | 17\% | 0\% | 0\% | 6\% | 0\% | 18\% | 20\% | 0\% | 2\% | 33\% | 0\% | 3\% |
| 2003 | 12\% | 0\% | 0\% | 5\% | 0\% | 5\% | 21\% | 0\% | 8\% | 15\% | 0\% | 7\% |
| 2004 | 9\% | 0\% | 0\% | 9\% | 0\% | 14\% | 18\% | 0\% | 9\% | 18\% | 0\% | 20\% |
| 2005 | 16\% | 0\% | 0\% | 11\% | 0\% | 1\% | 17\% | 0\% | 4\% | 17\% | 0\% | 6\% |
| 2006 | 13\% | 0\% | 0\% | 16\% | 0\% | 6\% | 26\% | 0\% | 9\% | 26\% | 0\% | 1\% |
| 2007 | 13\% | 0\% | 0\% | 16\% | 0\% | 9\% | 28\% | 0\% | 8\% | 22\% | 0\% | 4\% |
| 2008 | 19\% | 0\% | 0\% | 14\% | 0\% | 2\% | 16\% | 0\% | 7\% | 27\% | 0\% | 4\% |
| 2009 | 17\% | 0\% | 0\% | 24\% | 0\% | 7\% | 20\% | 0\% | 5\% | 41\% | 0\% | 6\% |
| 2010 | 14\% | 0\% | 0\% | 19\% | 0\% | 9\% | 10\% | 0\% | 9\% | 26\% | 0\% | 8\% |
| 2011 | 20\% | 0\% | 0\% | 24\% | 0\% | 10\% | 23\% | 0\% | 17\% | 29\% | 0\% | 13\% |
| 2012 | 20\% | 0\% | 0\% | 23\% | 0\% | 17\% | 29\% | 0\% | 7\% | 42\% | 0\% | 5\% |
| 2013 | 19\% | 0\% | 0\% | 15\% | 0\% | 18\% | 48\% | 0\% | 14\% | 29\% | 0\% | 15\% |
| 2014 | 13\% | 0\% | 0\% | 26\% | 0\% | 5\% | 23\% | 0\% | 5\% | 56\% | 0\% | 6\% |
| 2015 | 7\% | 0\% | 0\% | 31\% | 0\% | 11\% | 19\% | 0\% | 7\% | 36\% | 0\% | 13\% |
| 2016 | 10\% | 0\% | 0\% | 12\% | 0\% | 14\% | 5\% | 0\% | 2\% | 26\% | 0\% | 1\% |
| 2017 | 24\% | 0\% | 0\% | 14\% | 0\% | 10\% | 21\% | 0\% | 9\% | 50\% | 0\% | 5\% |
| 2018 | 14\% | 0\% | 0\% | 10\% | 0\% | 13\% | 5\% | 0\% | 3\% | 30\% | 0\% | 11\% |
| 2019 | 0\% | 0\% | 0\% | 12\% | 0\% | 10\% | 29\% | 0\% | 11\% | 15\% | 0\% | 8\% |

Appendix F4— Salmon River Hatchery (SRH) harvest rate and terminally adjusted harvest rates for Nehalem, Siletz, and Siuslaw escapement indicator stocks, 1979-2019.

|  | Salmon River Hatchery | Nehalem | Siletz | Siuslaw |
| :---: | :---: | :---: | :---: | :---: |
| Year | TSF TERM FS | TSF TERM FS | TSF TERM FS | TSF TERM FS |
| 1979 | 11\% | 5\% | 9\% | 18\% |
| 1980 | 15\% | 11\% | 10\% | 10\% |
| 1981 | 16\% | 4\% | 15\% | 14\% |
| 1982 | 24\% | 10\% | 10\% | 15\% |
| 1983 | 21\% | 9\% | 14\% | 35\% |
| 1984 | 18\% | 6\% | 10\% | 25\% |
| 1985 | 12\% | 4\% | 6\% | 13\% |
| 1986 | 33\% | 10\% | 7\% | 15\% |
| 1987 | 23\% | 14\% | 14\% | 22\% |
| 1988 | 14\% | 13\% | 8\% | 14\% |
| 1989 | 22\% | 11\% | 13\% | 18\% |
| 1990 | 21\% | 21\% | 8\% | 14\% |
| 1991 | 22\% | 25\% | 9\% | 17\% |
| 1992 | 14\% | 22\% | 9\% | 12\% |
| 1993 | 22\% | 40\% | 22\% | 52\% |
| 1994 | 17\% | 27\% | 6\% | 16\% |
| 1995 | 29\% | 35\% | 16\% | 24\% |
| 1996 | 46\% | 24\% | 11\% | 22\% |
| 1997 | 18\% | 18\% | 19\% | 32\% |
| 1998 | 25\% | 18\% | 9\% | 35\% |
| 1999 | 31\% | 15\% | 15\% | 16\% |
| 2000 | 19\% | 14\% | 15\% | 40\% |
| 2001 | 25\% | 19\% | 11\% | 29\% |
| 2002 | 31\% | 12\% | 10\% | 19\% |
| 2003 | 31\% | 11\% | 13\% | 17\% |
| 2004 | 23\% | 25\% | 45\% | 18\% |
| 2005 | 29\% | 18\% | 22\% | 23\% |
| 2006 | 25\% | 21\% | 17\% | 20\% |
| 2007 | 18\% | 18\% | 27\% | 44\% |
| 2008 | 13\% | 14\% | 25\% | 20\% |
| 2009 | 25\% | 1\% | 17\% | 22\% |
| 2010 | 42\% | 11\% | 7\% | 23\% |
| 2011 | 29\% | 19\% | 38\% | 33\% |
| 2012 | 22\% | 20\% | 20\% | 21\% |
| 2013 | 22\% | 25\% | 21\% | 37\% |
| 2014 | 21\% | 29\% | 21\% | 27\% |
| 2015 | 22\% | 33\% | 43\% | 36\% |
| 2016 | 11\% | 17\% | 21\% | 39\% |
| 2017 | 12\% | 19\% | 30\% | 37\% |
| 2018 | 9\% | 21\% | 29\% | 45\% |
| 2019 | 29\% | 6\% | 34\% | 51\% |

Appendix F5— Elk River Hatchery (ELK) harvest rate and terminally adjusted harvest rates for South Umpqua and Coquille escapement indicator stocks, 1979-2019.

| 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 |  |  | 0\% | 20\% | 0\% | 16\% |
| 1980 |  |  | 0\% | 22\% | 0\% | 12\% |
| 1981 | 1\% | 65\% | 0\% | 19\% | 0\% | 13\% |
| 1982 | 4\% | 46\% | 0\% | 21\% | 0\% | 8\% |
| 1983 | 6\% | 29\% | 0\% | 9\% | 0\% | 36\% |
| 1984 | 6\% | 20\% | 0\% | 9\% | 0\% | 11\% |
| 1985 | 4\% | 33\% | 0\% | 7\% | 0\% | 14\% |
| 1986 | 9\% | 15\% | 0\% | 16\% | 0\% | 11\% |
| 1987 | 6\% | 25\% | 0\% | 12\% | 0\% | 16\% |
| 1988 | 0\% | 36\% | 0\% | 10\% | 0\% | 13\% |
| 1989 | 12\% | 32\% | 0\% | 6\% | 0\% | 15\% |
| 1990 | 5\% | 38\% | 0\% | 11\% | 0\% | 13\% |
| 1991 | 0\% | 28\% | 0\% | 13\% | 0\% | 20\% |
| 1992 | 4\% | 36\% | 0\% | 10\% | 0\% | 13\% |
| 1993 | 12\% | 21\% | 0\% | 28\% | 0\% | 27\% |
| 1994 | 10\% | 34\% | 0\% | 11\% | 0\% | 24\% |
| 1995 | 8\% | 32\% | 0\% | 11\% | 0\% | 13\% |
| 1996 | 16\% | 12\% | 0\% | 13\% | 0\% | 18\% |
| 1997 | 12\% | 19\% | 0\% | 6\% | 0\% | 14\% |
| 1998 | 8\% | 10\% | 0\% | 43\% | 0\% | 19\% |
| 1999 | 16\% | 20\% | 0\% | 29\% | 0\% | 14\% |
| 2000 | 20\% | 19\% | 0\% | 27\% | 0\% | 20\% |
| 2001 | 8\% | 14\% | 0\% | 24\% | 0\% | 18\% |
| 2002 | 11\% | 10\% | 0\% | 14\% | 0\% | 17\% |
| 2003 | 17\% | 18\% | 0\% | 20\% | 0\% | 17\% |
| 2004 | 19\% | 7\% | 0\% | 20\% | 0\% | 19\% |
| 2005 | 16\% | 11\% | 0\% | 55\% | 0\% | 26\% |
| 2006 | 18\% | 12\% | 0\% | 38\% | 0\% | 23\% |
| 2007 | 17\% | 17\% | 0\% | 22\% | 0\% | 29\% |
| 2008 | 2\% | 20\% | 0\% | 20\% | 0\% | 15\% |
| 2009 | 1\% | 17\% | 0\% | 25\% | 0\% | 7\% |
| 2010 | 6\% | 12\% | 0\% | 35\% | 0\% | 10\% |
| 2011 | 16\% | 18\% | 0\% | 42\% | 0\% | 24\% |
| 2012 | 13\% | 16\% | 0\% | 40\% | 0\% | 28\% |
| 2013 | 17\% | 14\% | 0\% | 38\% | 0\% | 40\% |
| 2014 | 12\% | 13\% | 0\% | 34\% | 0\% | 25\% |
| 2015 | 20\% | 16\% | 0\% | 21\% | 0\% | 31\% |
| 2016 | 5\% | 14\% | 0\% | 35\% | 0\% | 20\% |
| 2017 | 9\% | 15\% | 0\% | 26\% | 0\% | 21\% |
| 2018 | 16\% | 13\% | 0\% | 26\% | 0\% | 60\% |
| 2019 | 9\% | 8\% | 0\% | 36\% | 0\% | 57\% |

# Appendix G: Fishery exploitation rate indices by stock, age and fishery, based on Coded-Wire Tag (CWT) 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 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 Annual Catch Limits (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 adult equivalents (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

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

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

$$
F I_{f, C Y}=\frac{\sum_{s \in\{S \alpha \in\{A\}} \sum_{s, a, f, C Y} E R}{\left(\frac{\sum_{B P Y R=-9}^{82} \sum_{s \in\{S, S \alpha \in\{A\}} \sum_{s, a, f, B P Y R}}{4}\right)}
$$

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). One example of a recent change in the fishing pattern is the SEAK troll fishery, where the catch during the winter season has increased, the spring fishery has been largely curtailed, and the summer season has become markedly shorter. Because stock distributions are dynamic throughout the year, stock-specific impacts of the SEAK fishery have likely changed over time.

## 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 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 D.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).

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

$$
\begin{aligned}
& H_{t, C Y}=\left[\left(\frac{\sum_{s}^{s} \sum_{a} c_{t, C Y, s, a}}{\sum_{s} \sum_{a} r_{t, C Y, s, a}}\right) *\left(C_{t, C Y}-A_{t, C Y}\right)\right] /\left[\left(C_{t, C Y}-A_{t, C Y}\right) / h_{t, C Y}\right] \\
& S_{t, C Y}=H_{t, C Y} / \sum_{C Y=1979}^{1982} H_{t, C Y} \\
& S_{C Y}=H_{C Y} / \sum_{C Y=1979}^{1982} H_{C Y}
\end{aligned}
$$

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Appendix G1- Alaska troll Stratified Proportion Fishery Index (SPFI) values as landed catch, based on CWT data.

| 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 | 0.95 | 1.43 | 1.58 | 1.81 | 1.58 |
| 1981 | 1.12 | 1.18 | 1.12 | 0.94 | 1.06 | 0.90 | 1.06 |
| 1982 | 0.79 | 0.96 | 0.86 | 1.00 | 0.63 | 0.91 | 0.63 |
| 1983 | 0.97 | 1.06 | 0.61 | 0.71 | 1.22 | 1.04 | 1.22 |
| 1984 | 0.62 | 0.40 | 0.94 | 1.02 | 0.50 | 0.26 | 0.50 |
| 1985 | 0.67 | 0.45 | 0.57 | 0.81 | 0.80 | 0.73 | 0.80 |
| 1986 | 0.43 | 0.45 | 0.15 | 0.40 | 1.30 | 0.60 | 1.30 |
| 1987 | 0.43 | 0.63 | 0.17 | 0.51 | 0.58 | 1.24 | 0.58 |
| 1988 | 0.35 | 1.31 | 0.00 | 0.13 | 0.64 | 1.21 | 0.64 |
| 1989 | 0.48 | 0.83 | 0.18 | 0.41 | 0.50 | 0.50 | 0.50 |
| 1990 | 0.67 | 0.62 | 0.11 | 0.83 | 1.13 | 1.10 | 1.13 |
| 1991 | 0.60 | 1.34 | 0.21 | 0.90 | 0.81 | 0.56 | 0.81 |
| 1992 | 0.40 | 1.11 | 0.06 | 0.48 | 0.40 | 0.22 | 0.40 |
| 1993 | 0.44 | 0.79 | 0.02 | 0.27 | 0.86 | 0.27 | 0.86 |
| 1994 | 0.38 | 0.70 | 0.03 | 0.11 | 0.64 | 0.16 | 0.64 |
| 1995 | 0.37 | 0.44 | 0.04 | 0.28 | 0.76 | 0.84 | 0.76 |
| 1996 | 0.34 | 0.51 | 0.07 | 0.49 | 0.55 | 0.41 | 0.55 |
| 1997 | 0.74 | 0.58 | 0.13 | 0.52 | 1.42 | 0.09 | 1.42 |
| 1998 | 0.44 | 0.76 | 0.05 | 0.18 | 0.96 | 0.45 | 0.96 |
| 1999 | 0.55 | 0.85 | 0.09 | 0.24 | 0.93 | 0.10 | 0.93 |
| 2000 | 0.67 | 1.04 | 0.08 | 0.10 | 1.39 | 0.06 | 1.39 |
| 2001 | 0.39 | 0.58 | 0.06 | 0.14 | 0.77 | 0.11 | 0.77 |
| 2002 | 0.53 | 0.76 | 0.06 | 0.13 | 1.37 | 0.17 | 1.37 |
| 2003 | 0.49 | 1.20 | 0.07 | 0.14 | 0.90 | 0.31 | 0.90 |
| 2004 | 0.38 | 0.79 | 0.07 | 0.15 | 0.91 | 0.30 | 0.91 |
| 2005 | 0.45 | 0.75 | 0.11 | 0.20 | 1.11 | 0.47 | 1.11 |
| 2006 | 0.61 | 1.29 | 0.11 | 0.61 | 1.20 | 0.13 | 1.20 |
| 2007 | 0.63 | 1.08 | 0.13 | 0.79 | 1.21 | 0.23 | 1.21 |
| 2008 | 0.36 | 0.77 | 0.07 | 0.68 | 0.75 | 0.09 | 0.75 |
| 2009 | 0.53 | 0.80 | 0.14 | 0.32 | 1.00 | 0.16 | 1.00 |
| 2010 | 0.37 | 1.13 | 0.05 | 0.27 | 0.78 | 0.08 | 0.78 |
| 2011 | 0.36 | 1.04 | 0.05 | 0.27 | 0.87 | 0.21 | 0.87 |
| 2012 | 0.67 | 1.53 | 0.09 | 0.21 | 1.34 | 0.11 | 1.34 |
| 2013 | 0.38 | 0.71 | 0.11 | 0.54 | 0.55 | 0.13 | 0.55 |
| 2014 | 0.53 | 1.26 | 0.09 | 0.47 | 0.97 | 0.13 | 0.97 |
| 2015 | 0.48 | 1.19 | 0.10 | 1.20 | 0.67 | 0.46 | 0.67 |
| 2016 | 0.59 | 1.94 | 0.11 | 0.60 | 1.10 | 0.15 | 1.10 |
|  | 0.37 | 1.22 | 0.10 | 0.32 | 0.47 | 0.35 | 0.47 |
| 2018 | 0.28 | 0.48 | 0.04 | 0.01 | 0.82 | 0.31 | 0.82 |
|  |  |  | 0.04 | 0.01 | 0.55 | 0.18 | 0.55 |


| 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.

| 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 | 0.62 | 0.90 | 1.48 | 1.43 | 1.73 | 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 | 0.77 | 1.03 | 0.77 |
| 1983 | 1.06 | 1.02 | 0.59 | 0.71 | 1.54 | 0.98 | 1.54 |
| 1984 | 0.65 | 0.40 | 0.93 | 1.02 | 0.59 | 0.39 | 0.59 |
| 1985 | 0.76 | 0.42 | 0.56 | 0.80 | 1.02 | 0.69 | 1.02 |
| 1986 | 0.47 | 0.43 | 0.15 | 0.40 | 1.48 | 0.64 | 1.48 |
| 1987 | 0.50 | 0.61 | 0.16 | 0.50 | 0.73 | 1.63 | 0.73 |
| 1988 | 0.35 | 1.28 | 0.00 | 0.14 | 0.63 | 1.31 | 0.63 |
| 1989 | 0.52 | 0.79 | 0.18 | 0.39 | 0.55 | 0.58 | 0.55 |
| 1990 | 0.78 | 0.63 | 0.11 | 0.89 | 1.37 | 1.12 | 1.37 |
| 1991 | 0.63 | 1.27 | 0.20 | 0.87 | 0.84 | 0.69 | 0.84 |
| 1992 | 0.45 | 1.07 | 0.06 | 0.48 | 0.56 | 0.23 | 0.56 |
| 1993 | 0.49 | 0.76 | 0.02 | 0.26 | 1.00 | 0.28 | 1.00 |
| 1994 | 0.45 | 0.68 | 0.03 | 0.11 | 0.81 | 0.18 | 0.81 |
| 1995 | 0.42 | 0.42 | 0.04 | 0.28 | 0.89 | 0.84 | 0.89 |
| 1996 | 0.43 | 0.49 | 0.07 | 0.48 | 0.71 | 0.44 | 0.71 |
| 1997 | 0.75 | 0.54 | 0.13 | 0.50 | 1.40 | 0.09 | 1.40 |
| 1998 | 0.41 | 0.72 | 0.04 | 0.17 | 0.90 | 0.41 | 0.90 |
| 1999 | 0.59 | 0.81 | 0.09 | 0.24 | 1.03 | 0.14 | 1.03 |
| 2000 | 0.70 | 1.01 | 0.08 | 0.10 | 1.45 | 0.08 | 1.45 |
| 2001 | 0.39 | 0.55 | 0.06 | 0.13 | 0.77 | 0.14 | 0.77 |
| 2002 | 0.51 | 0.70 | 0.06 | 0.12 | 1.28 | 0.17 | 1.28 |
| 2003 | 0.46 | 1.11 | 0.07 | 0.13 | 0.84 | 0.29 | 0.84 |
| 2004 | 0.37 | 0.76 | 0.07 | 0.15 | 0.88 | 0.29 | 0.88 |
| 2005 | 0.45 | 0.73 | 0.11 | 0.20 | 1.07 | 0.45 | 1.07 |
| 2006 | 0.59 | 1.23 | 0.11 | 0.60 | 1.14 | 0.13 | 1.14 |
| 2007 | 0.63 | 1.06 | 0.13 | 0.82 | 1.19 | 0.22 | 1.19 |
| 2008 | 0.37 | 0.74 | 0.07 | 0.67 | 0.78 | 0.11 | 0.78 |
| 2009 | 0.53 | 0.77 | 0.13 | 0.32 | 0.99 | 0.18 | 0.99 |
| 2010 | 0.39 | 1.11 | 0.05 | 0.27 | 0.80 | 0.08 | 0.80 |
| 2011 | 0.35 | 1.00 | 0.04 | 0.26 | 0.84 | 0.20 | 0.84 |
| 2012 | 0.65 | 1.49 | 0.09 | 0.21 | 1.27 | 0.13 | 1.27 |
| 2013 | 0.40 | 0.67 | 0.11 | 0.53 | 0.57 | 0.23 | 0.57 |
| 2014 | 0.52 | 1.21 | 0.08 | 0.48 | 0.91 | 0.13 | 0.91 |
| 2015 | 0.47 | 1.15 | 0.09 | 1.20 | 0.65 | 0.49 | 0.65 |
| 2016 | 0.56 | 1.80 | 0.10 | 0.60 | 1.03 | 0.14 | 1.03 |
| 2017 | 0.38 | 1.15 | 0.10 | 0.31 | 0.49 | 0.40 | 0.49 |
| 2018 | 0.29 | 0.45 | 0.04 | 0.01 | 0.83 | 0.29 | 0.83 |
| 2019 | 0.21 | 0.47 | 0.04 | 0.01 | 0.57 | 0.21 | 0.57 |


| 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 |  |

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.

| Year | $\begin{gathered} \text { QUE } \\ \text { Age } 5 \end{gathered}$ | $\begin{gathered} \hline \text { QUI } \\ \text { Age } 3 \\ \hline \end{gathered}$ | $\begin{gathered} \hline \text { QUI } \\ \text { Age } 4 \\ \hline \end{gathered}$ | $\begin{gathered} \text { RBT } \\ \text { Age } 3 \\ \hline \end{gathered}$ | $\begin{gathered} \text { RBT } \\ \text { Age } 4 \\ \hline \end{gathered}$ | RBT <br> Age 5 | $\begin{gathered} \hline \text { SHU } \\ \text { Age } 4 \end{gathered}$ | $\begin{gathered} \text { SRH } \\ \text { Age } 3 \end{gathered}$ | $\begin{gathered} \text { SRH } \\ \text { Age } 4 \end{gathered}$ | $\begin{gathered} \text { SRH } \\ \text { Age } 5 \end{gathered}$ | $\begin{gathered} \text { SSA } \\ \text { Age } 4 \end{gathered}$ | $\begin{gathered} \text { URB } \\ \text { Age } 4 \end{gathered}$ | URB <br> Age 5 | $\begin{aligned} & \text { WSH } \\ & \text { Age } 4 \end{aligned}$ | 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 | 0.15 | 0.24 |  | 0.00 | 0.30 |  | 0.87 |  | 1.12 |  | 0.05 | 0.41 |
| 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 |

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.

| Year | $\begin{gathered} \text { QUE } \\ \text { Age } 5 \end{gathered}$ | $\begin{gathered} \hline \text { QUI } \\ \text { Age } 3 \\ \hline \end{gathered}$ | $\begin{gathered} \hline \text { QUI } \\ \text { Age } 4 \\ \hline \end{gathered}$ | $\begin{gathered} \text { RBT } \\ \text { Age } 3 \\ \hline \end{gathered}$ | $\begin{gathered} \text { RBT } \\ \text { Age } 4 \\ \hline \end{gathered}$ | $\begin{gathered} \text { RBT } \\ \text { Age } 5 \end{gathered}$ | $\begin{gathered} \hline \text { SHU } \\ \text { Age } 4 \end{gathered}$ | $\begin{gathered} \hline \text { SRH } \\ \text { Age } 3 \end{gathered}$ | $\begin{gathered} \text { SRH } \\ \text { Age } 4 \end{gathered}$ | $\begin{gathered} \text { SRH } \\ \text { Age } 5 \end{gathered}$ | $\begin{gathered} \text { SSA } \\ \text { Age } 4 \end{gathered}$ | $\begin{gathered} \hline \text { URB } \\ \text { Age } 4 \\ \hline \end{gathered}$ | URB <br> Age 5 | $\begin{aligned} & \text { WSH } \\ & \text { Age } 4 \end{aligned}$ | Fishery 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 |  | 0.14 | 0.33 | 0.27 | 0.50 | 0.36 | 0.41 |  | 3.50 | 1.59 |  | 1.55 | 2.13 | 0.24 | 1.07 |
| 2019 |  | 0.08 | 0.00 | 0.19 | 0.28 |  | 0.00 | 0.42 |  | 0.99 |  | 1.28 |  | 0.06 | 0.47 |
| 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 | 0.03 | 0.09 | 0.12 | 0.24 | 0.21 | 0.71 | 0.17 | 1.48 | 0.78 | 0.40 | 1.15 | 1.79 | 0.16 | 0.62 |

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.

| Year | $\begin{aligned} & \text { CWF } \\ & \text { Age } 4 \end{aligned}$ | $\begin{gathered} \text { GAD } \\ \text { Age } 3 \end{gathered}$ | $\begin{array}{cc} \text { GAD } \\ \text { Age } 4 \end{array}$ | $\begin{gathered} \text { LRH } \\ \text { Age } 3 \end{gathered}$ | $\begin{array}{\|c\|c\|} \hline \text { LRH } \\ \text { Age } \end{array}$ | $\begin{aligned} & \text { LRW } \\ & \text { Age } 4 \end{aligned}$ | $\begin{gathered} \text { RBT } \\ \text { Age } 3 \end{gathered}$ | $\begin{gathered} \text { RBT } \\ \text { Age } 4 \end{gathered}$ | $\begin{gathered} \text { RBT } \\ \text { Age } 5 \\ \hline \end{gathered}$ | $\begin{aligned} & \text { SAM } \\ & \text { Age } 3 \end{aligned}$ | $\begin{gathered} \text { SAM } \\ \text { Age } 4 \end{gathered}$ | $\begin{gathered} \text { SAM } \\ \text { Age } 5 \end{gathered}$ | $\begin{array}{\|c} \text { SPR } \\ \text { Age } \end{array}$ | $\begin{gathered} \text { SPR } \\ \text { Age } 4 \end{gathered}$ | SPS | $\begin{gathered} \text { SPS } \\ \text { Age } 4 \end{gathered}$ | $\begin{gathered} \text { SRH } \\ \text { Age } 3 \end{gathered}$ | $\begin{gathered} \text { SRH } \\ \text { Age } 4 \\ \hline \end{gathered}$ | SRH | $\begin{aligned} & \text { SUM } \\ & \text { Age } 4 \end{aligned}$ | URB Age 3 | $\begin{gathered} \text { URB } \\ \text { Age } 4 \end{gathered}$ | $\begin{gathered} \text { WSH } \\ \text { Age } 4 \end{gathered}$ | Fishery 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 |  | 0.98 | 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 |  | 0.69 | 0.26 |  | 0.12 | 0.30 | 0.47 | 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 | 0.51 |  |  | 0.12 | 0.13 | 0.15 | 0.80 |  |  | 0.32 |  | 0.42 | 0.22 | 0.00 | 0.18 | 0.29 | 0.43 | 0.25 | 0.21 | 1.13 | 0.31 |
| 2018 | 0.00 | 0.22 | 0.09 | 0.31 |  |  | 0.15 | 0.26 |  | 0.51 | 0.05 |  | 0.15 |  | 0.15 | 0.14 |  | 0.34 | 0.74 | 0.24 | 0.02 | 0.28 | 0.57 | 0.17 |
| 2019 | 0.08 | 0.15 | 0.03 | 0.08 |  |  | 0.12 | 0.13 |  | 0.17 | 0.07 |  | 0.09 | 0.00 | 0.35 | 0.06 | 0.11 |  |  | 0.00 | 0.09 | 0.23 | 0.00 | 0.08 |
| 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 | 0.23 | 0.37 | 0.30 | 0.08 | 0.27 | 0.65 | 0.25 |

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.

| Year | $\begin{array}{r} \hline \text { CWF } \\ \text { Age } 4 \\ \hline \end{array}$ | $\begin{array}{r} \text { GAD } \\ \text { Age } 3 \end{array}$ | $\begin{gathered} \text { GAD } \\ \text { Age } 4 \end{gathered}$ | $\begin{gathered} \hline \text { LRH } \\ \text { Age } 3 \\ \hline \end{gathered}$ | $\begin{gathered} \text { LRH } \\ \text { Age } 4 \end{gathered}$ | $\begin{aligned} & \text { LRW } \\ & \text { Age } 4 \end{aligned}$ | $\begin{gathered} \text { RBT } \\ \text { Age } 3 \\ \hline \end{gathered}$ | $\begin{gathered} \text { RBT } \\ \text { Age } 4 \\ \hline \end{gathered}$ | $\begin{gathered} \text { RBT } \\ \text { Age } 5 \end{gathered}$ | SAM Age 3 | $\begin{aligned} & \text { SAM } \\ & \text { Age } 4 \end{aligned}$ | $\begin{aligned} & \text { SAM } \\ & \text { Age } 5 \end{aligned}$ | $\begin{gathered} \text { SPR } \\ \text { Age } 3 \end{gathered}$ | $\begin{gathered} \text { SPR } \\ \text { Age } 4 \\ \hline \end{gathered}$ | $\begin{gathered} \text { SPS } \\ \text { Age } 3 \\ \hline \end{gathered}$ | $\begin{gathered} \text { SPS } \\ \text { Age } 4 \end{gathered}$ | $\begin{gathered} \text { SRH } \\ \text { Age } 3 \\ \hline \end{gathered}$ | $\begin{gathered} \text { SRH } \\ \text { Age } 4 \end{gathered}$ | $\begin{gathered} \text { SRH } \\ \text { Age } 5 \end{gathered}$ | $\begin{array}{r} \hline \text { SUM } \\ \text { Age } 4 \\ \hline \end{array}$ | $\begin{gathered} \text { URB } \\ \text { Age } 3 \end{gathered}$ | $\begin{gathered} \text { URB } \\ \text { Age } 4 \\ \hline \end{gathered}$ | $\begin{array}{r} \text { WSH } \\ \text { Age } 4 \\ \hline \end{array}$ | 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 |  | 0.85 | 0.13 |  | 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 | 0.41 |  | 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 | 0.42 | 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 | 0.46 |  |  | 0.10 | 0.13 | 0.15 | 0.68 |  |  | 0.29 |  | 0.37 | 0.22 | 0.00 | 0.18 | 0.29 | 0.42 | 0.23 | 0.21 | 1.03 | 0.30 |
| 2018 | 0.00 | 0.19 | 0.09 | 0.30 |  |  | 0.14 | 0.26 |  | 0.43 | 0.05 |  | 0.14 |  | 0.13 | 0.14 |  | 0.36 | 0.74 | 0.24 | 0.01 | 0.27 | 0.51 | 0.17 |
| 2019 | 0.08 | 0.12 | 0.03 | 0.07 |  |  | 0.11 | 0.13 |  | 0.15 | 0.07 |  | 0.08 | 0.00 | 0.30 | 0.06 | 0.10 |  |  | 0.00 | 0.08 | 0.22 | 0.00 | 0.07 |
| 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 | 0.26 | 0.19 | 0.05 | 0.23 | 0.37 | 0.30 | 0.07 | 0.26 | 0.59 | 0.24 |

## Appendix H: Calendar Year Exploitation Rate Metrics

Calendar year exploitation rates (CYER) were introduced with Paragraph 5(e) of the 2019 PST Agreement as a way to monitor the total mortality in individual stock-based management (ISBM) fisheries. CYERs are calculated 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. ISBM fisheries are listed in Table 4.2. ISBM performance and CYER limit evaluation can be found in section 4.1

| $f \in\left\{F_{p, I S B M}\right\}$ | a fishery $f$ within the set of each party's $(p)$ ISBM fisheries $F$ |
| :--- | :--- |

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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 PST Agreement.

| Escapement Indicator | CWT <br> Indicator | CYER Obj. | Base Period CYER |  |  |  |  |  |  | Avg. BP CYER | CYER Limit |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |  |  |
| Skeena | KLM | 100.0\% | 0.065 | 0.185 | 0.249 | 0.121 | 0.102 | 0.157 | 0.102 | 0.140 | 0.140 |
| Atnarko | ATN | 100.0\% | 0.372 | 0.297 | 0.364 | 0.276 | 0.257 | 0.230 | 0.177 | 0.282 | 0.282 |
| 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\% | NA | NA | 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 | 0.367 | 0.494 | 0.415 | 0.401 | 0.381 |
| Nicola | NIC | 95.0\% | 0.471 | 0.064 | 0.111 | 0.228 | 0.070 | 0.126 | 0.143 | 0.173 | 0.165 |
| Chilcotin |  |  |  |  |  |  |  |  |  |  |  |
| Chilko |  |  |  |  |  |  |  |  |  |  |  |
| Lower Shuswap | SHU | 100.0\% | 0.256 | 0.211 | 0.217 | 0.206 | 0.168 | 0.184 | 0.152 | 0.199 | 0.199 |
| Harrison | HAR | 95.0\% | 0.074 | 0.071 | 0.072 | 0.104 | 0.090 | 0.190 | 0.141 | 0.106 | 0.101 |
| Nooksack Spring | NSF | 87.5\% | 0.190 | 0.050 | 0.143 | 0.149 | 0.161 | 0.238 | 0.111 | 0.149 | 0.130 |
| Skagit Spring | SKF | 87.5\% | 0.072 | 0.078 | 0.061 | 0.120 | 0.083 | 0.086 | 0.057 | 0.080 | 0.070 |
| 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\% | 0.040 | 0.043 | 0.063 | 0.164 | 0.112 | 0.138 | 0.060 | 0.089 | 0.078 |

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 PST Agreement.

| Escapement Indicator | CWT Indicator | CYER Obj. | Base Period CYER |  |  |  |  |  |  | Avg. BP CYER | $\begin{aligned} & \hline \text { CYER } \\ & \text { Limit } \end{aligned}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |  |  |
| 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 | 0.274 | 0.313 | 0.342 | 0.207 | 0.267 | 0.254 |
| 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\% | 0.177 | 0.143 | 0.315 | 0.162 | 0.123 | 0.142 | 0.244 | 0.186 | 0.186 |
| Hoko | HOK | 10\% CYER | 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 |
| Upriver Brights | URB | 85.0\% | 0.276 | 0.275 | 0.314 | 0.211 | 0.340 | 0.243 | 0.214 | 0.268 | 0.228 |
| Lewis River Fall | LRW | 85.0\% | 0.051 | 0.185 | 0.320 | 0.272 | 0.426 | 0.203 | 0.150 | 0.230 | 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 | 0.092 | 0.173 | 0.191 | 0.232 | 0.256 | 0.310 | 0.182 | 0.155 |
| Siletz | SRH adj | 85.0\% | 0.116 | 0.069 | 0.308 | 0.191 | 0.200 | 0.191 | 0.388 | 0.209 | 0.178 |
| Siuslaw | SRH adj | 85.0\% | 0.145 | 0.183 | 0.274 | 0.197 | 0.318 | 0.238 | 0.336 | 0.242 | 0.206 |
| South Umpqua | ELK adj | 85.0\% | 0.222 | 0.344 | 0.401 | 0.427 | 0.435 | 0.344 | 0.231 | 0.344 | 0.292 |
| Coquille | ELK adj | 85.0\% | 0.069 | 0.138 | 0.258 | 0.338 | 0.453 | 0.278 | 0.325 | 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 PST Agreement.
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 | 0.115 |  |  |  |  |  |  |  |  |  |
| Atnarko | 0.349 |  |  |  |  |  |  |  |  |  |
| NWVI Natural Aggregate | 0.099 |  |  |  |  |  |  |  |  |  |
| SWVI Natural Aggregate | 0.099 |  |  |  |  |  |  |  |  |  |
| East Coast Vancouver Island North | 0.259 |  |  |  |  |  |  |  |  |  |
| Phillips | 0.078 |  |  |  |  |  |  |  |  |  |
| Cowichan | 0.503 |  |  |  |  |  |  |  |  |  |
| Nicola | 0.034 |  |  |  |  |  |  |  |  |  |
| Chilcotin |  |  |  |  |  |  |  |  |  |  |
| Chilko |  |  |  |  |  |  |  |  |  |  |
| Lower Shuswap | 0.117 |  |  |  |  |  |  |  |  |  |
| Harrison | 0.198 |  |  |  |  |  |  |  |  |  |
| Nooksack Spring | 0.105 |  |  |  |  |  |  |  |  |  |
| Skagit Spring | 0.049 |  |  |  |  |  |  |  |  |  |
| Skagit Summer/Fall | 0.045 |  |  |  |  |  |  |  |  |  |
| Stillaguamish | 0.133 |  |  |  |  |  |  |  |  |  |
| Snohomish | 0.086 |  |  |  |  |  |  |  |  |  |

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

| Escapement Indicator | CYER |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\mathbf{2 0 1 9}$ | $\mathbf{2 0 2 0}$ | $\mathbf{2 0 2 1}$ | $\mathbf{2 0 2 2}$ | $\mathbf{2 0 2 3}$ | $\mathbf{2 0 2 4}$ | $\mathbf{2 0 2 5}$ | $\mathbf{2 0 2 6}$ | $\mathbf{2 0 2 7}$ | $\mathbf{2 0 2 8}$ |  |  |
| Cowichan | 0.067 |  |  |  |  |  |  |  |  |  |  |  |
| Nicola | 0.031 |  |  |  |  |  |  |  |  |  |  |  |
| Harrison | 0.062 |  |  |  |  |  |  |  |  |  |  |  |
| Nooksack Spring | 0.176 |  |  |  |  |  |  |  |  |  |  |  |
| Skagit Spring | 0.442 |  |  |  |  |  |  |  |  |  |  |  |
| Skagit Summer/Fall | 0.126 |  |  |  |  |  |  |  |  |  |  |  |
| Stillaguamish | 0.177 |  |  |  |  |  |  |  |  |  |  |  |
| Snohomish | 0.101 |  |  |  |  |  |  |  |  |  |  |  |
| Hoko | 0.212 |  |  |  |  |  |  |  |  |  |  |  |
| Grays Harbor Fall | 0.101 |  |  |  |  |  |  |  |  |  |  |  |
| Queets Fall | 0.024 |  |  |  |  |  |  |  |  |  |  |  |
| Quillayute Fall | 0.107 |  |  |  |  |  |  |  |  |  |  |  |
| Hoh Fall | 0.166 |  |  |  |  |  |  |  |  |  |  |  |
| Upriver Brights | 0.176 |  |  |  |  |  |  |  |  |  |  |  |
| Lewis River Fall | 0.026 |  |  |  |  |  |  |  |  |  |  |  |
| Coweeman | 0.117 |  |  |  |  |  |  |  |  |  |  |  |
| Mid-Columbia Summers | 0.168 |  |  |  |  |  |  |  |  |  |  |  |
| Nehalem | 0.065 |  |  |  |  |  |  |  |  |  |  |  |
| Siletz | 0.272 |  |  |  |  |  |  |  |  |  |  |  |
| Siuslaw | 0.392 |  |  |  |  |  |  |  |  |  |  |  |
| South Umpqua | 0.355 |  |  |  |  |  |  |  |  |  |  |  |
| Coquille | 0.514 |  |  |  |  |  |  |  |  |  |  |  |

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

The following Appendix is intended strictly for the informal documentation of updates or changes made to the current year's Exploitation Rate Analysis, and therefore may be reported in graphs, tables or bullet points. The 2021 Exploitation Rate Analysis occurred remotely, due to ongoing COVID-19 travel restrictions.

## Appendix I1-CAMP / CETL

Prior to the 2021 ERA, the Adclip_selective_fishery field existed as a Boolean data type (True/False) and was not being populated during data loading. This flag indicates whether a recovery came from a fishery where only adipose clipped fish can be harvested. The PSC Specification ${ }^{5}$ indicates this field can have three possible values: Yes/the recovery is from an ad clip selective fishery (S); yes/the recovery is from a mixed selective fishery $(M)$; or recovery is from a non-selective fishery $(N)$. To accommodate loading this field, the field Adclip_selective_fishery field was changed to a character data type. CETL was modified to load this updated field to facilitate future mark-selective fishery analyses. There was some discussion regarding the integrity of the adipose clipped selective fishery data.

## Appendix I2-Revised PSL file

## Strait of Georgia Troll

In 2020, the Strait of Georgia troll (GEO ST T) fishery was the only fishery with a calibration method 3 (i.e., Chinook non-retention fishery only). As a result, .ccf files were updated accordingly with a new line.

## Strait of Georgia Net

Previously, the Strait of Georgia net (GEO ST N) fishery only had one line of text in the .psl file ( 0, CNRCalcFlg: 0 if no CNR/1 if CNR) indicating that it had a calibration method 0 (i.e., no fishery or fishery with no Chinook non-retention periods) for the entire time series. However, this year we decided to include additional details for this fishery and provided lines for all years in the series (1973-2020). The calibration method remained 0 for all years except 2001-2003 and 2005 where the calibration method was changed to 1 (i.e., fishery with both Chinook retention and Chinook non-retention periods).

The following three lines replaced the initial line of text for calibration method 0 :
1,CNRCalcFlg: 0 if no CNR/1 if CNR (for this fishery only)
1,Legal Selectivity (required if CNRCalcFlg = 1)
1,Sub-Legal Selectivity (required if CNRCalcFlg = 1)

## Central B.C. Sport

Similarly, the Central B.C. sport (CBC S) fishery also had one line of text indicating a calibration method 0 for the entire time series. The .psl file was updated this year to include data for all years (1973-2020). The calibration method remained 0 for years 1973-1976, but was changed to 1 for years 1977-2020.

1,CNRCalcFlg: 0 if no CNR/1 if CNR (for this fishery only)
1,Legal Selectivity (required if CNRCalcFlg = 1)

[^6]
## 0,Sub-Legal Selectivity (required if CNRCalcFlg = 1)

## Northern B.C. Individual Stock Based Management Sport

Finally, the Northern B.C. individual stock based management sport (NBC ISBM S) fishery also had one line of text indicating a calibration method 0 for the entire time series. The .psl file was updated this year to include data for all years (1973-2020). The calibration method remained 0 for years 1973-1976 and 1997, but was changed to 1 for all other years.

1,CNRCalcFlg: 0 if no CNR/1 if CNR (for this fishery only)
1,Legal Selectivity (required if CNRCalcFlg = 1)
0, Sub-Legal Selectivity (required if CNRCalcFlg $=1$ )

Values for legal and sub-legal selectivity when CNRCalcFlag = 1 were determined based on the type of fishery.

| Fishery | Legal Selectivity | Sub-legal Selectivity |
| :--- | :--- | :--- |
| GST Net | 1 | 1 |
| CBC Sport | 1 | 0 |
| NBC ISBM Sport | 1 | 0 |

## Appendix I3 - Juan de Fuca Sport Fishery

B.C. Juan de Fuca Sport fishery has possible duplicate coded-wire-tag (CWT) recoveries with the RecoverySite beginning with "2MS24".

- In addition to Canadian recoveries, recoveries from WDFW creel surveys landed in Washington were reported to RMIS using the same location code with CWT estimates
- Canada's recreational catch monitoring programs capture the effort and estimates the catch of all fishers in the BC Juan de Fuca recreational fishery. Creel program overflights count U.S. boats and iRec survey estimates catch for all license holders (including U.S. residents) in Canadian waters.
- U.S. catches are reported with catch record cards, and occasional dockside sampling; effort count from dockside sampling to telephone interviews
- Issue found in years 1990-2019, with between 0.2-7.1\% increase in estimated recoveries (roughly 212 recoveries in total)
- For 2019, if these are duplicate records, overestimating by 7.1\% (32 recoveries)
- The potential duplicate recoveries seem to represent more U.S. tag codes
- Unexpected WDFW RecoverySite (mirrored DFO location code)
- Possible effort from Seiku during the summer sport fishery (July and August) or fishers coming from Point Roberts
Decision:
- Remove 41 and 42 from the CWDBFishery codes, which will turn the possible duplicates into bad records
- Remove CWT recoveries from the CWDBRecovery table that have an WDFW as the "Agency" code and the "RecoverySite" begins with "2MS24". These recoveries will be saved as a separate data set.

Plan:

- Background information regarding how WDFW recoveries from Canadian recreational fisheries are sampled and estimated is needed. This background information will allow CTC to assess if these recoveries are duplicates prior to next year's ERA and inform CYER implication.
- Review if all of these recoveries are from PFMA 20 (as identified by the "RecoverySite") or from several different areas within Southern BC.


## Appendix 14 - Canadian Pseudo-recoveries

Due to the time lag of recovery data in Washington fisheries (recovery data is only up to date for the year prior to that being assessed for ER), temporary estimates of Canadian stock recoveries in Juan de Fuca and Puget Sound fisheries are included in the ERA. These extrapolated values are limited to Canadian stocks with historical recoveries in unique Washington fine scale fisheries (Cowichan and Fraser stocks: CHI, HAR, NIC, SHU, MSH). The extrapolation is based on mean recovery rate (relative to releases), by stock, age, and fine fishery for years after 2010. The age-specific pseudo-recoveries are the product of the age-specific mean recovery rate and brood year releases expected to have returns in this ER year. Specifics can be found in the R function named calcpseudorec () in the repository: https://gitlab.com/chinook-technical-committee/programs/r-packages/eratools.

This process of pseudo-recovery estimation has been applied since the 2016 ERA analysis year. The pseudo-recoveries are identified in a unique fishery auxiliary file. Each record in a pseudo-recovery aux file is intended to represent likely recoveries of a stock-brood year in a fine scale fishery. The releases (and recoveries) of all tag codes for a stock-brood year are represented by one proxy tag code in the aux file. These auxiliary estimates are removed in the following year and replaced by the data available from RMIS.

## Appendix I5 - Stock Specific Changes

## Upper Columbia Summer Chinook (SUM) and Similkameen Yearling (SMK)

In the 2020 ERA, several modifications to fishery lookups were implemented for Columbia River stocks so that the Inner-dam loss estimates (IDLs) were applied to recoveries occurring upstream of the location to where the IDL is calculated to (Appendix E, TCCHINOOK 2021-05). During review of the 2021 ERA, it became apparent that some of these fishery lookups were incorrectly implemented in 2020 and a few terminal sport recoveries were mapped to escapement that should not have been. This issue affected SUM and SMK and was corrected in the 2021 ERA.

The IDL estimates for SUM and SMK were revised from 2020 to 2021. These changes encompass: (1) changes to base period IDLs for consistency with IDLs utilized in the base period calibration procedure and (2) further accounting of sport recoveries occurring above Priest Rapids Dam.

## Puget Sound stocks

Tagging was discontinued for several Puget Sound stocks (Table XX) over the years and CWT recovery numbers have not changed in the past two years. Subsequently, CYERs for these stocks are not expected to change after the 2021 ERA and will not be part of subsequent analyses. The 2021 ERA outputs for these stocks are final estimates and provide results needed for 2021 and future model calibrations.

App. XX. Puget Sound stocks that will not be analyzed as part of future ERAs.

| Stock | Acronym | Years Tagged | Return Years in <br> Analysis | Final <br> ERA <br> year |
| :--- | :--- | :--- | :--- | :--- |
| Nooksack Spring Yearlings | NKS | $1981-1996$ | $1984-2000$ | 2021 |
| Skagit Spring Yearling | SKS | $1981-2010$ | $1984-2014$ | 2021 |
| Puget Sound Yearling | SPY | $1978-2013$ | $1981-2016$ | 2021 |
| Squaxin Net Pen (Falls) | SQP | $1986-1997$ | $1989-2000$ | 2021 |
| Univ. WA Accelerated | UWA | $1975-1984$ | $1979-1988$ | 2021 |
| White River Spring <br> Yearlings | WRY | $1974 ; 1975 ; 2002-2015$ | $2005-2019$ | 2021 |

## Hoko Fall Chinook (HOK)

There were no 2019 CWT recoveries for brood year 2017. The last brood year in the 2021 analysis is 2016.


[^0]:    ${ }^{1}$ 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.

[^1]:    ${ }^{2}$ 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.

[^2]:    3 Chinook Technical Committee Analytical Work Group. Unpublished. Draft 1991 PSC Chinook Model Documentation.

[^3]:    ${ }^{1} \%$ 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.

[^4]:    4 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.

[^5]:    ${ }^{1}$ Escapement indicator stock is not included in the Washington Coastal model stocks.

[^6]:    ${ }^{5}$ Pacific Salmon Commission's Data Standards Work Group. 2014. Specifications and definitions for the exchange of coded wire tag data for the North American Pacific Coast. Pacific Salmon Commission, Vancouver, B.C. Canada.

