

District 104 Pink Salmon Fishery Harvest Pattern Analysis

Andrew W. Piston

May 2021



**Pacific Salmon Commission
Technical Report No. 44**

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Technical Report No. 44

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For

Pacific Salmon Commission
Joint Northern Panel

May 2021

Correct citation for this publication:

Piston, A. W. 2021. District 104 purse seine fishery harvest pattern analysis. Pacific Salmon Comm. Tech. Rep. No. 44: 127 p.

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ABSTRACT

The District 104 purse seine fishery is the largest harvester of pink salmon in Southeast Alaska, with an average annual harvest of 5.5 million pink salmon since 1960. The pink salmon harvest in District 104 has accounted for an average 18% of the total Southeast Alaska purse seine pink salmon harvest annually since 1960. The pink salmon harvested in the District 104 purse seine fishery are primarily Alaska stocks and U.S.-Canada tagging studies in the early 1980s showed that over 90% of the pink salmon harvested in District 104 are destined for Southeast Alaska streams. However, salmon harvests in District 104 are from highly mixed stocks and a high proportion of the sockeye salmon harvested in the fishery are bound for the Skeena and Nass rivers in northern British Columbia. With the signing of the Pacific Salmon Treaty in 1985, early season management of the fishery became tied to the abundance of Skeena and Nass river sockeye salmon, as well as domestic pink salmon returns. Although highly variable, the average harvest rates on Nass and Skeena river sockeye salmon in the District 104 purse seine fishery have declined since 1985, and Alaska has consistently met Treaty obligations in its fisheries. Alaska has had an underage in 14 of 20 years (1999–2018) and currently has a cumulative underage of approximately 117,000 sockeye salmon in the District 104 fishery.

Key words: escapement index, Nass River, Pacific Salmon Treaty, purse seine, *Oncorhynchus gorbuscha*, *Oncorhynchus nerka*, pink salmon, purse seine, Skeena River, sockeye salmon, Southeast Alaska.

INTRODUCTION

Wild pink salmon (*Oncorhynchus gorbuscha*) spawn in approximately 2,500 short, coastal streams in Southeast Alaska (Zadina et al. 2004) and support a large and valuable commercial fishing industry (Clark et al. 2006). Pink salmon accounted for an average 72% of all salmon harvested, by numbers of fish, in Southeast Alaska from 1960 to 2018. The exvessel value of the commercial pink salmon harvest averaged \$48 million a year and ranged between \$18 and \$125 million from 2007 to 2016, making pink salmon the most valuable species after chum salmon (*O. keta*) in Southeast Alaska fisheries (Piston and Heintz 2018). The District 104 purse seine fishery (Figure 1) is the largest harvester of pink salmon in Southeast Alaska, with an average annual harvest of 5.5 million pink salmon since 1960 (maximum = 28.38 million); approximately 1.5 million more fish annually than the next largest district. Over the same time, the District 104 pink salmon harvest has accounted for an average 18% of the total Southeast Alaska purse seine pink salmon harvest (maximum = 53%). Pink salmon have accounted for an average 84% of the District 104 purse seine harvest in numbers of fish since 1960, with sockeye salmon (*O. nerka*; 9%), chum salmon (5%), and coho salmon (*O. kisutch*; 3%) accounting for the remainder of the harvest.

The pink salmon harvested in the District 104 purse seine fishery are primarily Alaska stocks, and U.S.-Canada tagging studies in the early 1980s showed that over 90% of the pink salmon harvested in District 104 are destined for Southeast Alaska streams (Hoffman et al. 1983, 1985; Pella et al. 1993). However, salmon harvests in District 104 are from highly mixed stocks and a high proportion of the sockeye salmon harvested in the fishery are bound for the Skeena and Nass rivers in northern British Columbia (Figure 1; English et al. 2004). From 1985 to 2017, the stock composition of District 104 sockeye salmon harvests has averaged approximately 46% Skeena River sockeye salmon and 15% Nass River sockeye salmon (PSC Northern Boundary Technical Committee, unpublished data). For pink salmon, tagging studies also showed that a high proportion of pink salmon harvested in Canadian net fisheries near the U.S.-Canada border were from Alaska stocks (Hoffman et al. 1983, 1985; Pella et al. 1993). In 1985, the Pacific Salmon Treaty (Treaty) established principles for the United States and Canada to manage fisheries harvesting salmon stocks bound for the other nation.

The initial agreement reached in Chapter 2 of the 1985 Treaty reflects a balance between conservation of Canada's Nass and Skeena river sockeye salmon and maintaining Alaska's traditional coastal pink salmon purse seine fishery in District 104. The original agreement allowed Alaska to harvest 480,000 sockeye salmon over a four-year period (120,000 per year) prior to statistical week 31¹, regardless of Nass and Skeena river run size. The 1999 revision of the Treaty Agreement called for the implementation of abundance-based management in the District 104 purse seine fishery. The 1999 and following annexes allow the District 104 purse seine fishery to harvest 2.45% of the Annual Allowable Harvest (AAH) of Nass and Skeena sockeye salmon prior to statistical week 31.

The AAH is calculated as the total run of Nass and Skeena sockeye salmon minus either the combined escapement requirement of 1.1 million fish or the actual spawning escapements, whichever is less. The 2.45% AAH value was based on the weighted-average percent of the Nass and Skeena sockeye salmon AAH that would have been harvested in this fishery, during the 1985–1996 period, if the annual pre-week 31 harvest had been exactly 120,000 sockeye salmon. The Alaska Department of Fish and Game's (ADF&G) management intent is to harvest Nass and Skeena sockeye salmon at the allowable AAH percentage. The Treaty recognizes that overages and underages will occur and provides an overage/underage provision intended to hold the Parties accountable for their catch shares but permit a reasonable degree of management flexibility. In order to stay within the AAH of Nass and Skeena sockeye salmon in District 104, fishing time for the purse seine fishery is reduced prior to statistical week 31 in years of lower Skeena and Nass sockeye salmon abundance even when pink salmon abundance is high.

In recent years there has been increased concerns by Canada regarding the impacts of the District 104 purse seine fishery on Skeena and Nass river sockeye salmon, which have been declining in abundance since reaching high abundance levels in the 1980s and 1990s. Some of the concerns have been related to later run timing of Nass and Skeena river sockeye salmon from 2014 to 2017, which may have contributed to higher-than-average harvest rates in the District 104 fishery from 2014 to 2016. There have also been concerns by Alaska regarding the loss of access to harvest early-timed pink salmon stocks. Among the potential reasons for this loss of access is potential earlier run timing for some Alaska pink salmon stocks, which would result in a larger component of the pink salmon run passing District 104 during the pre-week 31 Treaty Period. There have also been concerns with unnecessarily restricting pink salmon harvests in District 104 in certain years, particularly when the harvest rate of Nass and Skeena River sockeye salmon is near historical low levels and/or Canadian preseason forecasts are lower than actual runs. As a result, a new treaty stipulation exists that the U.S. will complete a review of the District 104 pink salmon fishery that evaluates long-term changes in abundance of the various stocks in the Boundary Area.

¹ "Statistical week" is a classification used by ADF&G to divide the year into sequentially numbered weeks for management of the salmon fisheries. Each year, statistical week 1 begins the first week of January and ends on the first Saturday of the month; subsequent statistical weeks start on Sunday at 12:01 AM and end on the following Saturday at midnight.

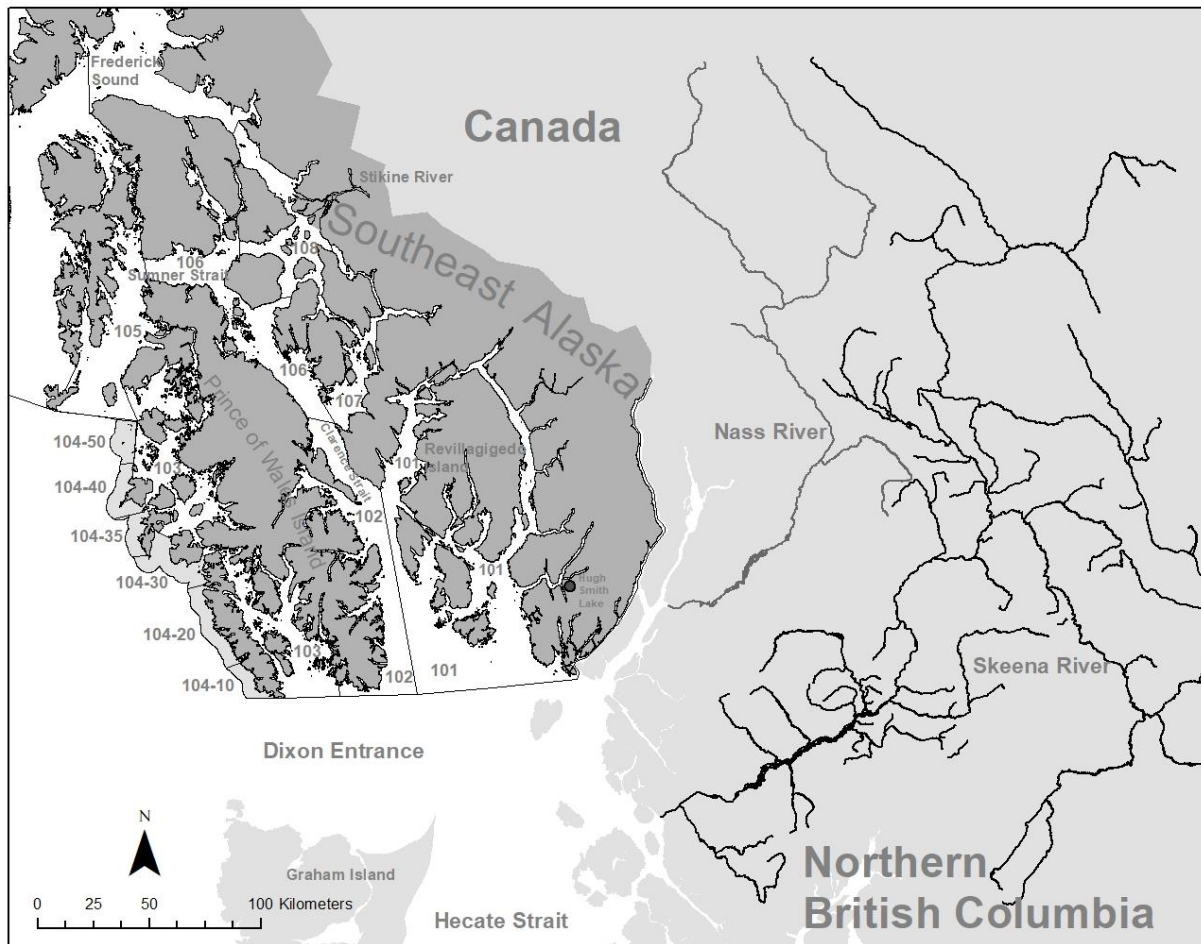


Figure 1.–Southern Southeast Alaska fishing districts, District 104 subdistricts, and the Nass and Skeen rivers in northern British Columbia.

OBJECTIVES

The specific objectives of this review are to evaluate:

1. The long-term changes in abundance of the various pink salmon stocks in the Boundary Area, which will include:
 - a. a description and evaluation of stock assessment methods and escapement trends by stock group for Alaska Districts 101–108; and,
 - b. information on the catch of pink salmon in all Alaska Districts 101–108 fisheries combined, by week, including a summary of pre-week and post week 30 harvests.
2. The changes in the timing and location of the harvest in District 104, which will include an evaluation of harvest by week and subdistrict and identify potential reasons for anomalies.
3. The efficacy of assessing pink salmon run timing through District 104 (Appendix A1) using available data.

4. The impact of pink salmon harvest in District 104 on Skeena and Nass River sockeye salmon, which will include,
 - a. The weekly and annual harvest of Nass and Skeena River sockeye salmon in the District 104 purse seine fishery;
 - b. Weekly and annual harvest rates based on the bilaterally agreed weekly and annual harvests divided by bilaterally agreed total Nass/Skeena runs (not weekly modelled abundance in District 104); and
 - c. Identification of management actions taken to support the conservation of Nass and Skeena River sockeye salmon.

ABUNDANCE TRENDS IN SOUTHERN SOUTHEAST ALASKA PINK SALMON STOCKS

Pink salmon harvested in the District 104 purse seine fishery are destined to spawn in all areas of southern Southeast Alaska (primarily Districts 1–8; Appendices A1 and A2), as well as northern British Columbia (Figure 1; Hoffman et al. 1983, 1984, 1985). Annual stock-specific information for pink salmon harvested in Southeast Alaska fisheries is not available. Estimates of total abundance (catch plus escapement) are not available for specific stock groups, districts, or subregions of Southeast Alaska. Escapement indices for Southeast Alaska, as described below, are intended to track changes in abundance over time and are not estimates of total escapement. Pink salmon stocks in Southeast Alaska cannot be separated using genetic tools at this time and there are no large-scale tagging programs in place that would allow for stock specific harvest estimates of pink salmon. The overall pattern of harvest in the Southern Southeast Subregion, separate from the more specific analysis of District 104 harvests, is presented below to contrast with escapement trends for individual stock groups in southern Southeast Alaska.

PINK SALMON STOCK GROUP DEFINITIONS

Marine tagging studies have repeatedly demonstrated that Southeast Alaska pink salmon stocks are strongly segregated into southern and northern areas or subregions (e.g., Rich 1927; Rich and Suomela 1929; Rich and Morton 1930; Nakatani et al. 1975; Hoffman 1983), and the commercial fisheries in each subregion generally target pink salmon stocks that ultimately spawn in that subregion. The Southern Southeast Subregion comprises pink salmon stocks from Sumner Strait and south (districts 101–108), while the Northern Southeast Subregion comprises pink salmon stocks north of Sumner Strait (districts 109–115). In 1998, the northern area was further divided into Northern Southeast Inside and Northern Southeast Outside subregions, as marine tagging studies also showed that pink salmon spawning on the outer coast of Chichagof and Baranof islands generally do not enter inside waters (Nakatani et al. 1975; Alexandersdottir 1987). The Northern Southeast Outside Subregion includes all waters of District 113 (excluding Peril Straits and Hoonah Sound subdistricts 113-51 through 113-59, which are considered part of the Northern Southeast Inside Subregion). Currently there are 366 index streams in the Southern Southeast Subregion, 307 index streams in the Northern Southeast Inside Subregion, and 41 index streams in the Northern Southeast Outside Subregion.

Because Southeast Alaska pink salmon are largely harvested in mixed stock fisheries, often some distance from spawning areas, it is not possible to allocate harvests of pink salmon to stock group of origin at any finer scale than subregion. Therefore, escapement goals for Southeast

Alaska pink salmon have been established at the subregion level (Zadina et al. 2004; Piston and Heintz 2018). Southeast Alaska has also been divided into 53 smaller “stock groups” contained within the district boundaries (Zadina et al. 2004; Appendix A). Each stock group represents a collection of streams that support pink salmon runs with similar migration routes and run timing, are managed as a unit, and are assumed to share similar productivity and exploitation rates (Van Alen 2000). Seven of the pink salmon stock groups have not been consistently monitored for spawning escapements: the Annette Island stock group is managed exclusively by the Metlakatla Indian Community (where the state has no jurisdiction), while six other stock groups are located in areas that do not have directed fisheries or are in remote areas where it would be cost-prohibitive to conduct surveys on a regular basis—Suemez-Dall (Ketchikan area; Appendix A), SW Baranof, W Kruzof, and W Yakobi (Sitka area), and Dundas Bay and Glacier Bay (Juneau area). The remaining 46 stock groups, representing 12 fishing districts, are actively managed and monitored for escapements. There are 18 stock groups in the Southern Southeast Subregion and a total of 366 index streams (Figure 2).

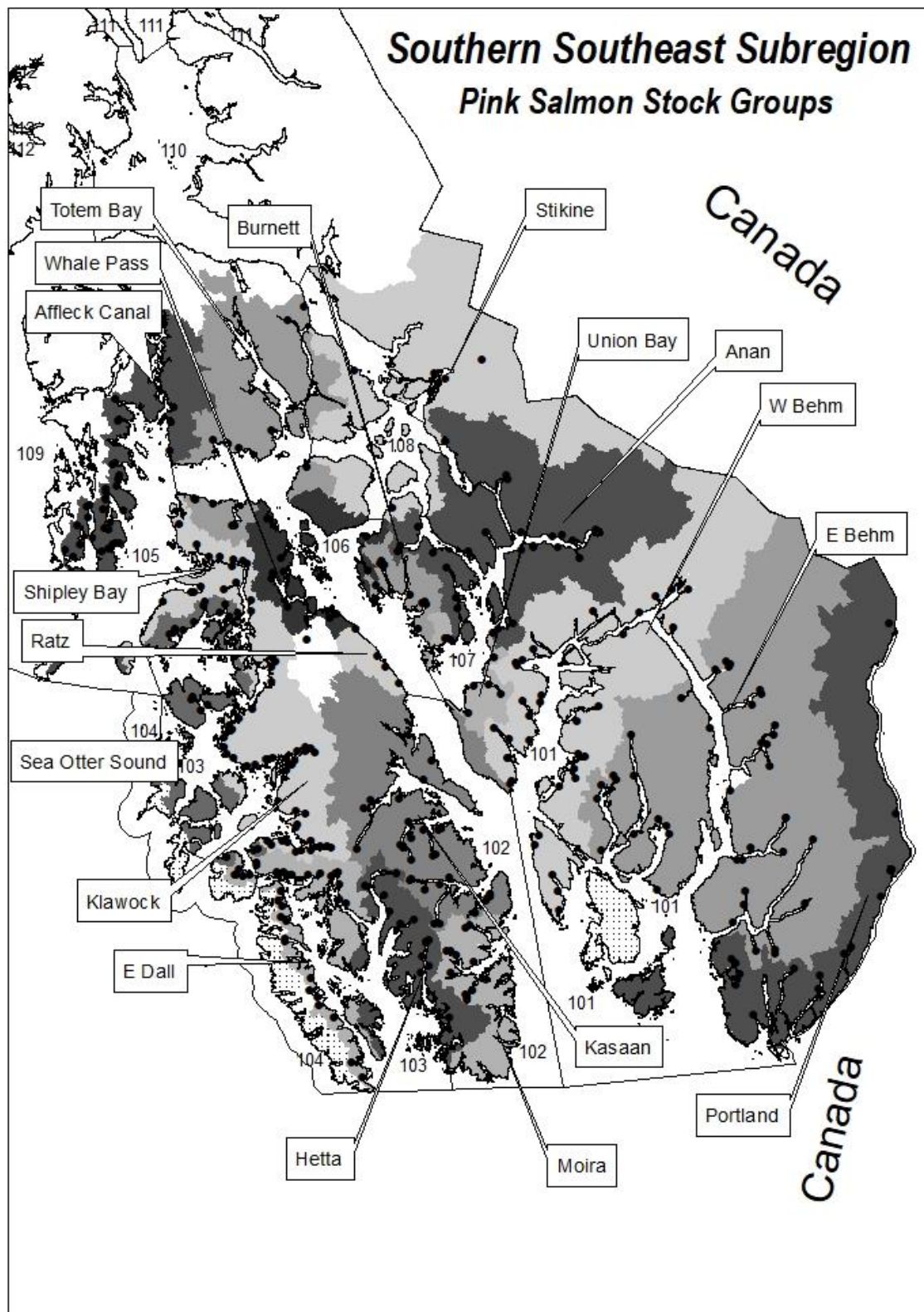


Figure 2.—Southern Southeast Subregion pink salmon escapement stock groups (N=18) and index streams (N=366; black circles)—dotted areas indicate areas with no index streams or escapement targets.

ESCAPEMENT MONITORING AND GOALS

ADF&G has maintained an annual index of the pink salmon escapement in Southeast Alaska based on peak aerial survey counts collected since 1960. Pink salmon escapement indices do not exhibit persistent trends of odd- or even-year dominance over most of the historical data set, and for simplicity, escapement indices of both brood lines were combined (Van Alen 2000; Zadina et al. 2004). The methods used to calculate the index have changed at different times, as knowledge of the region's pink salmon grew out of research programs designed to improve pink salmon management (e.g., Durley and Seibel 1972; Jones and Dangel 1983; Hofmeister et al. 1993; Hofmeister 1998; Zadina et al. 2004; Heidl and Geiger 2005). In instances when major changes were implemented, the index was recalculated for all years to ensure the index was consistent over the entire series. Escapement indices are calculated after the fishing season has ended, but fishery managers make decisions inseason based in part on how escapements are building in relation to past years, and later in the season on how their peak survey counts are lining up with management targets for pink salmon stock groups in their respective areas. Preseason Southeast Alaska pink salmon harvest forecasts do not incorporate escapement as a variable (Murphy et al. 2019), but managers may take parent-year escapement into consideration for early season District 104 management if they were extremely poor in southern Southeast Alaska.

The current method of generating an annual pink salmon escapement index, and major changes to the index, were described in detail by Heidl and Piston (2009). The principal change was the complete removal of "bias adjustments" that were previously made to adjust for differences in observer counting rates (Hofmeister 1998; Van Alen 2000). Although the method used seemed like a practical way to address the well-known problem of observer counting bias (Dangel and Jones 1988; Jones et al. 1998), a close examination indicated that the calibrations often induced significant error (Heidl and Piston 2009). The current pink salmon escapement index was modified to use only raw survey data. In addition, annual calculation of the escapement index is now automated through the Southeast Alaska Integrated Fisheries Database. General trends in escapements indices to southern Southeast Alaska in the revised index remained similar to the patterns in the prior index, but there was a slight increase in escapement estimates in the 1960s and 1970s and a slight decrease in the 1980s and 1990s due to the elimination of observer calibrations and the addition of more index observers from the 1960s (Heidl and Piston 2009).

The pink salmon escapement index consists of the sum of peak annual aerial survey observations for 702 index streams across the region (Piston and Heidl 2018). Although the index comprises pink salmon runs of varying magnitudes, the set of index streams does not necessarily match the distribution of streams (by run size) across the entire region, as the majority of the 2,500 pink salmon spawning streams are likely very small producers. Survey data were qualified (based on visibility, timing, and area surveyed) by the management biologists that conducted the surveys using the following codes: code 01, an incomplete survey—not useful for indexing abundance; code 02, a complete survey—potentially useful for indexing abundance; and code 03, the peak survey—useful for indexing abundance. Code 03 surveys identified the one and only peak survey for a stream each year. These codes were entered into the regional database to facilitate identification of the peak survey observations for each index stream.

For several reasons, it was not possible to designate a peak survey count for every index stream in every year and missing values had to be imputed in order to maintain a complete set of comparable index counts. In some cases, a stream was not surveyed during the peak of the run,

survey conditions were not conducive to obtaining a good count due to weather, or the stream was simply not surveyed. An iterative expectation-maximization algorithm (McLachlan and Krishnan 1997) was used to impute missing values as described by Heintz and Piston (2009). Missing values were imputed from the static table of historical data at the stock group level each year.

It is important to note that the Southeast Alaska pink salmon index does not provide an estimate of the total escapement, and its relationship with the total pink salmon escapement in Southeast Alaska is far from certain. An *escapement estimate* is a statistically reliable measure of escapement magnitude, i.e., the total number of fish in the escapement. An escapement estimate is approximately in the same units as the estimates of harvest, and harvest estimates and escapement estimates can logically be added together to produce an estimate of total run size. Alternatively, an *escapement index* is a relative measure of escapement that is useful for year-to-year comparisons. In the past, ADF&G biologists commonly multiplied the escapement indices by a factor of 2.5 to convert the index to an estimate of total escapement (e.g., Hofmeister and Blick 1991). The 2.5 multiplier was originally intended to convert peak escapement counts to an estimate of what was present at the time of the survey (Dangel and Jones 1988; Hofmeister 1990; Jones et al. 1998). Thus, multiplying the index by 2.5 does not account for fish that were not present at the time of the peak survey count and does not account for the more than 1,800 streams that were not surveyed (Heintz and Geiger 2005). There is no simple way to convert the current index series to an estimate of total escapement in Southeast Alaska. Moreover, escapement indices are clearly much less than total escapements (Hofmeister 1990; Van Alen 2000; Zadina et al. 2004).

STOCK GROUP ESCAPEMENT TRENDS

Southern Southeast Subregion

The Southern Southeast Subregion contains 366 index streams located from the Canadian border to Sumner Strait and the Stikine River (Figures 1 and 2; Appendix A). The escapement index for this Subregion exhibited a general increasing trend from 1960 to the mid-1980s and has been highly variable at larger escapement sizes since then. The average index since 1985 is 228% of the pre-Treaty average (Figure 3). Although highly variable, escapements of both odd- and even-year pink salmon escapements have increased and there has not been consistent dominance of one brood line in this subregion. From 1960 to 2018, the average index value was approximately 5.35 million for even years and 6.03 million for odd years.

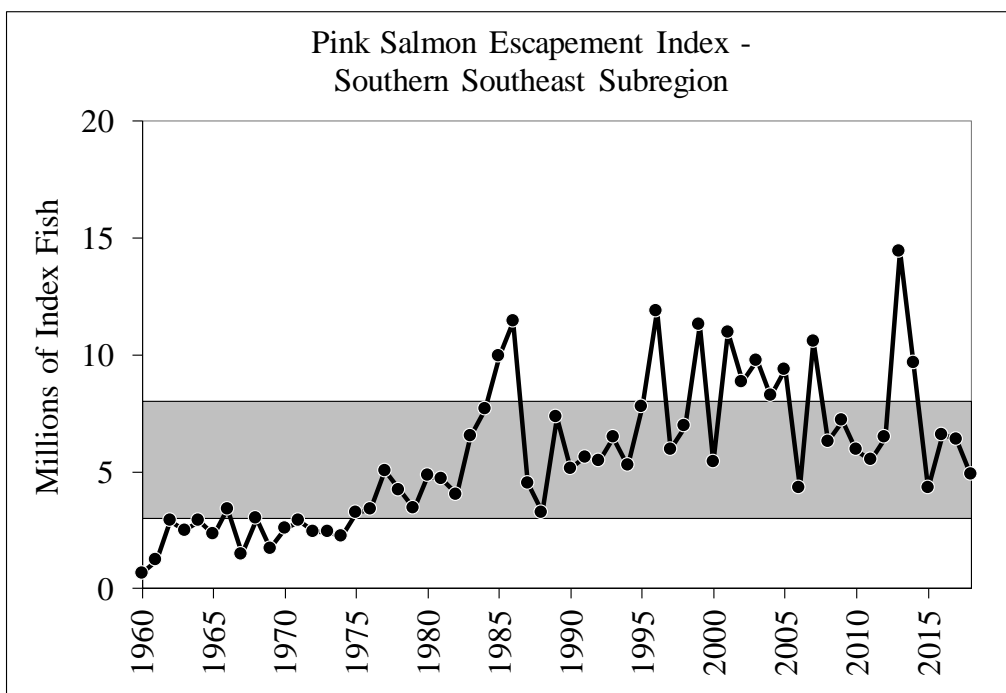


Figure 3.—Pink escapement index for the 366 streams in the Southern Southeast Subregion, 1960–2018. The gray shaded area shows the biological escapement goal range of 3 to 8 million fish.

Portland Canal

The Portland Canal stock group contains 16 index streams located in Portland Canal and along the adjacent mainland north to the south side of Boca de Quadra (Figure 2; Appendix A). The escapement index for this stock group has exhibited a general increasing trend since 1960 and the average index since 1985 is 245% of the pre-Treaty average (Figure 4). Although highly variable, escapements of both odd- and even-year pink salmon escapements have increased, and there has not been consistent dominance of one brood line for this stock group. From 1960 to 2018, the average index value was approximately 220,000 for even years and 270,000 for odd years. The two largest pink salmon producing index streams in the stock group are the Tombstone River (mean peak aerial survey count = 81,000) and Hidden Inlet (mean peak aerial survey count = 49,000).

Portland Canal pink salmon are primarily early-timed fish and start arriving near spawning streams in early to mid-July, with peak aerial survey stream counts typically occurring during August. A weir was operated at Fish Creek at the head of Portland Canal from 1991 to 1995, and pink salmon started entering the stream by mid-July with peak passage through much of August (ADF&G unpublished data). The primary migration route for Portland Canal pink salmon is through Dixon Entrance (Hoffman et al. 1983, 1985), and they are likely primarily harvested in the Alaska District 104 purse seine fishery and Canadian Area 3 net fisheries, with smaller harvests in the District 102 purse seine, and 101 purse seine and drift gillnet fisheries. Coded-wire-tagging studies of Fish Creek (located at the head of Portland Canal) chum salmon showed that tagged fish were primarily harvested in District 104 and in Dixon Entrance, near the mouth of Portland Canal, in the Alaska District 101 drift gillnet fishery, and the Canadian Area 3 gillnet and seine and Area 4 gillnet fisheries; very few tag recoveries occurred any distance from the entrance to Portland Canal (Heinl et al. 2000). Over the 5-year study, the proportion of the Fish

Creek chum salmon catch that were harvested in Canadian fisheries averaged 46.2% with a range of 22.1% to 61.9% (Heinl et al. 2000).

The southern portion of District 101 (subdistrict 11), near the mouth of Portland Canal is only open for drift gillnet gear, which is less effective than purse seine gear for harvesting pink salmon, especially when fisherman use larger mesh size to target chum salmon. Assuming Portland Canal pink salmon follow a similar migration route into inside waters as Fish Creek chum salmon, most of the Alaska harvest of Portland Canal pink salmon may occur in District 104. Due to the early timing of Portland Canal pink salmon, these fish are likely available for harvest in District 104 primarily during the pre-week 31 Treaty period.

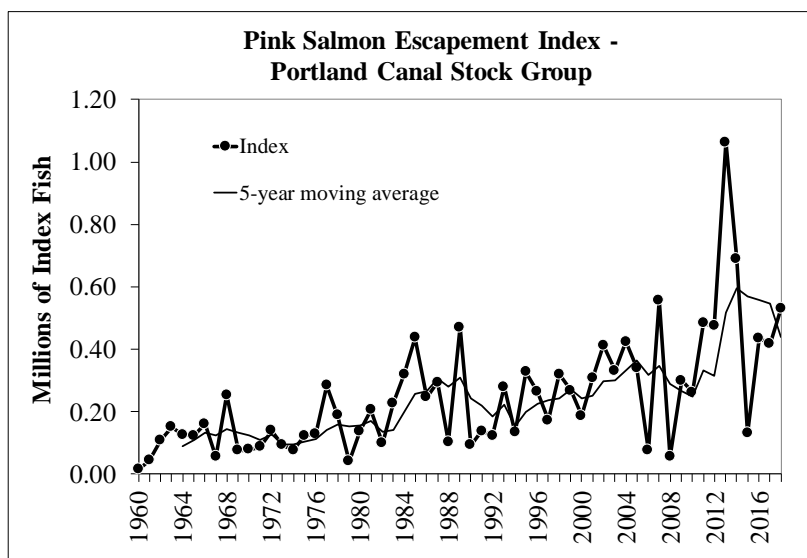


Figure 4.—Pink escapement index for the 16 streams in the Portland Canal stock group, 1960–2018.

East Behm Canal

The East Behm Canal stock group contains 41 index streams located in Boca De Quadra, East Behm Canal up to a line just north of the Chickamin River, Thorne Arm, and George and Carroll inlets (Figure 2; Appendix A). The escapement index for this stock group exhibited an increasing trend until the mid-1980s and has generally remained at higher levels since that time with a large amount of annual variation (Figure 5). The average index since 1985 is 265% of the pre-Treaty average. Although highly variable, escapements of both odd- and even-year pink salmon escapements have increased, and there has not been consistent dominance of one brood line for this stock group. From 1960 to 2018, the average index value was approximately 1.27 million for even years and 1.22 million for odd years. There are 6 index streams with mean peak aerial survey counts greater than 100,000 fish in this stock group: Keta River (mean peak aerial survey count = 143,000), Marten River (mean peak aerial survey count = 119,000), Humpback Creek (mean peak aerial survey count = 134,000), Carroll River (mean peak aerial survey count = 112,000), Wilson River (mean peak aerial survey count = 202,000), and Blossom River (mean peak aerial survey count = 107,000).

East Behm Canal pink salmon are primarily early-timed fish and start arriving near spawning streams in early to mid-July, with peak aerial survey stream counts typically occurring from late

July to mid-August. Some of the smaller lake-fed systems in the area have later timing than the larger mainland rivers and may not reach peak spawning abundance until early September. Many of the largest index streams in this stock group have 10s or 100s of thousands of pink salmon in them during late July. The primary migration route for East Behm Canal pink salmon is through Dixon Entrance (Hoffman et al. 1983, 1985), and they are likely primarily harvested in the Alaska District 101 and 104 purse seine fisheries, and Canadian Area 3 net fisheries, with smaller harvests in the District 102 purse seine and 101 drift gillnet fisheries and Canadian Area 4 and 5 net fisheries (Hoffman et al. 1983, 1985). Due to the early run timing of most of the largest pink salmon runs in this stock group, a large proportion of these fish likely pass through District 104 during the pre-week 31 Treaty period.

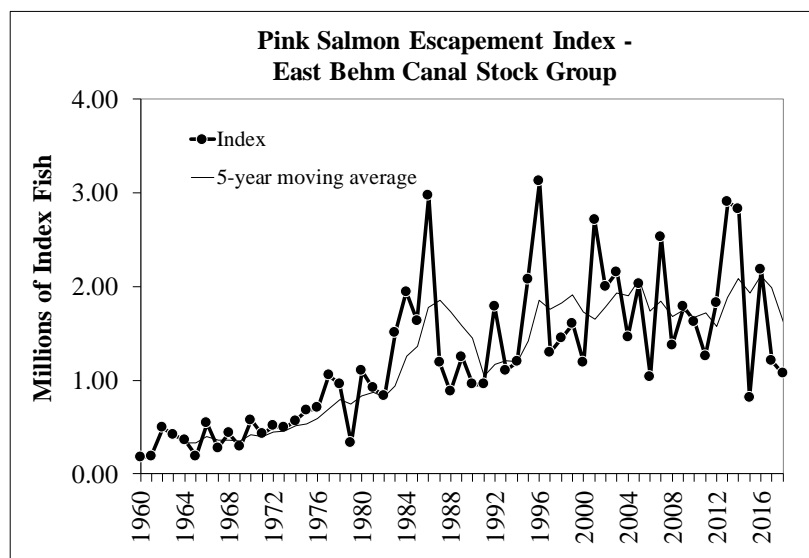


Figure 5.—Pink escapement index for the 41 streams in the East Behm Canal stock group, 1960–2018.

West Behm Canal

The West Behm Canal stock group contains 34 index streams located in West Behm Canal and East Behm Canal north of the Chickamin River, and on Gravina Island (Figure 2; Appendix A). The escapement index for this stock group exhibited an increasing trend until the early 1980s and has generally remained at higher levels since that time with a large amount of annual variation (Figure 6). The average index since 1985 is 207% of the pre-Treaty average. Although highly variable, escapements of both odd- and even-year pink salmon escapements increased from the 1960s and 1970s and there has not been consistent dominance of one brood line for this stock group. From 1960 to 2018, the average index value was approximately 460,000 for even years and 450,000 for odd years. The two largest pink salmon producing index streams in the stock group are Traitors Creek (mean peak aerial survey count = 89,000) and the Naha River (mean peak aerial survey count = 50,000).

West Behm Canal pink salmon are primarily mid-timed fish and start arriving near spawning streams in mid-July, with peak aerial survey stream counts typically occurring from early-to-late August. A weir was operated at the Naha River in 1987, and peak passage of pink salmon occurred from mid-August to mid-September (ADF&G unpublished data). The primary migration route for West Behm Canal pink salmon is through Dixon Entrance (Hoffman et al.

1983, 1985), and they are likely primarily harvested in the Alaska District 101 and 104 purse seine fisheries, and Canadian Area 3 net fisheries, with smaller harvests in the District 102 purse seine and 101 drift gillnet fisheries and Canadian Area 4 and 5 net fisheries (Hoffman et al. 1983, 1985). Small numbers may also arrive via a northern route through Sumner and upper Clarence Straits in some years (Hoffman et al. 1983, 1985) where they could potentially be harvested in the districts 105 and 106 net fisheries.

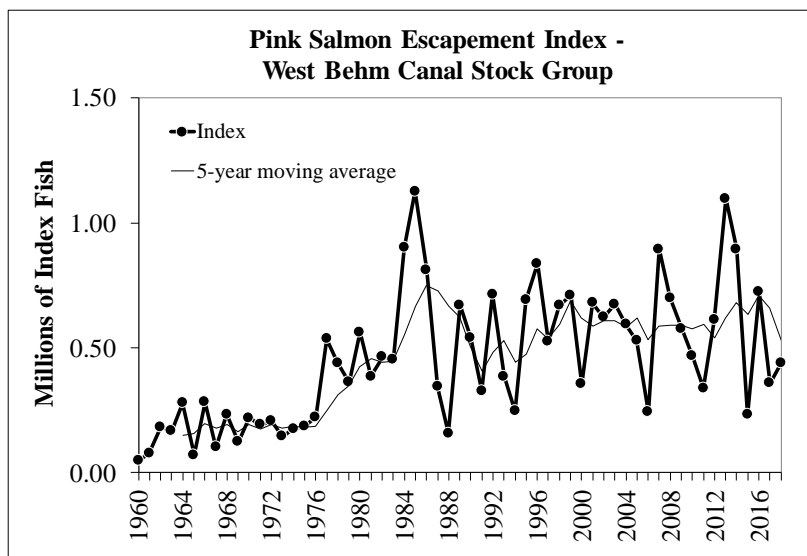


Figure 6.—Pink escapement index for the 34 streams in the West Behm Canal stock group, 1960–2018.

Kasaan

The Kasaan stock group contains 28 index streams located on east-central Prince of Wales Island from Narrow Point to just north of Moira Sound (Figure 2; Appendix A). The escapement index for this stock group exhibited an increasing trend until the late 1990s and has generally remained at high levels since that time, with the notable exception of 2018 (Figure 7). The average index since 1985 is 292% of the pre-Treaty average. Although highly variable, escapements of both odd- and even-year pink salmon escapements increased from the 1960s to 1990s, and there has not been consistent dominance of one brood line for this stock group. From 1960 to 2018, the average index value was approximately 500,000 for even years and 590,000 for odd years. The largest pink salmon producing index streams in the stock group are the Harris River (mean peak aerial survey count = 157,000), Lagoon Creek (mean peak aerial survey count = 48,000), and Sunny Creek (mean peak aerial survey count = 47,000).

Kasaan pink salmon are primarily mid-to-late timed fish and start arriving at spawning streams in late July and early August for earlier-timed systems and mid-to-late August for later-timed streams. Peak aerial survey stream counts typically occur in mid-to-late August for earlier-timed pink salmon runs in this area (e.g., Harris River) and mid-September for later-timed systems (e.g., Lagoon Creek). Spawning occurs through October in most streams. The primary migration route for Kasaan pink salmon is through Dixon Entrance and lower Clarence Strait, with a small proportion arriving via a secondary northern migration route through Sumner and upper Clarence Straits in some years (Hoffman et al. 1983, 1985). Pink salmon from this stock group are likely primarily harvested in the Alaska District 102 and 104 purse seine fisheries, with smaller

harvests in the District 101 purse seine and drift gillnet fisheries, District 103 purse seine fisheries, and Canadian Area 3 net fisheries. Smaller numbers arriving via Sumner and upper Clarence Straits (Hoffman et al. 1983, 1985) could potentially be harvested in Districts 105 and 106 net fisheries.

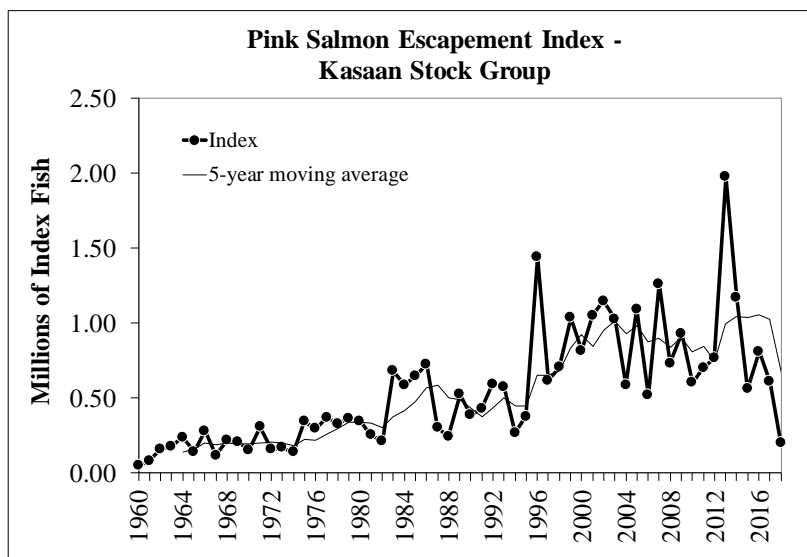


Figure 7.—Pink escapement index for the 28 streams in the Kasaan stock group, 1960–2018.

Moir

The Moira stock group contains 12 index streams located on southeast Prince of Wales Island from Moira Sound south (Figure 2; Appendix A). The escapement index for this stock group exhibited a slight increasing trend until the mid-1980s and has generally remained at higher levels since that time (Figure 8). The average index since 1985 is 216% of the pre-Treaty average. Although highly variable, escapements of both odd- and even-year pink salmon escapements increased from the low levels of the 1960s and 1970s, and there has not been consistent dominance of one brood line for this stock group. From 1960 to 2018, the average index value was approximately 90,000 for even years and 110,000 for odd years. All the index streams in this stock group are small- to medium-sized producers with average peak aerial survey counts of less than 20,000 fish.

The run timing of Moira pink salmon is primarily mid-to-late run timing, and they start arriving at spawning streams primarily in August. Peak aerial survey stream counts typically occur in early to mid-September; most August counts include fish off the mouth or in intertidal areas of streams. Spawning occurs well into October in many streams. The primary migration route for Moira pink salmon is through Dixon Entrance and lower Clarence Strait (Hoffman et al. 1983, 1985). Pink salmon from this stock group are likely primarily harvested in the Alaska District 104 and 102 purse seine fisheries, with smaller harvests in the District 101 purse seine and drift gillnet fisheries, District 103 purse seine fisheries, and Canadian Area 3 net fisheries.

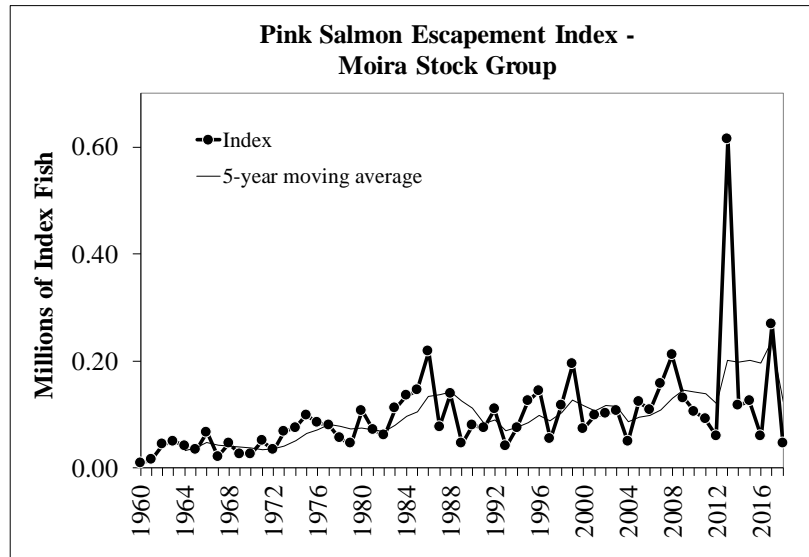


Figure 8.—Pink escapement index for the 12 streams in the Moira stock group, 1960–2018.

East Dall

The East Dall stock group contains 32 index streams located on eastern Dall Island and portions of adjacent southwest Prince of Wales Island (Figure 2; Appendix A). The escapement index for this stock group exhibited an increasing trend into the early 1980s and has generally remained at higher levels since that time with a large amount of annual variation (Figure 9). The average index since 1985 is 202% of the pre-Treaty average. Although highly variable, escapements of both odd- and even-year pink salmon escapements increased through the 1960s and 1970s, and there has not been consistent dominance of one brood line for this stock group. From 1960 to 2018, the average index value was approximately 270,000 for even years and 230,000 for odd years. All the index streams in this stock group are small- to medium-sized producers with average peak aerial survey counts of less than 35,000 fish.

East Dall pink salmon are primarily mid-to-late timed fish and they start arriving at spawning streams primarily in August. Peak aerial survey stream counts typically occur in early to mid-September; most August peak total counts include a high proportion of fish off the mouth or in intertidal areas of streams. Spawning occurs well into October in many streams (e.g., 10,100 live pink salmon counted at Soda Creek on a 12 October 1988 foot survey), but few surveys are conducted after late August. The primary migration route for East Dall pink salmon is through ocean entrances just to the north of Dall Island and into Cordova Bay from Dixon Entrance to the south (Hoffman et al. 1983, 1985). Tagging studies also showed that a small proportion of pink salmon destined for District 103 will move further into Dixon Entrance and lower District 101 before reversing course back to their home streams. Pink salmon from this stock group are likely primarily harvested in the Alaska District 104 and 103 purse seine fisheries, with smaller harvests possible in the District 101 purse seine and drift gillnet fisheries, District 102 purse seine fisheries, and Canadian Area 3 net fisheries. It is possible that very small numbers of pink salmon from this stock group arrive via Sumner and upper Clarence Straits to the north in some years (Hoffman et al. 1983).

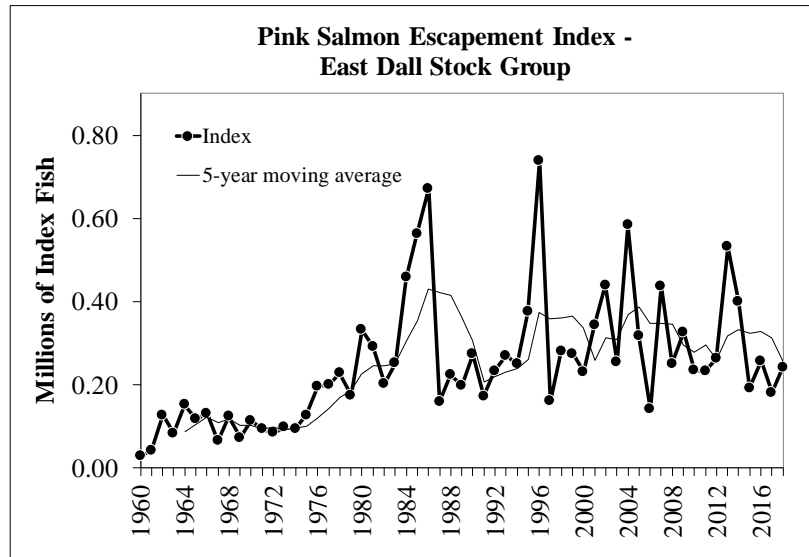


Figure 9.—Pink escapement index for the 32 streams in the East Dall stock group, 1960–2018.

Hetta

The Hetta stock group contains 15 index streams located on southwest Prince of Wales Island from the southwest tip through Hetta Inlet (Figure 2; Appendix A). The escapement index for this stock group exhibited an increasing trend until the mid-1980s and has generally remained at high levels since that time, with the notable exception of 2018, which was the lowest index since the late 1970s (Figure 10). The average index since 1985 is 288% of the pre-Treaty average. Although highly variable, escapements of both odd- and even-year pink salmon escapements increased through the 1960s and 1970s, and there has not been consistent dominance of one brood line for this stock group. From 1960 to 2018, the average index value was approximately 500,000 for even years and 530,000 for odd years. The largest pink salmon producing index streams in the stock group are Nutkwa Creek (mean peak aerial survey count = 152,000) and Hetta Portage Creek (mean peak aerial survey count = 111,000).

Hetta pink salmon are mid-to-late timed fish and they start arriving at spawning streams primarily in August. Peak aerial survey stream counts typically occur from late August to mid-September; most August peak total aerial survey counts include a high proportion of fish off the mouth or in intertidal areas of streams. A weir was operated at Hetta Creek from 1967 to 1971 and from 2005 to 2018; pink salmon started entering the stream by late July or early August with peak passage occurring in late August through mid-September in most years (ADF&G unpublished data). A weir was also operated at Klakas Lake in 1983 and pink salmon began entering the creek in early August, peaking from mid-to-late September, and continuing passage through the weir until late October (ADF&G unpublished data). Spawning occurs well into October in many streams (e.g., nearly 50,000 live pink salmon in intertidal and lower reaches of Hetta Portage Creek on a 2 October 2017 foot survey).

The primary migration route for Hetta pink salmon is through ocean entrances just to the north of Dall Island and into Cordova Bay from Dixon Entrance to the south (Hoffman et al. 1983, 1985). Tagging studies also showed that a small proportion of pink salmon destined for District 103 will move further into Dixon Entrance and lower District 101 before reversing course back to their home streams. Pink salmon from this stock group are likely primarily harvested in the Alaska

District 104 and 103 purse seine fisheries, with small harvests possible in the District 101 purse seine and drift gillnet fisheries, and Canadian Area 3 net fisheries. It is possible that very small numbers of pink salmon from this stock group arrive via Sumner and upper Clarence Straits to the north in some years (Hoffman et al. 1983).

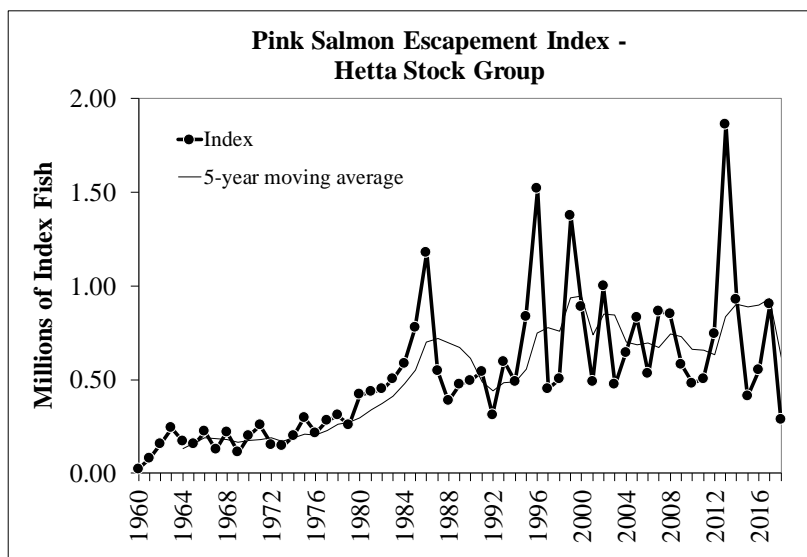


Figure 10.—Pink escapement index for the 15 streams in the Hetta stock group, 1960–2018.

Klawock

The Klawock stock group contains 47 index streams located on eastern Prince of Wales Island from Trocadero Bay to Aneskett Point (Figure 2; Appendix A). The escapement index for this stock group exhibited an increasing trend until the mid-1980s and has generally remained at high levels since that time with a large amount of annual variation (Figure 11). The average index since 1985 is 231% of the pre-Treaty average. Although highly variable, escapements of both odd- and even-year pink salmon escapements increased through the 1960s and 1970s, and there has not been consistent dominance of one brood line for this stock group. From 1960 to 2018, the average index value was approximately 720,000 for even years and 970,000 for odd years. The largest pink salmon producing index streams in the stock group are Stanley Creek (mean peak aerial survey count = 93,000), Shaheen Creek (mean peak aerial survey count = 66,000), Shinaku Creek (mean peak aerial survey count = 53,000), and Trocadero Bay Right Head stream (mean peak aerial survey count = 50,000).

The run timing of Klawock pink salmon is primarily mid-to-late run timing and they start arriving at spawning streams primarily in August. Peak aerial survey stream counts typically occur from late August to mid-September; most August peak total counts include a high proportion of fish off the mouth or in intertidal areas of streams. Peak timing at the Klawock River weir since 1969 (weir not operated from 1989–1998) was typically mid-August through mid-September (ADF&G unpublished data). Spawning occurs well into October and possibly November in some streams (e.g., 19,500 live pink salmon in a partial foot survey of Port St. Nicholas Head on 26 October 1999). The primary migration route for Klawock pink salmon is through numerous island passages along the coast (Hoffman et al. 1983, 1985). Tagging studies also showed that a small proportion of pink salmon destined for District 103 (Appendix A1) will move further into Dixon Entrance and lower District 101 before reversing course back to their

home streams, but few of these fish appear to move as far north as the Klawock stock group in District 103 (Hoffman et al. 1983, 1985). Pink salmon from this stock group are likely primarily harvested in the Alaska District 104 and 103 purse seine fisheries, with small harvests possible in other nearby fisheries.

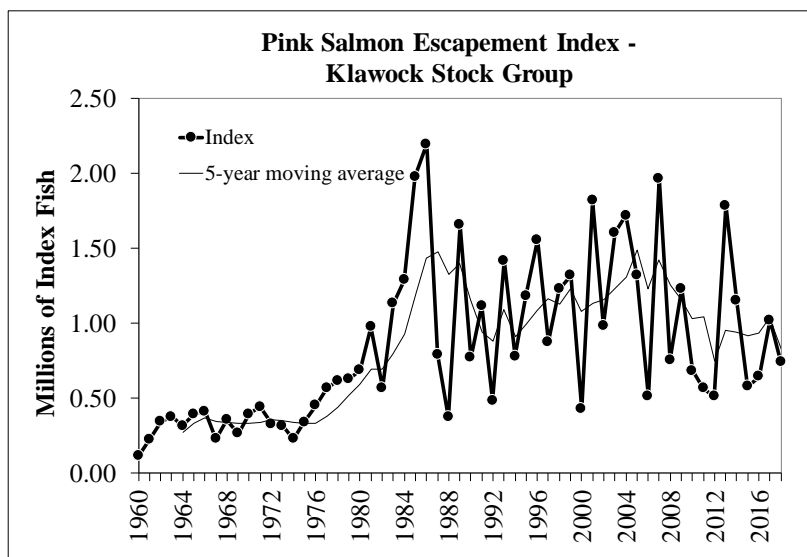


Figure 11.—Pink escapement index for the 47 streams in the Klawock stock group, 1960–2018.

Sea Otter Sound

The Sea Otter Sound stock group contains 18 index streams located off the eastern side of Prince of Wales Island primarily on Heceta and Kosciusko islands (Figure 2; Appendix A). The escapement index for this stock group exhibited an increasing trend until the mid-1980s and has generally remained at high levels since that time with a large amount of annual variation (Figure 12). The average index since 1985 is 179% of the pre-Treaty average. Although highly variable, escapements of both odd- and even-year pink salmon escapements increased through the 1960s and 1970s, and there has not been consistent dominance of one brood line for this stock group. From 1960 to 2018, the average index value was approximately 180,000 for both even and odd years. All the index streams in this stock group are small- to medium-sized producers with average peak aerial survey counts of less than 35,000 fish.

Sea Otter Sound pink salmon are primarily mid-to-late timed fish and they start arriving at spawning streams primarily in late July and August. Peak aerial survey stream counts typically occur from late August to mid-September; most August peak total counts include a high proportion of fish off the mouth or in intertidal areas of streams. Pink salmon passage through the Warm Chuck Lake weir on Heceta Island typically occurred from late August through mid-September, continuing into mid-October in most years (McCurdy 2012, 2010). The primary migration route for Sea Otter Sound pink salmon is through numerous island passages along the coast (Hoffman et al. 1983, 1985). Tagging studies also showed that a small proportion of pink salmon destined for District 103 move further into Dixon Entrance and lower District 101 before reversing course back to their home streams, but few of these fish appear to move as far north as the Sea Otter Sound stock group in District 103 (Hoffman et al. 1983, 1985). Pink salmon from this stock group are likely primarily harvested in the Alaska District 104 and 103 purse seine fisheries, with small harvests possible in other nearby fisheries.

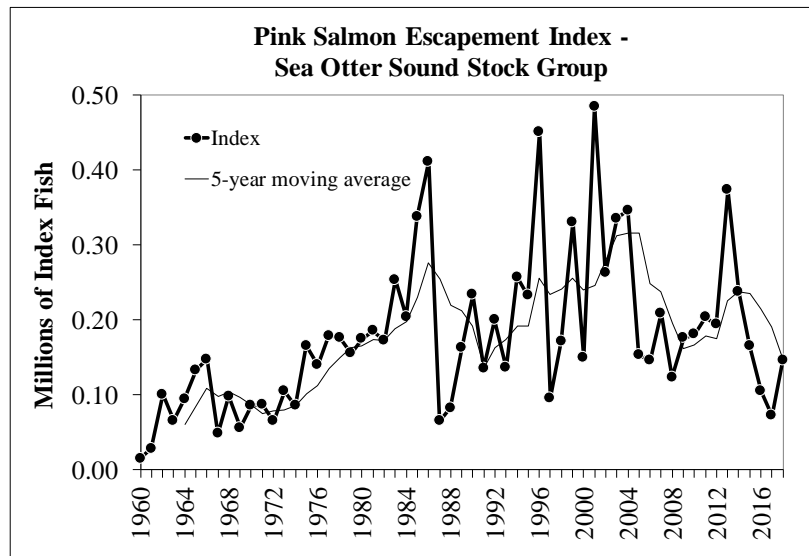


Figure 12.—Pink escapement index for the 18 streams in the Sea Otter Sound stock group, 1960–2018.

Affleck

The Affleck stock group contains 33 index streams located on the eastern shore of Kuiu Island and the southwest shore of Kupreanof Island (Figure 2; Appendix A). The escapement index for this stock group exhibited an increasing trend until the mid-2000s and has declined since that time (Figure 13). The average index since 1985 is 197% of the pre-Treaty average. Although highly variable, escapements of both odd- and even-year pink salmon escapements have followed similar patterns, and there has not been consistent dominance of one brood line for this stock group. From 1960 to 2018, the average index value was approximately 220,000 for even years and 260,000 for odd years. The largest pink salmon producing index streams in the stock group are Bear Harbor Creek (mean peak aerial survey count = 43,000) and Tunehean Creek (mean peak aerial survey count = 37,000).

Affleck Canal pink salmon are primarily mid-to-late timed fish and they start arriving at spawning streams primarily in late July and August. Peak aerial survey stream counts typically occur from late August to mid-September; most August peak total counts include a high proportion of fish off the mouth or in intertidal areas of streams. The primary migration route for Affleck Canal pink salmon is through lower Sumner Strait (Hoffman et al. 1983, 1985). Tagging studies also showed that some pink salmon destined for District 105 may move further south into Dixon Entrance and lower District 101 before reversing course back to their home streams, but overall tag recoveries were very low in this District's streams during the 1982 and 1984 tagging studies (Hoffman et al. 1983, 1985). Pink salmon from this stock group are likely primarily harvested in the District 105, 104, and 103 purse seine fisheries, with small harvests possible elsewhere.

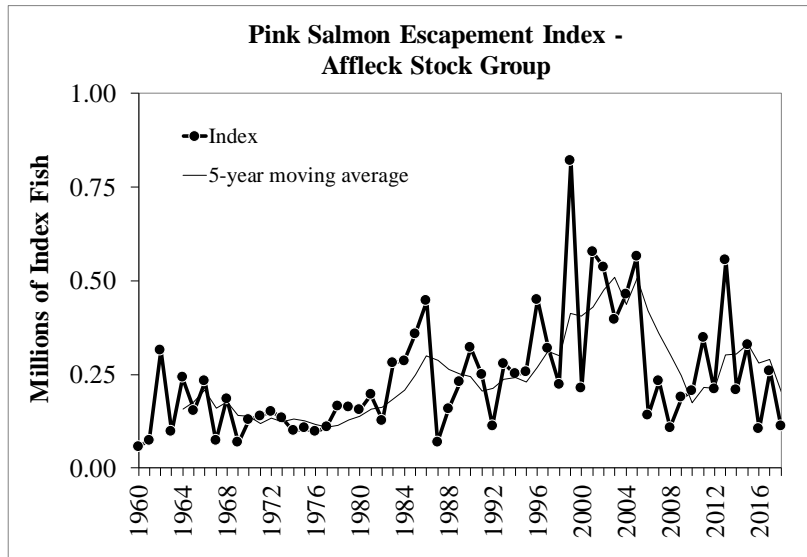


Figure 13.—Pink escapement index for the 33 streams in the Affleck Canal stock group, 1960–2018.

Shipley Bay

The Shipley Bay stock group contains 12 index streams located on the northwestern shore of Kosciusko Island and the northwest corner of Prince of Wales Island (Figure 2; Appendix A). The escapement index for this stock group exhibited an increasing trend until the mid-2000s and has declined since that time (Figure 14). The average index since 1985 is 187% of the pre-Treaty average. Escapements for this stock group have shown consistent dominance of the odd-year brood line; from 1960 to 2018, the average index value was approximately 110,000 for even years and 260,000 for odd years. The largest pink salmon producing index streams in the stock group are Trout Creek (mean peak aerial survey count = 39,000) and Calder Creek (mean peak aerial survey count = 37,000).

Shipley Bay pink salmon are primarily middle-timed fish, and they start arriving at spawning streams primarily in late July and August. Peak aerial survey stream counts typically occur from mid-August to early September. The primary migration route for Shipley Bay pink salmon is through lower Sumner Strait (Hoffman et al. 1983, 1985). Tagging studies also showed that some pink salmon destined for District 105 may move further south into Dixon Entrance and lower District 101 before reversing course back to their home streams, but overall tag recoveries were very low in this District's streams during the 1982 and 1984 tagging studies (Hoffman et al. 1983, 1985). Pink salmon from this stock group are likely primarily harvested in the District 105, 104, and 103 purse seine fisheries, with very small harvests possible elsewhere.

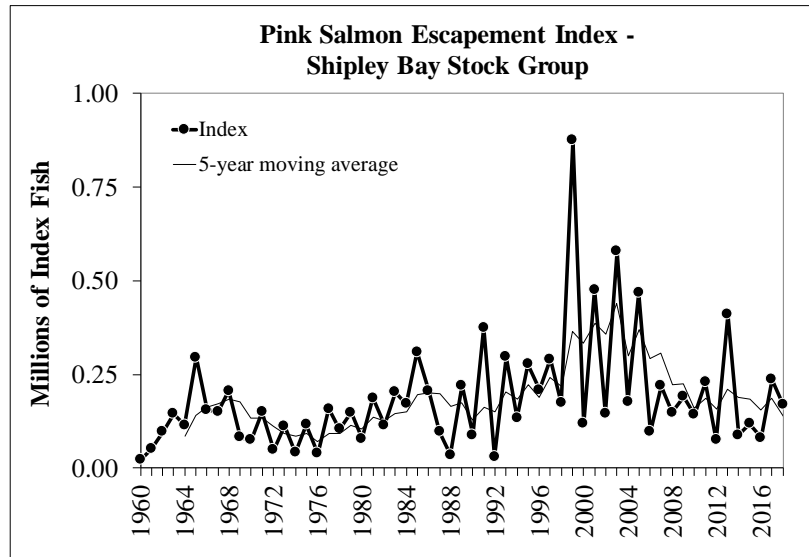


Figure 14.—Pink escapement index for the 12 streams in the Shipley Bay stock group, 1960–2018.

Burnett

The Burnett Inlet stock group contains 10 index streams located on the southwestern shore of Etolin Island (Figure 2; Appendix A). The escapement index for this stock group exhibited an increasing trend until the early 2000s and has declined since that time (Figure 15). The average index since 1985 is 177% of the pre-Treaty average. Although highly variable, escapements of both odd- and even-year pink salmon escapements have followed similar patterns, and there has not been consistent dominance of one brood line for this stock group. From 1960 to 2018, the average index value was approximately 100,000 for both even and odd years. All the index streams in this stock group are small- to medium-sized producers with average peak aerial survey counts of less than 30,000 fish.

Burnett Inlet pink salmon are primarily middle-timed fish, and they start arriving at spawning streams primarily from mid-July to early August. Peak aerial survey stream counts typically occur from mid-August to early September. The primary migration route for Burnett Inlet pink salmon may vary from year-to-year; in the 1982 tagging study pink salmon destined for District 106 had a primary migration route through lower Sumner Strait (76% of recovered tags) while in the 1984 study the primary migration route was through Dixon Entrance and lower Clarence Strait (72%; Hoffman et al. 1983, 1985). Due to the variability in migration routes for Burnett pink salmon they are likely available to harvest in most District 101–106 net fisheries, as well as in Canadian Area 3 net fisheries.

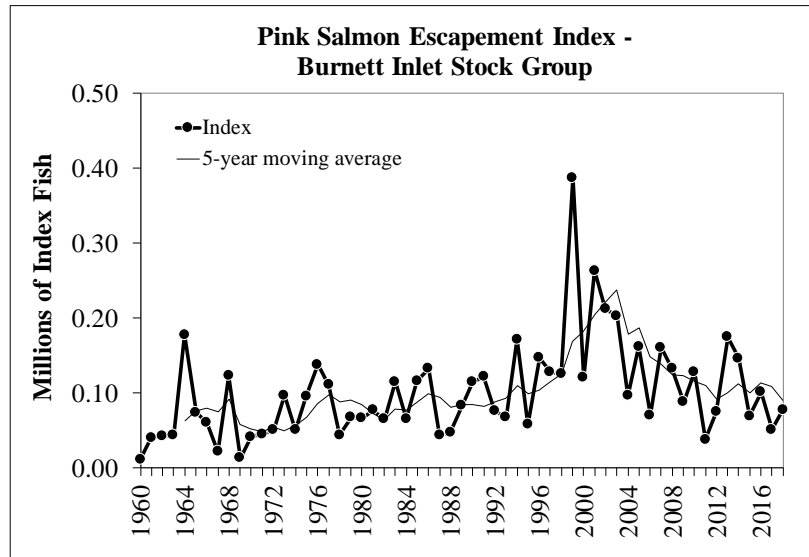


Figure 15.—Pink escapement index for the 10 streams in the Burnett Inlet stock group, 1960–2018.

Ratz Harbor

The Ratz Harbor stock group contains 4 index streams located on the west-central shore of Prince of Wales Island between Luck and Narrow points (Figure 2; Appendix A). The escapement index for this stock group exhibited an increasing trend until the mid-2000s and has declined since that time (Figure 16). The average index since 1985 is 262% of the pre-Treaty average. Although highly variable, escapements of both odd- and even-year pink salmon escapements have followed similar patterns, and there has not been consistent dominance of one brood line for this stock group. From 1960 to 2018, the average index value was approximately 80,000 for even years and 100,000 for odd years. The largest pink salmon producing index stream in the stock group is Eagle Creek (mean peak aerial survey count = 60,000).

Ratz Harbor pink salmon are primarily mid-to-late timed fish and they start arriving at spawning streams in late July and early August. A weir was operated at Eagle Creek from 1928 to 1931, and peak passage typically occurred between mid-August and mid-September (ADF&G unpublished data). Peak aerial survey stream counts typically occur from late August to mid-September, and spawning occurs well into October in many streams. The primary migration route for Ratz Harbor pink salmon may vary from year-to-year; in the 1982 tagging study pink salmon destined for District 106 had a primary migration route through lower Sumner Strait (76% of recovered tags) while in the 1984 study the primary migration route was through Dixon Entrance and lower Clarence Strait (72%; Hoffman et al. 1983, 1985). Due to the variability in migration routes for Ratz Harbor pink salmon, they are likely available to harvest in most District 101–106 net fisheries, and potentially in the Canadian Area 3 net fishery.

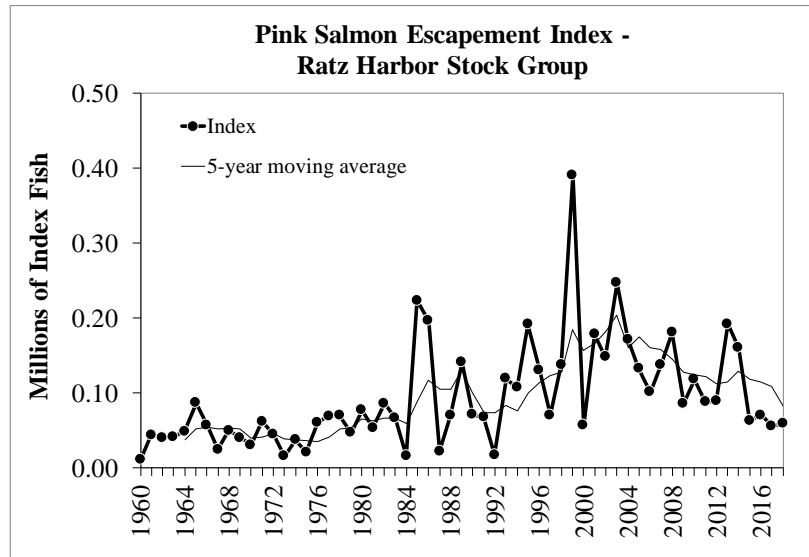


Figure 16.—Pink escapement index for the 4 streams in the Ratz Harbor stock group, 1960–2018.

Totem Bay

The Totem Bay stock group contains 13 index streams located on south-central Kupreanof Island, including Totem Bay, Duncan Canal, and Wrangell Narrows (Figure 2; Appendix A). The escapement index for this stock group exhibited an increasing trend until the mid-2000s and has declined since that time (Figure 17). The average index since 1985 is 203% of the pre-Treaty average. Although highly variable, escapements of both odd- and even-year pink salmon escapements have followed similar patterns, and there has not been consistent dominance of one brood line for this stock group. From 1960 to 2018, the average index value was approximately 70,000 for even years and 110,000 for odd years. All the index streams in this stock group are small- to medium-sized producers with average peak aerial survey counts of less than 25,000 fish.

Totem Bay pink salmon are primarily mid-to-late timed fish and they start arriving at spawning streams primarily in late July and early August. Peak aerial survey stream counts typically occur from late August to mid-September. Only two tagged pink salmon were recovered in Totem Bay stock group streams during the 1982 and 1984 tagging studies, but it seems likely that the primary migration route for these fish spawning in Sumner Strait streams is through lower Sumner Strait. Totem Bay pink salmon are likely available to harvest primarily in District 104 and 105 purse seine fisheries and District 106 drift gillnet fishery. Very small numbers of these fish may be available for harvest in northern Southeast Alaska waters (Nakatani et al. 1975).

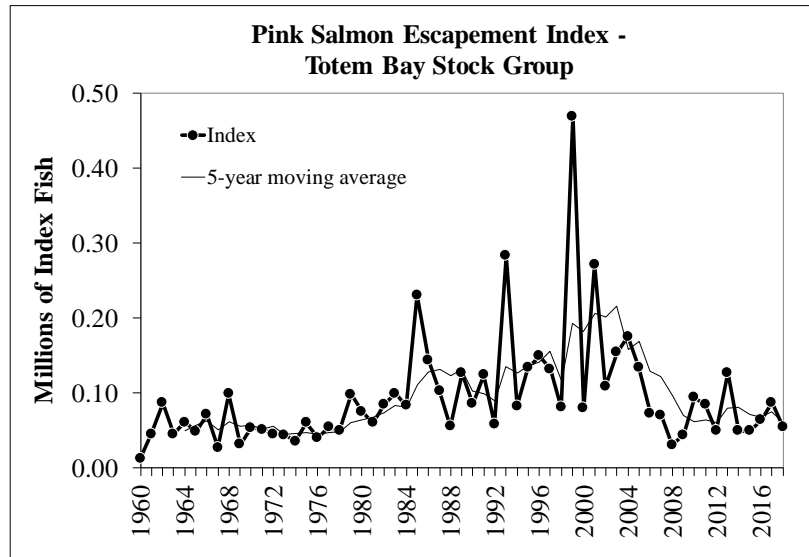


Figure 17.—Pink escapement index for the 13 streams in the Totem Bay stock group, 1960–2018.

Whale Pass

The Whale Pass stock group contains 10 index streams located on the northeastern shore of Prince of Wales Island from Luck Point to Point Colpoys (Figure 2; Appendix A). The escapement index for this stock group exhibited an increasing trend until the early 2000s and has declined since that time (Figure 18). The average index since 1985 is 154% of the pre-Treaty average. Although highly variable, escapements of both odd- and even-year pink salmon escapements have followed similar patterns, and there has not been consistent dominance of one brood line for this stock group, except for odd-year dominance from 1999 to 2008. From 1960 to 2018, the average index value was approximately 110,000 for even years and 140,000 for odd years. The largest pink salmon producing index stream in the stock group is 108 Creek (mean peak aerial survey count = 80,000).

Whale Pass pink salmon primarily exhibit mid-to-late run timing and they generally start arriving at spawning streams in early August. Peak aerial survey stream counts typically occur in early to mid-September; most August counts include fish off the mouth or in intertidal areas of streams. Spawning occurs well into October in many streams. The primary migration route for Whale Pass pink salmon may vary from year-to-year; in the 1982 tagging study pink salmon destined for District 106 had a primary migration route through lower Sumner Strait (76% of recovered tags) while in the 1984 study the primary migration route was through Dixon Entrance and lower Clarence Strait (72%; Hoffman et al. 1983, 1985). Due to the variability in migration routes for Whale Pass pink salmon, they are likely available to harvest in most District 101–106 net fisheries, and potentially in the Canadian Area 3 net fishery.

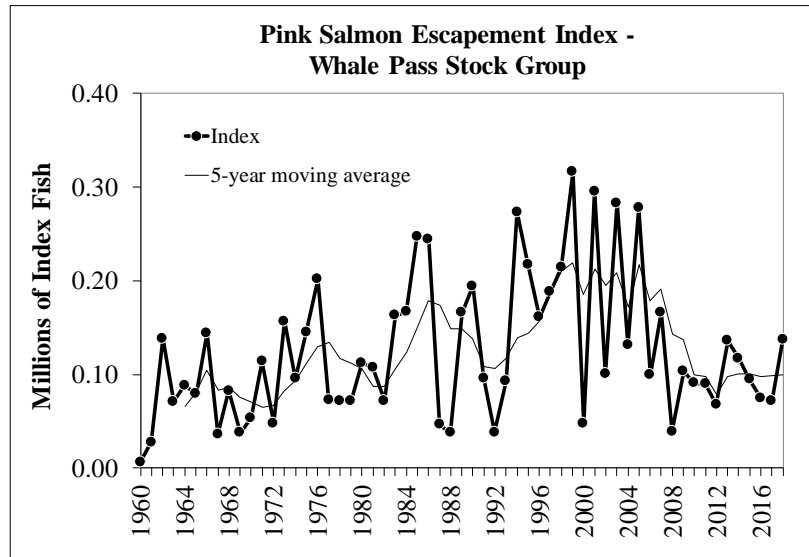


Figure 18.—Pink escapement index for the 10 streams in the Whale Pass stock group, 1960–2018.

Anan

The Anan Creek stock group contains 27 index streams located in upper Ernest Sound, Bradfield Canal, Zimovia Strait, and Blake Passage (Figure 2; Appendix A). The escapement index for this stock group exhibited an increasing trend until the mid-2000s and has declined slightly since that time (Figure 19). The average index since 1985 is 151% of the pre-Treaty average. Although highly variable, escapements of both odd- and even-year pink salmon escapements have followed similar patterns, and there has not been consistent dominance of one brood line for this stock group. From 1960 to 2018, the average index value was approximately 320,000 for even years and 370,000 for odd years. The largest pink salmon producing index streams in the stock group are Anan Creek (mean peak aerial survey count = 136,000) and Eagle River (mean peak aerial survey count = 58,000).

Anan pink salmon are primarily early-timed fish and they start arriving at spawning streams primarily in mid-to-late July. Anan Creek often has pink salmon starting to enter the stream as early as mid-June and counts in excess of 10,000 fish are not uncommon in the first half of July. A weir was operated at Anan Creek from 1925 to 1932, and peak passage typically occurred between early July and mid-August (ADF&G unpublished data). Peak aerial survey counts for most streams typically occur during August. The primary migration route for Anan pink salmon may vary from year-to-year; in the 1982 tagging study pink salmon destined for District 107 had a primary migration route through Sumner Strait, south through upper and middle Clarence Strait, and into Ernest Sound and Bradfield Canal (66% of recovered tags) while in 1984 they had a primary migration route through Dixon Entrance and lower Clarence Strait (87%; Hoffman et al. 1983, 1985). Due to the variability in migration routes for Anan pink salmon, they are available to harvest in most District 101–107 net fisheries, as well as in Canadian Area 3 net fisheries. Due to the early timing of these fish, they are likely most abundant in District 104 during the pre-week 31 Treaty period.

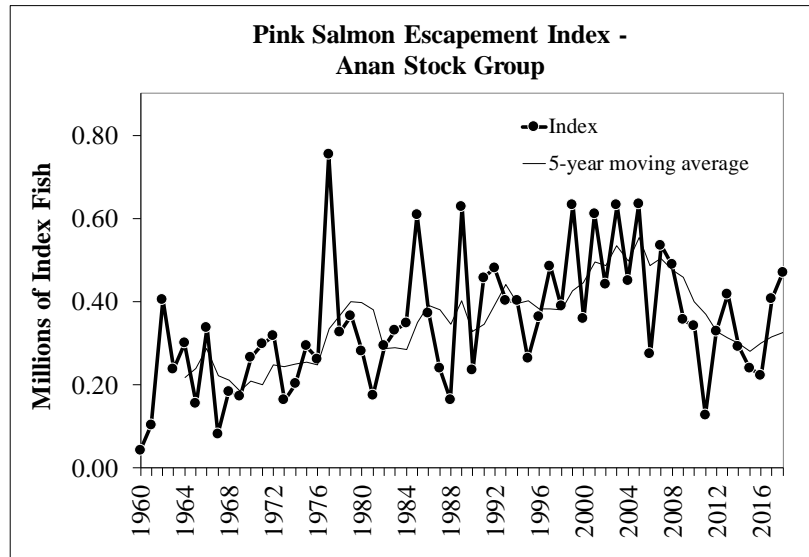


Figure 19.—Pink escapement index for the 27 streams in the Anan stock group, 1960–2018.

Union Bay

The Union Bay stock group contains 8 index streams located in the southern half of Ernest Sound (Figure 2; Appendix A). The escapement index for this stock group exhibited an increasing trend until the mid-2000s and has declined slightly since that time (Figure 20). The average index since 1985 is 226% of the pre-Treaty average. Although highly variable, escapements of both odd- and even-year pink salmon escapements have followed similar patterns, and there has not been consistent dominance of one brood line for this stock group. From 1960 to 2018, the average index value was approximately 90,000 for both even and odd years. The largest pink salmon producing index stream in the stock group is Black Bear Creek (mean peak aerial survey count = 57,000).

Union Bay pink salmon are primarily middle-timed fish and they start arriving at spawning streams primarily in late July. A weir was operated at Black Bear Creek in 1986 and 1987, and peak passage occurred between early or mid-August and early September (ADF&G unpublished data). Peak aerial survey stream counts for most streams typically occur from late August to mid-September with spawning continuing into October. The primary migration route for Union pink salmon may vary from year-to-year; in the 1982 tagging study, pink salmon destined for District 107 had a primary migration route through Sumner Strait, south through upper and middle Clarence Strait, and into Ernest Sound (66% of recovered tags) while in 1984 they had a primary migration route through Dixon Entrance and lower Clarence Strait (87%; Hoffman et al. 1983, 1985). Due to the variability in migration routes for Anan pink salmon they are available to harvest in most District 101–107 net fisheries, as well as in Canadian Area 3 net fisheries. Due to the early timing of these fish, they are likely most abundant in District 104 during the pre-week 31 Treaty period.

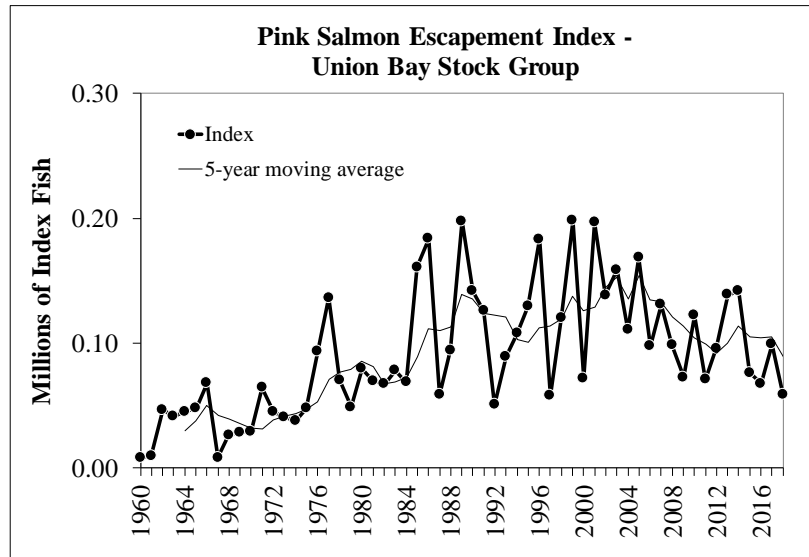


Figure 20.—Pink escapement index for the 8 streams in the Union Bay stock group, 1960–2018.

Stikine

The Stikine stock group contains 6 index streams located along the mainland from Thomas Bay to just south of the Stikine River and adjacent islands (Figure 2; Appendix A). The escapement index for this stock group exhibited an increasing trend until the mid-2000s and has declined slightly since that time (Figure 21). The average index since 1985 is 189% of the pre-Treaty average. Although highly variable, escapements of both odd- and even-year pink salmon escapements have followed similar patterns, and there has not been consistent dominance of one brood line for this stock group. From 1960 to 2018, the average index value was approximately 30,000 for even years and 50,000 for odd years. All the index streams in this stock group are small- to medium-sized producers with average peak aerial survey counts of less than 20,000 fish.

Stikine pink salmon are primarily middle-timed fish, and they start arriving at spawning streams primarily in late July. Peak aerial survey stream counts for most streams typically occur from mid-to-late August. Tagging studies show that Stikine pink salmon may arrive from migration routes through southern Southeast Alaska via Sumner and to a lesser degree Clarence Straits, as well as from the north via Icy and Chatham straits (Hoffman et al. 1982, 1983, 1985). Due to the variability in migration routes for Stikine pink salmon, they are available to harvest in numerous Southeast Alaska net fisheries along these corridors, as well as in Canadian net fisheries near the U.S.-Canada border to a minor extent.

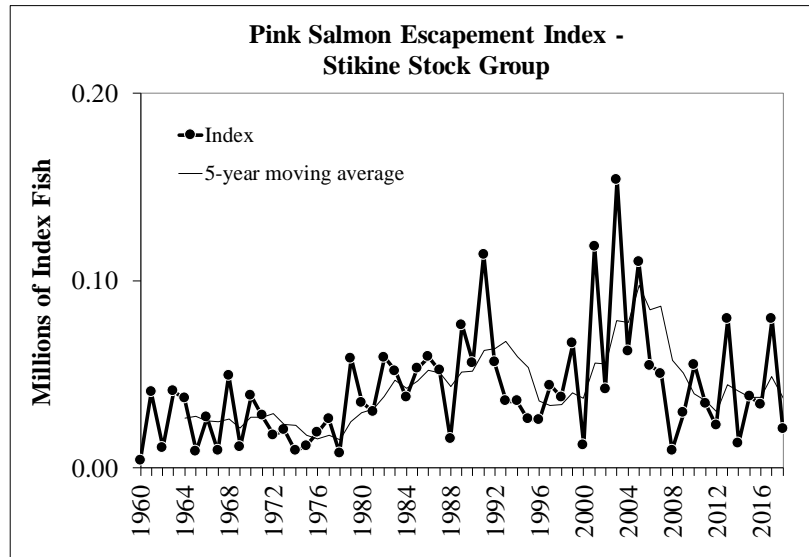


Figure 21.—Pink escapement index for the 6 streams in the Stikine stock group, 1960–2018.

SOUTHERN SOUTHEAST ALASKA PINK SALMON HARVEST

Harvest Tabulation

Salmon landings from individual commercial fishermen are recorded on fish tickets. Information recorded on the tickets includes the vessel name, Commercial Fisheries Entry Commission permit number, total weight of the harvest by species, and date and area of harvest. Catch in units of total weight are converted into units of fish numbers by the processors, based on their individual methods of determining the average weight of fish. Fish tickets are legal documents and serve as the basis of payment on the part of the processors to fishermen. State regulations require fish tickets to be delivered to ADF&G within seven days of a landing. Information from these tickets is entered into the ADF&G Fish Ticket Database System, and the total weight and the estimated total number of commercially harvested salmon are available in electronic format to biologists in various time and spatial summaries for all years since 1960. Estimates of the annual harvest of pink salmon prior to statehood were taken from Byerly et al. (1999).

Southern Southeast Alaska Harvest Trends

The harvest of pink salmon in the Southern Southeast Subregion (Figure 2) has generally followed the trend in escapements in the subregion, with low harvests averaging less than 10 million annually in the 1960s and 1970s, steadily increasing through the 1980s, and reaching peak levels in the mid-to-late 1990s. Harvests have generally trended downward since the late 1990s, with the notable exception of 2013. The harvest of 53 million fish in 2013 was just under the record of 54 million set in 1996. The escapement index for the Southern Southeast Subregion has shown less of a decline in recent years than harvest due to more conservative management in low return years to ensure the escapement goal is met (Figure 3). Pink salmon harvests in the Southern Southeast Subregion averaged 31 million fish annually in the 1990s, but have since dropped to 20 million fish per year over the past decade, 2009–2018 (Figure 22), which is near the 1960 to 2017 average of 19 million fish. Like escapements, harvests of both odd- and even-year pink salmon increased into the mid-1990s, but there was an overall odd-year dominate harvest pattern from 1999 through 2013. From 1960 through 1999, harvests averaged 17.0

million in even years and 17.7 million in odd years. Since 2000, harvests have averaged 16.1 million in even years and 28.3 million in odd years, and there were consistently higher harvests in odd years from 1999 through 2013.

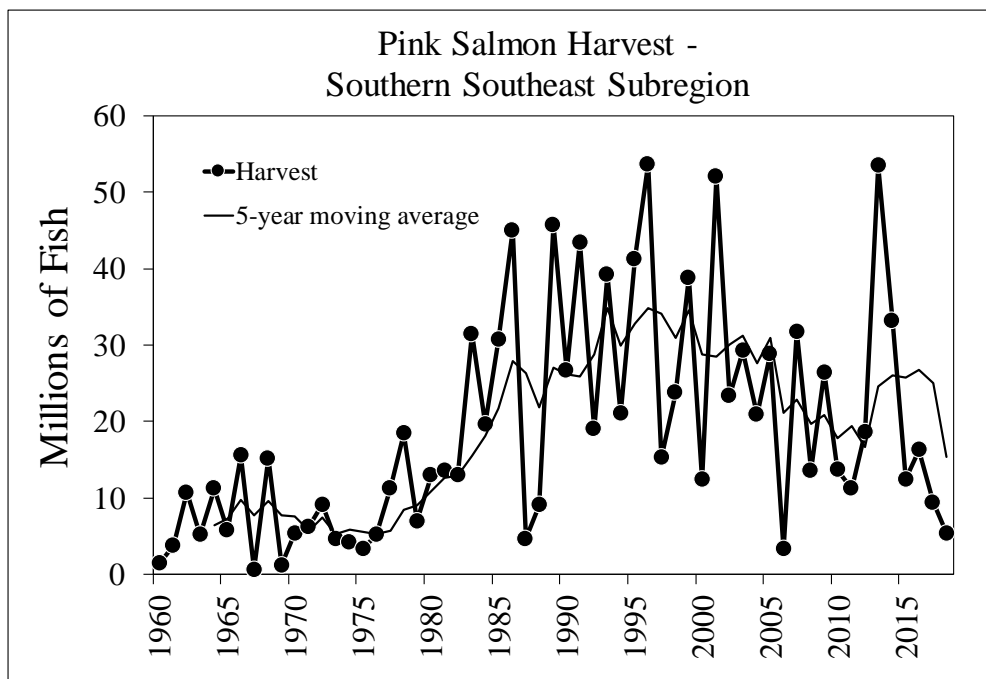


Figure 22.—Pink salmon harvest in the Southern Southeast Subregion of Southeast Alaska, 1960–2018.

Harvests of pink salmon increase steadily once the purse seine fishery opens in early July. The 1960–2018 average harvest passed one million fish in statistical week 30 and peaked in week 33 with an average harvest of 4.33 million fish for the week. The average harvest remained above one million fish through week 35. Pink salmon harvests averaged 9.44 million in southern Southeast Alaska prior to the 1985 Pacific Salmon Treaty and increased to an average 25.68 million from 1985 to 2018. Harvest prior to week 31 increased from an average of 1.14 million, from 1960 to 1984, to 2.80 million from 1985 to 2018. The average pink salmon harvest in southern Southeast Alaska in week 30, the final week of the Treaty period in District 104, increased from an average of 530,000 to 1.53 million fish since 1985 (Figure 23; Appendix B).

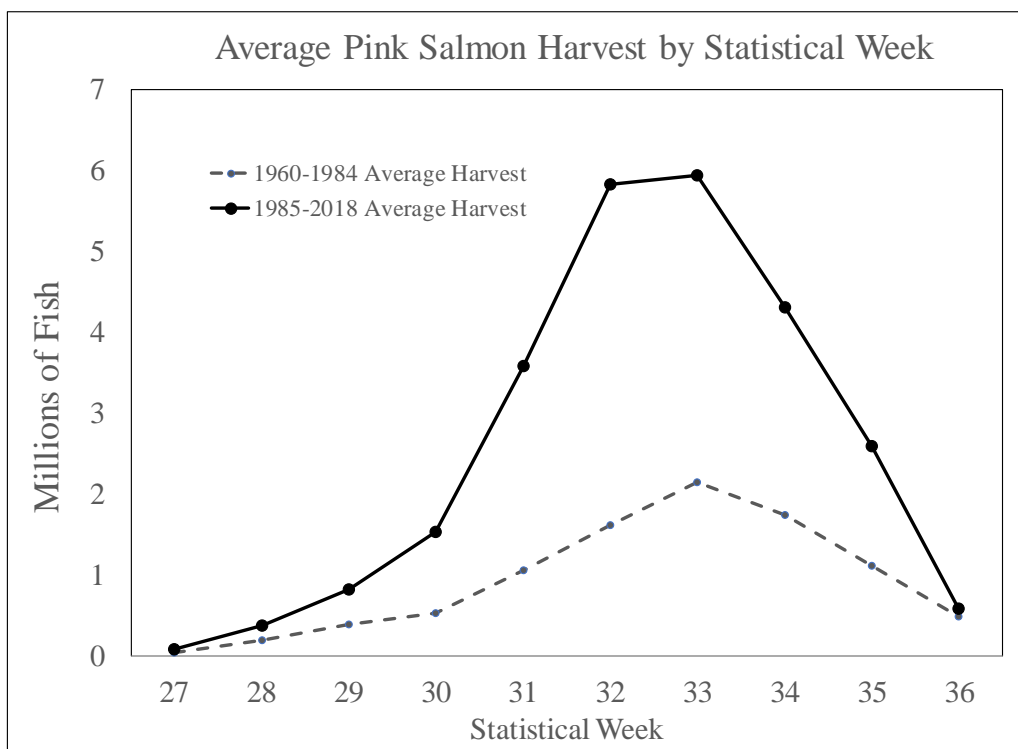


Figure 23.—Pink salmon harvest by statistical week in the Southern Southeast Subregion of Southeast Alaska, 1960–2018.

HARVEST OF PINK SALMON IN DISTRICT 104

TIMING OF HARVEST BY STOCK

Although annual estimates of the stock composition of pink salmon harvests in District 104 are not available, some generalizations can be drawn based on prior marine tagging studies and from the timing of pink salmon arrival at their spawning streams. Hoffman et al. (1983, 1985) defined early, middle, and late stocks by their timing through marine areas where tags were applied in 1982 and 1984. They defined early runs as populations that passed through tagging areas (e.g., District 104) in June, middle runs as those with peak passage in July, and late runs as those with peak passage in August. By this definition, early-run pink salmon would pass through District 104 in June, prior to the first purse seine openings, which do not occur until early July. In 1984, no pink salmon were tagged in District 104 during June due to low abundance (Hoffman et al. 1985). Pella et al. (1993) summarized pink salmon tagging studies conducted in 1982, 1984, and 1985, and estimated the stock composition of catches for those years. It was noted during these studies that a high degree of stock intermingling occurred in District 104, particularly in late July and August, which is when the majority of pink salmon harvest occurs on the outer coast.

The small numbers of early-timed fish that were tagged in District 104 during June in the 1982 tagging study were recovered (fishery and escapement recoveries) primarily in northern Southeast Alaska (from releases at Noyes Island), District 101, and District 106 (recovery area included both Sumner and upper Clarence gillnet fisheries; Hoffman et al. 1983), as well as a handful of tags recovered in other Alaska districts and in northern British Columbia (see Figures

1 and 2 for area maps). This matches the timing observed in escapements throughout southern Southeast Alaska, where many of the earliest-timed pink salmon escapements are found along the mainland in District 101 (e.g., East Behm Canal, Portland Canal) or migrate in part through District 106 to reach their spawning grounds (e.g., Anan, in District 107). The capture of pink salmon in District 104 in June indicates that a portion of early-timed pink salmon pass the outer coast prior to the first purse seine opening, which does not occur until early July.

Pink salmon tagged in District 104 in July were recovered throughout southern Southeast Alaska and northern British Columbia, with the largest number of recoveries in District 101 in all years, followed by districts 102–104, 106–107, and Area 1, 3 and 4 in British Columbia (variable by year and between Noyes and Dall tagging sites). Relatively small numbers were recovered in districts 103, 108, 109 and 110, and other northern British Columbia areas (Hoffman et al. 1983 and 1985; Pella 1993). In 1984, the 4th largest number of tags from pink salmon tagged in District 104 in July were recovered in District 107 (Hoffman et al. 1985). It is likely that many of these fish were destined for Anan stock group streams, which are primarily early-run systems, and Union Bay streams which are mid-timed. Pella et al. (1993) estimated Alaska-origin fish accounted for >95% of the pink salmon harvested in District 104 through mid-July in 1984 and 1985. From mid-to-late July, estimates ranged from 82% to 97% Alaska origin fish for southern and northern sections of District 104 over all three years (Pella et al. 1993).

The largest numbers of pink salmon were tagged in District 104 in August during these tagging studies and these fish were recovered throughout southern Southeast Alaska and northern British Columbia (Hoffman et al. 1983 and 1985; Pella 1993). The stock composition of the harvest in all three years shifted towards late-timed stocks in August. The majority of pink salmon tagged in District 104 and recovered in District 102 (Kasaan, Moira), District 103 (Hetta, East Dall, Klawock, Sea Otter Sound), District 104, and District 105 (Affleck Canal, Shipley Bay) were tagged in August, which reflects the primarily mid-to-late timed pink salmon runs in these areas. Large numbers of pink salmon tagged in District 104 in August were also recovered in District 101, which reflects the tremendous productivity of the area, diversity of spawn timing of pink salmon in District 101 streams, and diversity of run timing of fish passing through lower Clarence Strait and Revillagigedo Channel; portions of the pink salmon recaptured in District 101 fisheries would have ultimately spawned in other districts, some of which have late run timing. Pella et al. (1993) estimated Alaska-origin pink salmon accounted for 73% to 99% of the fish harvested in southern and northern sections of District 104 in early to mid-August in 1982, 1984, and 1985. The pink salmon tagged in District 104 from mid-August to early September over the same years were estimated to be 90% to 98% Alaska-origin fish.

FISHING EFFORT

Overall Purse Seine Effort in District 104

In the 1960s, the District 104 purse seine fishery was typically open for 6 days a week through much of the season. Although the number of boats fishing weekly is not available prior to 1969, unpublished ADF&G reports show that effort was high from 1960 to 1968 with an average of 2,225 boat days, which is comparable to the high levels of effort observed from the early 1980s to the mid-1990s (Figure 26). The maximum number of boats fishing in a week exceeded 100 vessels in 5 of the 9 years, 1960–1968. The amount of time the fishery was opened was reduced in 1969 and most subsequent years (Figure 24; Appendix C), and the number of boats fishing dropped and remained low until the late 1970s (Figure 27; Appendix C).

As pink salmon abundance increased in the late 1970s and early 1980s, the number of boats fishing in District 104 increased rapidly and remained at high levels through the mid-1990s, but with fewer hours open. The number of hours the fishery was open prior to week 31 dropped significantly in the early 1980s and has averaged 62 hours since 1985, which is only 22% of the 1960–1984 average of 282 hours (Figure 25). The annual number of boat days in the fishery has declined significantly both pre-week 31 and post week 30 after reaching high levels in the 1980s and early 1990s (Figures 30–32). From 1980 to 1995, there was an average of 477 boat days of effort prior to week 31, dropping to an average of 80 boat days from 1996 to 2018 (Figure 31). The number of boat days post week 30 decreased from an average of 1,729 from 1980 to 1995 to 681 from 1996 to 2018 (Figure 32).

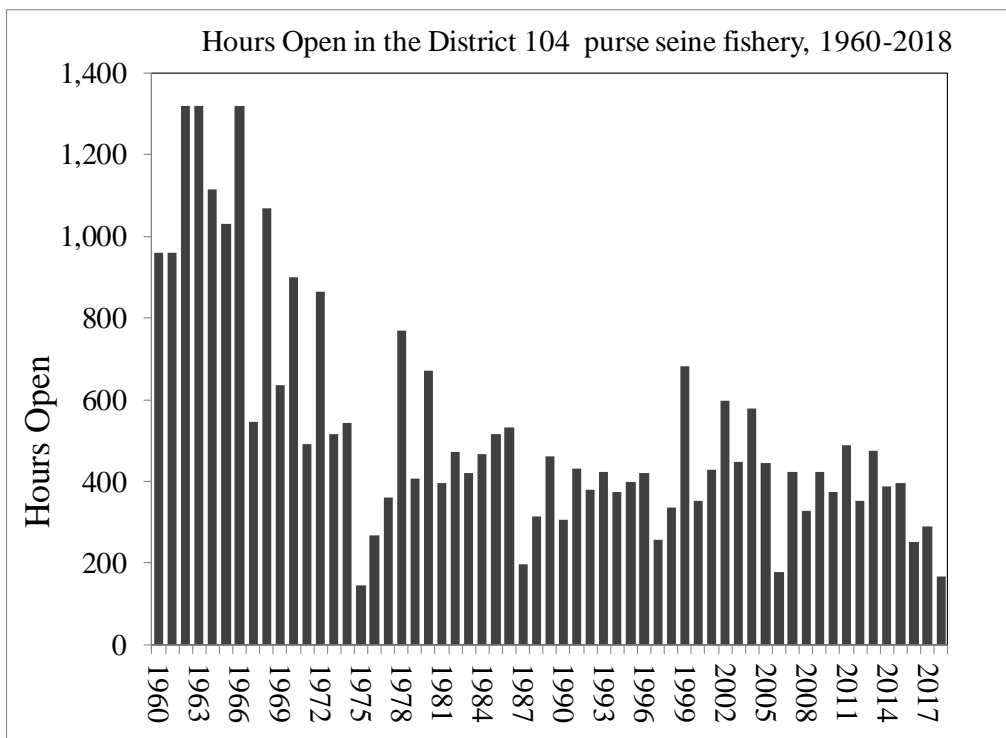


Figure 24.—Hours open in the District 104 purse seine fishery, 1960–2018.

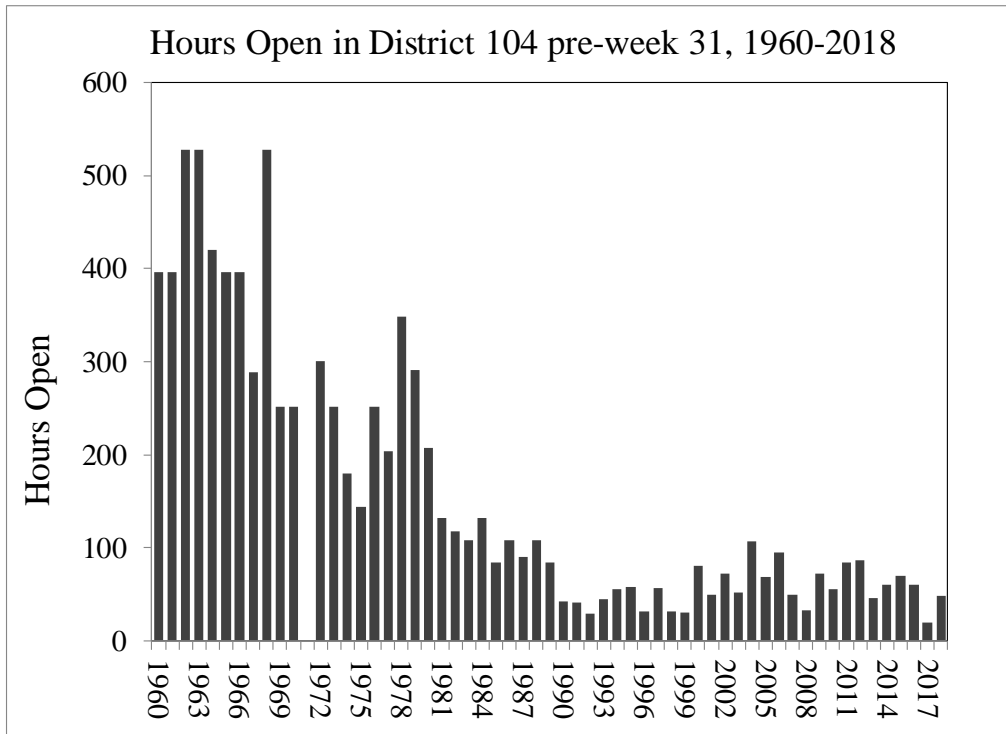


Figure 25.—Hours open in the District 104 purse seine fishery pre-week 31, 1960–2018.

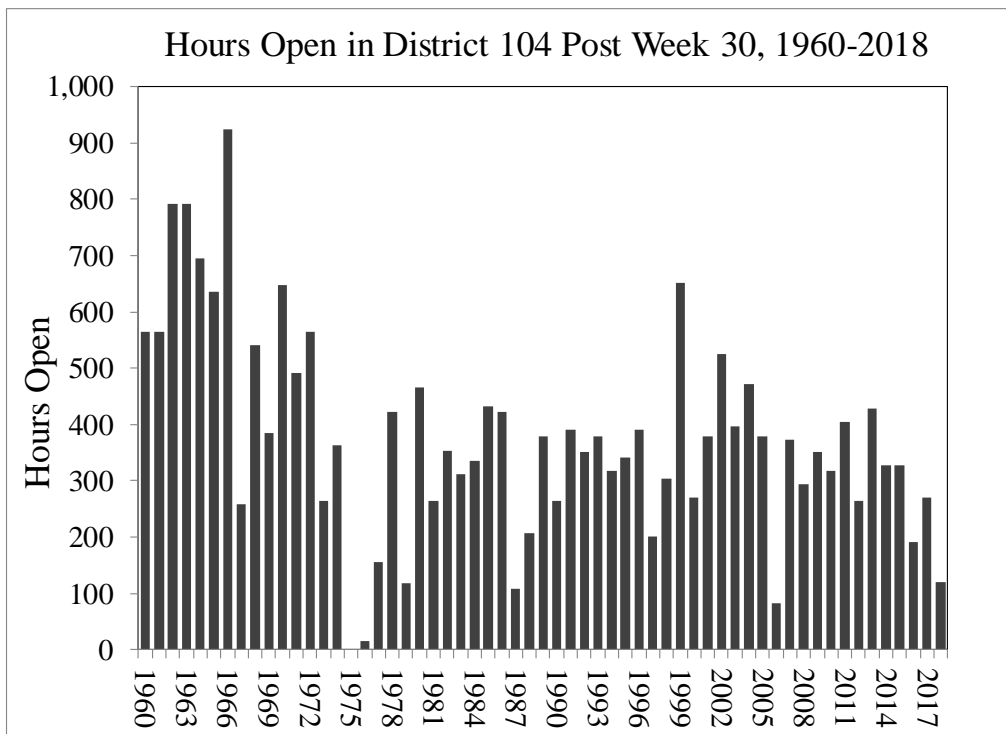


Figure 26.—Hours open in the District 104 purse seine fishery post week 30, 1960–2018.

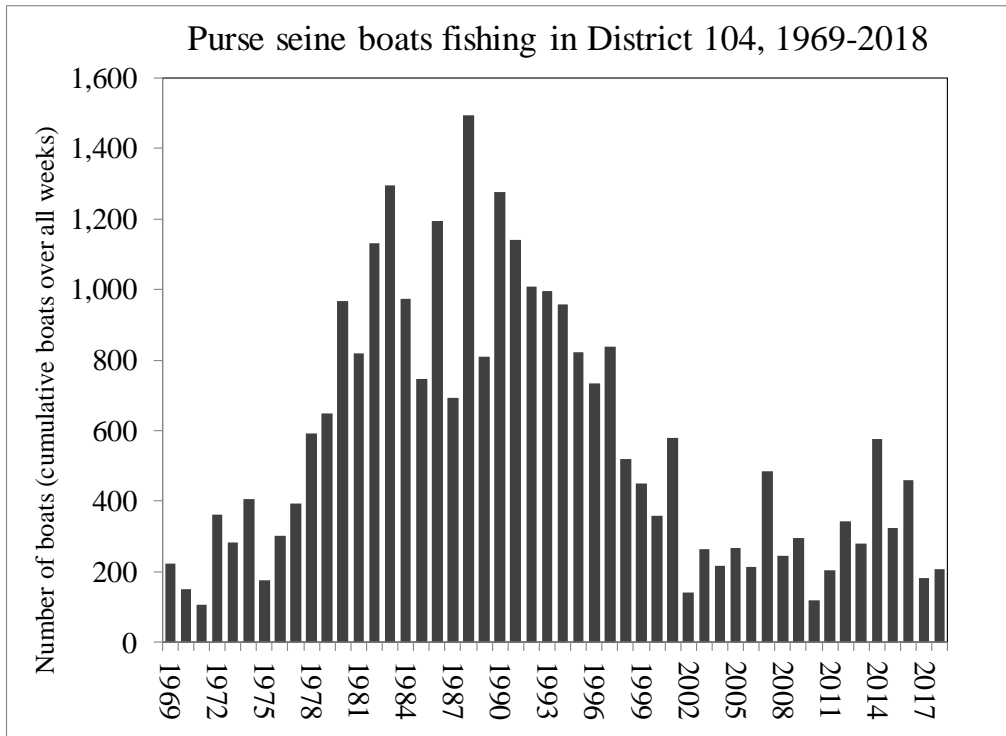


Figure 27.—Number of boats fishing (cumulative number of boats over all weeks) in the District 104 purse seine fishery, 1969–2018.

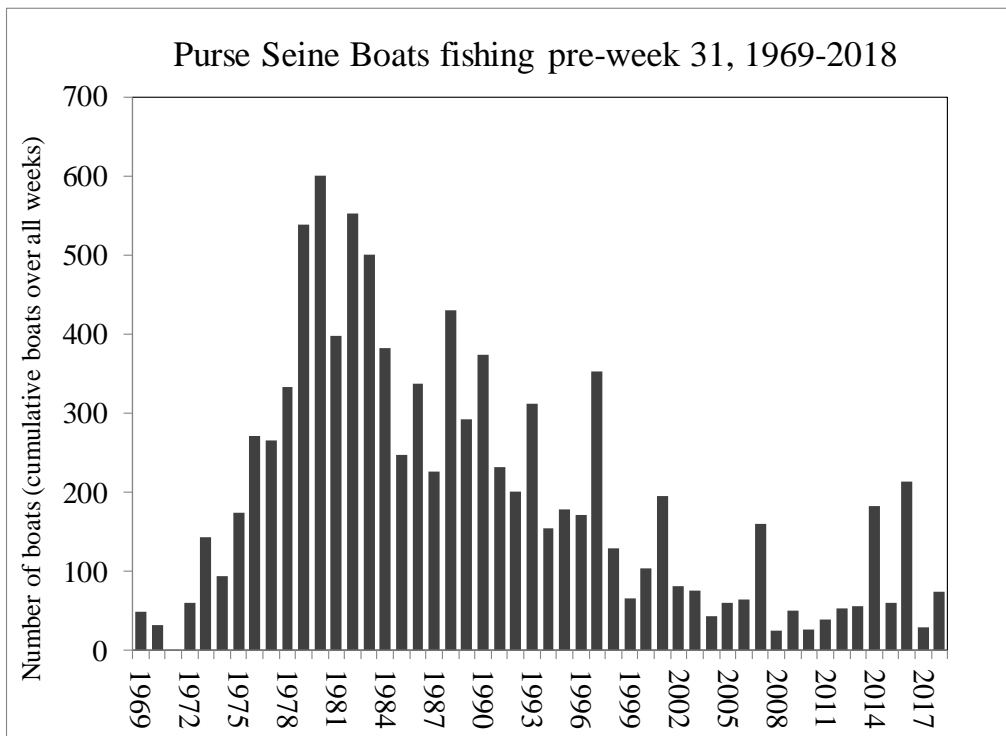


Figure 28.—Number of boats fishing (cumulative boats over all weeks) in the District 104 purse seine fishery pre-week 31, 1969–2018.

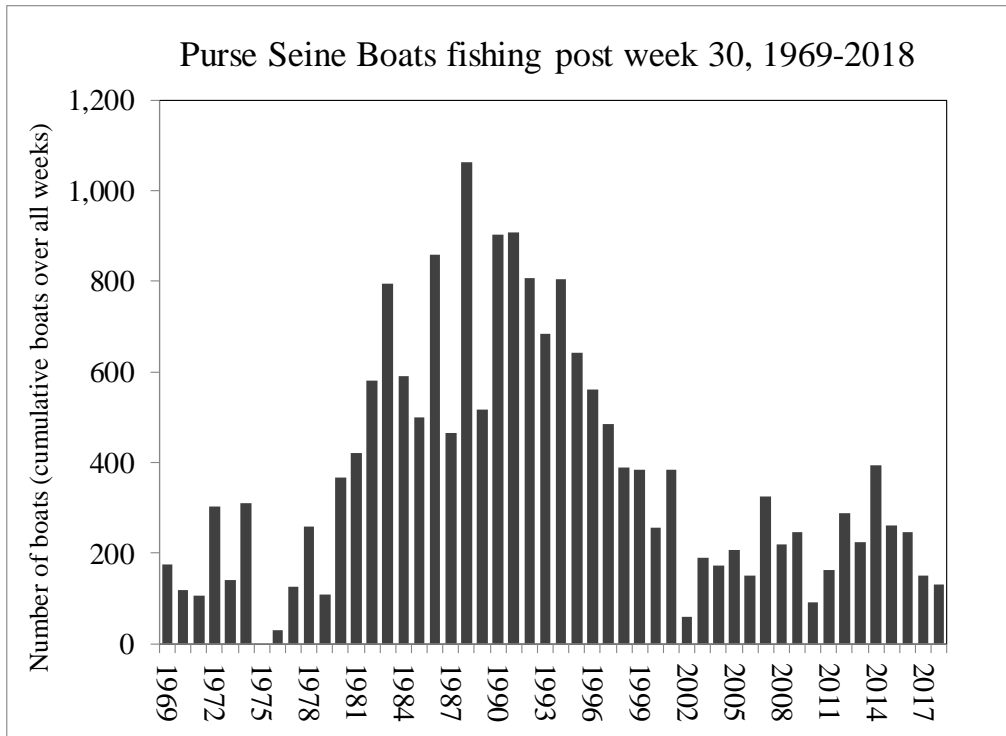


Figure 29.—Number of boats fishing (cumulative number of boats over all weeks) in the District 104 purse seine fishery post week 30, 1969–2018.

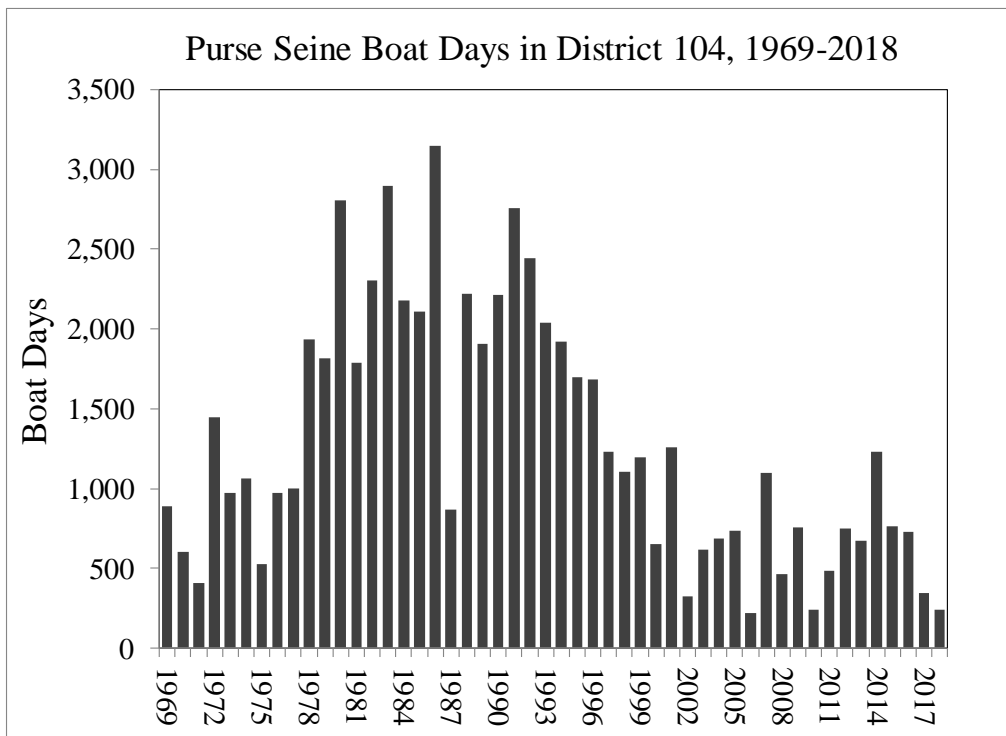


Figure 30.—Purse seine boat days in the District 104 purse seine fishery, 1969–2018.

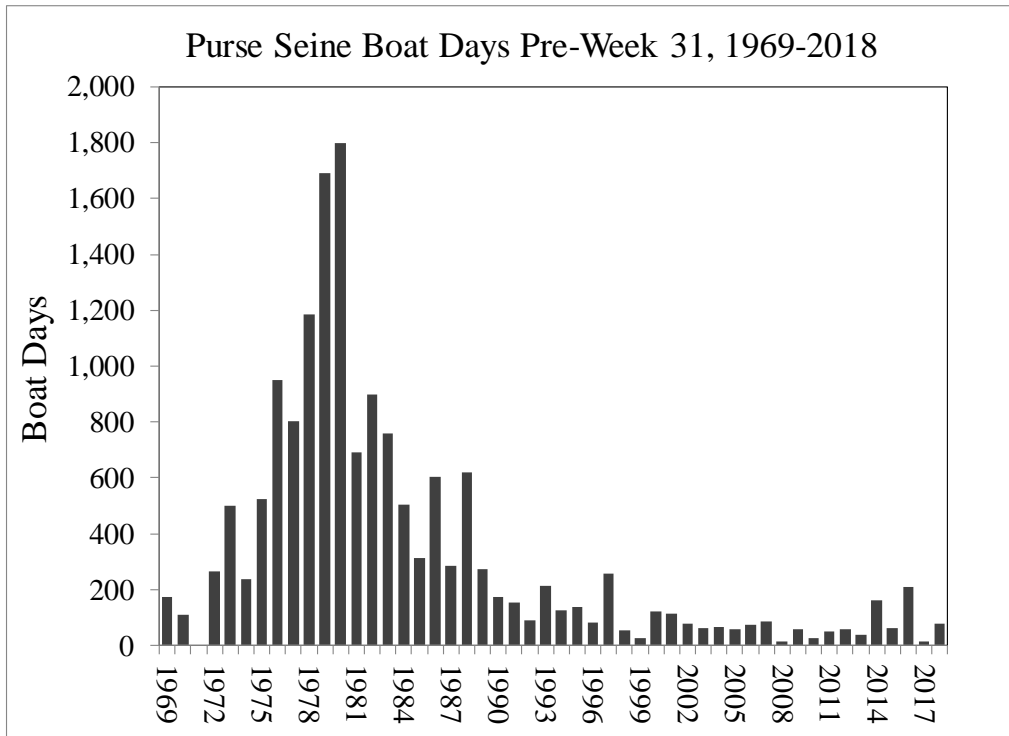


Figure 31.—Purse seine boat days in the District 104 purse seine fishery pre-week 31, 1969–2018.

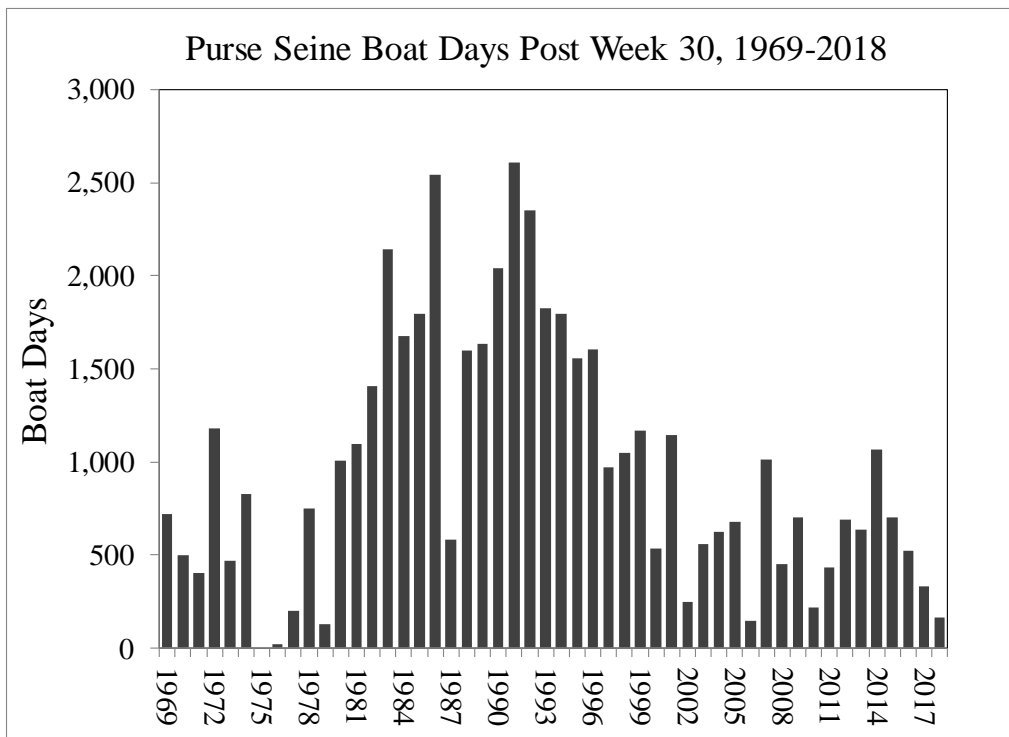


Figure 32.—Purse seine boat days in the District 104 purse seine fishery post week 30, 1969–2018.

Purse Seine Effort by Subdistrict

The District 104 purse seine fishery is typically opened in its entirety, except for a small number of area closures outlined in the *Conservation Actions* section later in this report. From 1969 to 2018, the greatest effort in the fishery has occurred in subdistrict 104-40 near Noyes Island in the northern half of the district and along the west coast of Dall Island (104-10 and 104-20) in the southern half of the district (Figures 33 and 34). The distribution of effort matches the distribution of harvest by subdistrict (Figures 38 and 39). Since 1969, the average cumulative number of boats fishing over all weeks has been 327 in subdistrict 104-40, 136 in subdistrict 104-20, 99 in subdistrict 104-10, and 95 in subdistrict 104-35 (Figure 33). Smaller numbers of boats (average cumulative number over all weeks) have fished in subdistricts 104-30 (44 boats) and 104-50 (12 boats).

From 1969 to 1979, approximately 61% of the total cumulative number of boats over all weeks fished in subdistrict 104-40 on average and 86% fished near Noyes and Baker islands (104-35 and 104-40) in the north end of the district. As pink salmon abundance and effort increased, more of the effort switched to the southern half of the district off Dall Island (104-10 and 104-20), and the distribution of boats was more evenly balanced throughout the district. From 1980 to 1999, approximately 40% of the total cumulative number of boats over all weeks fished in subdistricts 104-10 and 104-20 and approximately 52% in subdistricts 104-35 and 104-40. From 2000 to 2018, effort was much lower and the average proportion of boats fishing subdistricts 104-35 and 104-40 in the northern half of the district increased to approximately 65% (Figures 33 and 34).

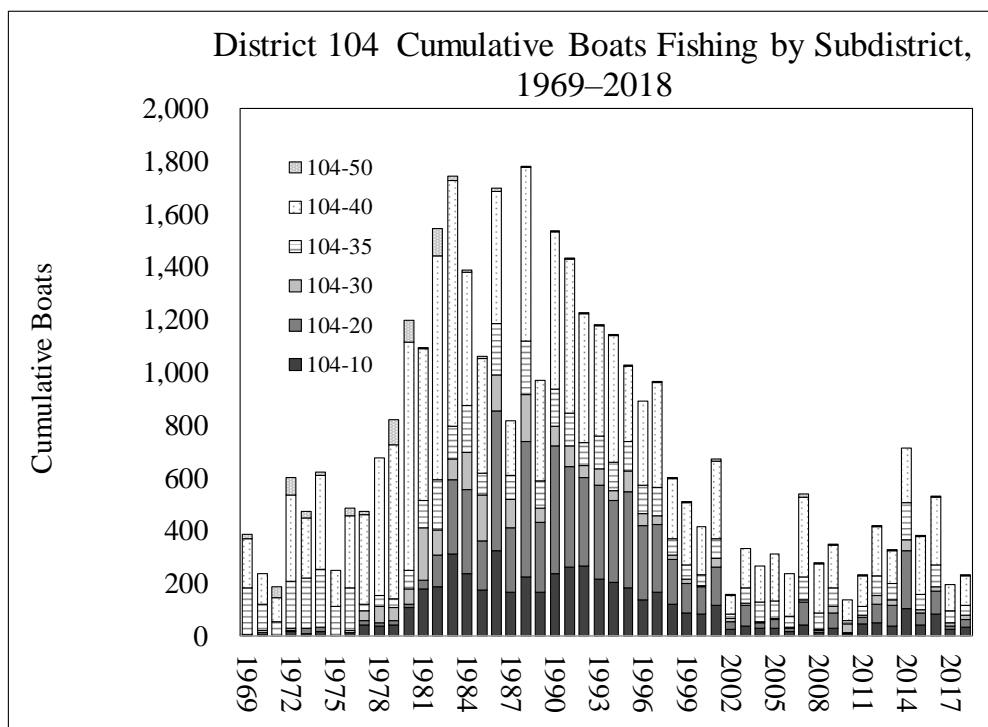


Figure 33.—Number of boats fishing (cumulative number of boats over all weeks) by subdistrict in the District 104 purse seine fishery post week 30, 1969–2018. Some boats may fish multiple subdistricts in the same week or opening.

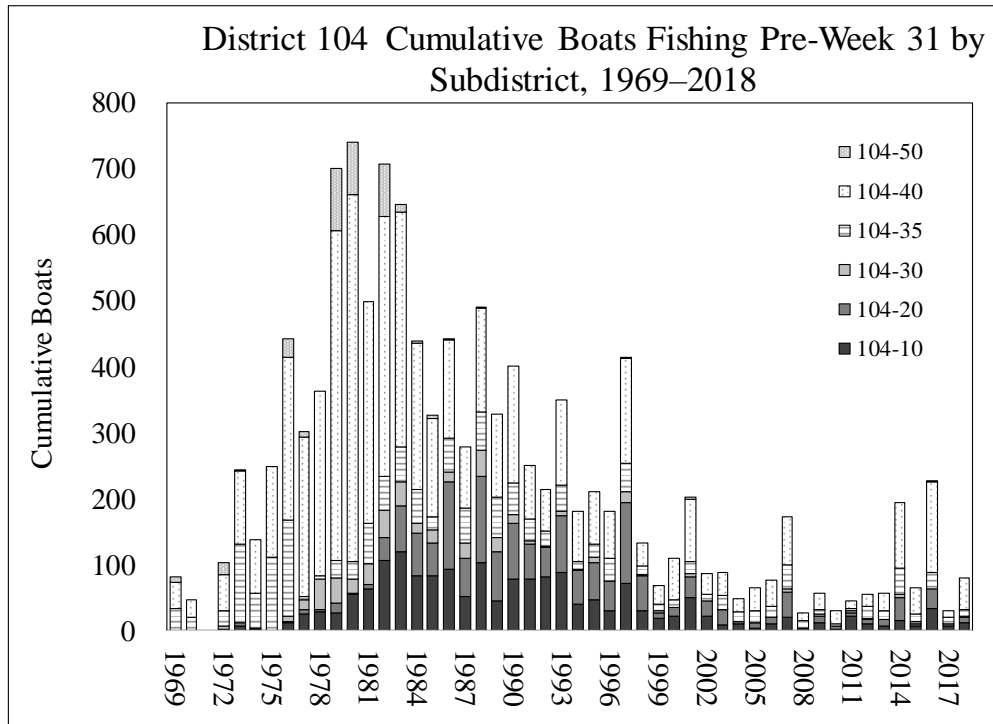


Figure 34.—Number of boats fishing (cumulative number of boats over all weeks) pre-week 31 by subdistrict in the District 104 purse seine fishery post-week 30, 1969–2018. Some boats may fish multiple subdistricts in the same week or opening.

HARVEST TRENDS

Overall District 104 Purse Seine Harvest

In the 1960s and 1970s, District 104 purse seine harvests of pink salmon were generally low: a reflection of total abundance in southern Southeast Alaska. Pink salmon harvests in District 104 averaged 1.2 million from 1960 to 1969 and 857,000 from 1970 to 1979. Harvests increased dramatically to an average of 7.9 million in the 1980s and 13.2 million in the 1990s (Figure 35). Harvests have generally declined since that time and averaged 5.2 million in the 2000s and 4.6 million from 2010 through 2018. Harvests of pink salmon prior to week 31 show a similar pattern through the early 1990s, but average harvests have remained relatively stable at close to 500,000 fish since that time with a large amount of annual variation (Figure 36). The pattern of post week 30 pink salmon harvests is similar to that of the district as a whole (Figure 37).

By statistical week, the harvest of pink salmon in District 104 follows a pattern like that of the Southern Southeast Subregion (Figure 23). The harvest is low at the beginning of the fishery in weeks 27 or 28, and averaged less than 100,000 fish in both weeks for all decades since 1960 (Table 1). Harvests increase in week 29, but remain relatively low in most years. A record 1.2 million pink salmon were harvested in week 29 in 2016, but the average harvest since 1960 was much lower at approximately 125,000 fish. The average harvest since 1960 in week 30 increased to approximately 217,000 fish (Table 1). Average pink salmon harvests rose dramatically in week 31 in all decades as the main waves of fish arrived on the coast. The average harvest since 1960 was just over a million fish in week 31 and the peak weekly harvest for the year occurred that week in nine years. In most years, the peak harvests occurred in weeks 32 and 33 and the average harvests since 1960 were 1.57 and 1.43 million fish, respectively (Table 1). Harvests

typically started declining in weeks 34 and 35, but in large return years the harvest still exceeded a million fish. Since 1960, the average harvest was 822,000 in week 34 and 502,000 in week 35. When open, the harvest of pink salmon in week 36 generally drops considerably and has averaged 195,000 fish since 1960. Peak CPUE in the fishery (Figure 38 and 39) occurred in weeks 32 and 33 in 29 of 47 years since 1969 (excluding 1971, 1975, and 1976), followed by week 34 (6 years) and weeks 30 and 31 (5 years each). In 2016, the peak CPUE occurred in week 29, closely followed by week 30, and in 1982 the peak CPUE occurred in week 35.

Table 1.—Weekly average harvests of pink salmon by decade in the District 104 purse seine fishery.

| Decade | Statistical Week | | | | | | | | | |
|------------|------------------|--------|---------|---------|-----------|-----------|-----------|-----------|-----------|---------|
| | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 |
| 1960s | 1,575 | 8,602 | 17,237 | 72,144 | 160,339 | 206,706 | 388,709 | 278,134 | 116,287 | 8,381 |
| 1970s | 36,225 | 40,870 | 96,492 | 91,559 | 164,932 | 185,295 | 235,389 | 177,124 | 102,790 | 29,525 |
| 1980s | 15,422 | 80,058 | 135,903 | 374,201 | 1,154,132 | 2,499,693 | 2,014,870 | 899,318 | 645,098 | 468,755 |
| 1990s | 27,395 | 91,733 | 175,861 | 189,059 | 2,157,198 | 3,306,958 | 3,372,777 | 2,261,642 | 1,451,688 | 466,305 |
| 2000s | 24,805 | 41,451 | 109,612 | 318,857 | 1,399,368 | 1,364,378 | 1,176,504 | 617,086 | 162,378 | 9,155 |
| 2010s | 418 | 91,910 | 218,806 | 232,036 | 780,321 | 1,438,428 | 1,097,973 | 478,324 | 321,328 | 92,634 |
| Avg. 60–18 | 13,640 | 58,564 | 124,549 | 216,902 | 1,015,853 | 1,571,791 | 1,426,201 | 821,528 | 502,684 | 194,771 |

Although the average harvest of pink salmon during the pre-week 31 period has remained relatively stable since the Treaty was enacted in 1985, the proportion of the total harvest caught prior to week 31 has declined from 18% prior to 1985 (not including 1971 or 1975, where no harvest occurred during one of the periods) to 9% from 1985 to 2018 (Figure 40). Since 1985, week 31 pink salmon harvests have also become proportionally larger on average than week 30 harvests, with a great deal of annual variation. From 1960 to 1984, the week 30 pink salmon harvest averaged 84% of the week 31 harvest; since 1985, the week 30 harvest has averaged 41% of the week 31 harvest (Figure 41). These declines in pre-week 31 pink salmon harvests are attributable to the declines in fishing effort (Figures 24–32) that have occurred in the early weeks of the District 104 fishery due to Treaty obligations related to Nass and Skeena river sockeye salmon.

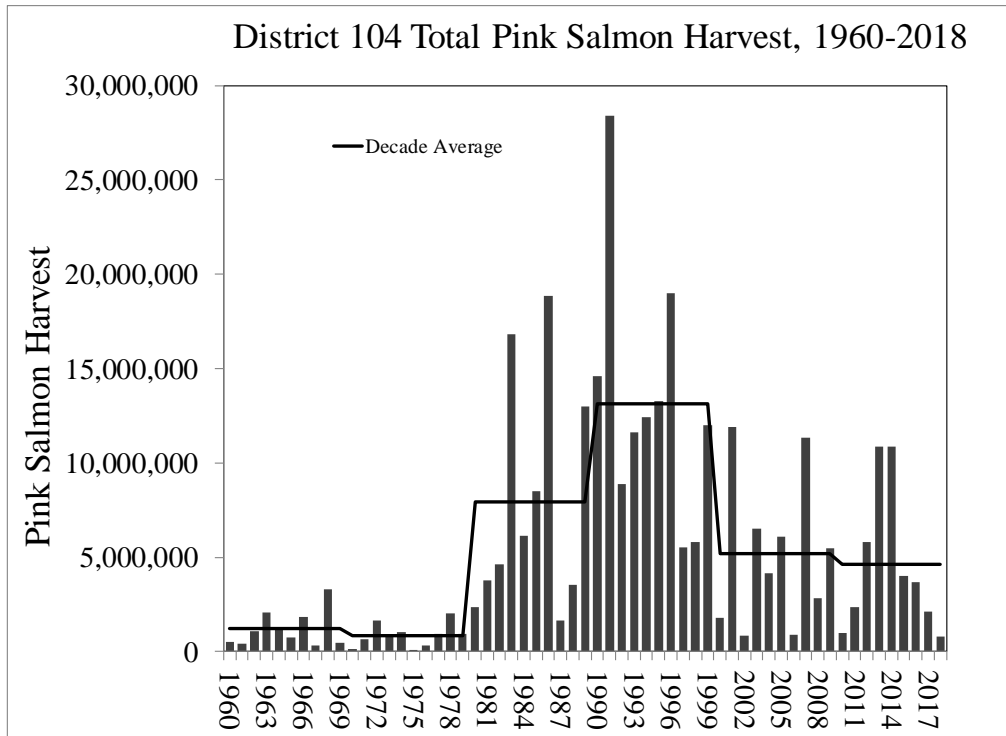


Figure 35.—Pink salmon harvest in the District 104 purse seine fishery, 1960–2018.

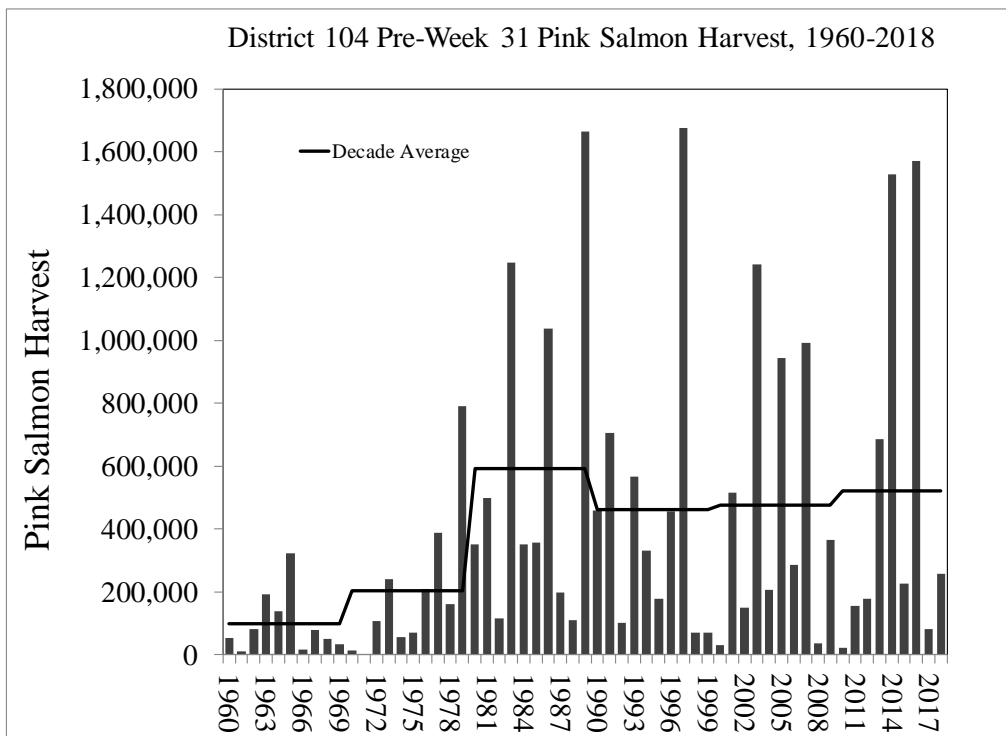


Figure 36.—Pink salmon harvest in the District 104 purse seine fishery pre-week 31, 1960–2018.

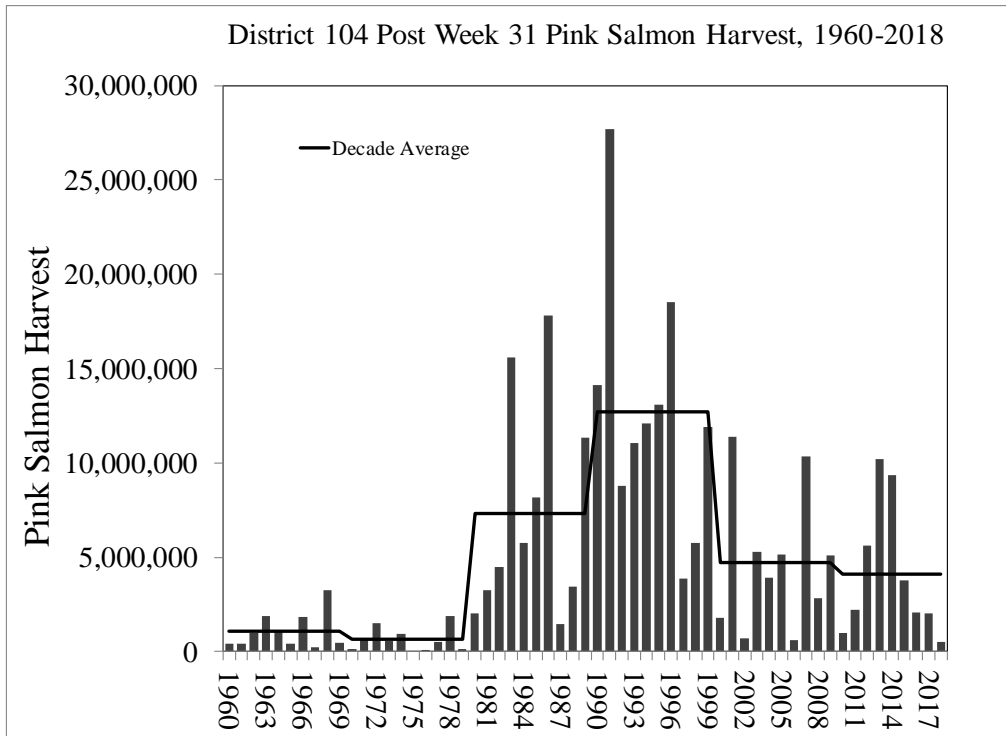


Figure 37.—Pink salmon harvest in the District 104 purse seine fishery post week 30, 1960–2018.

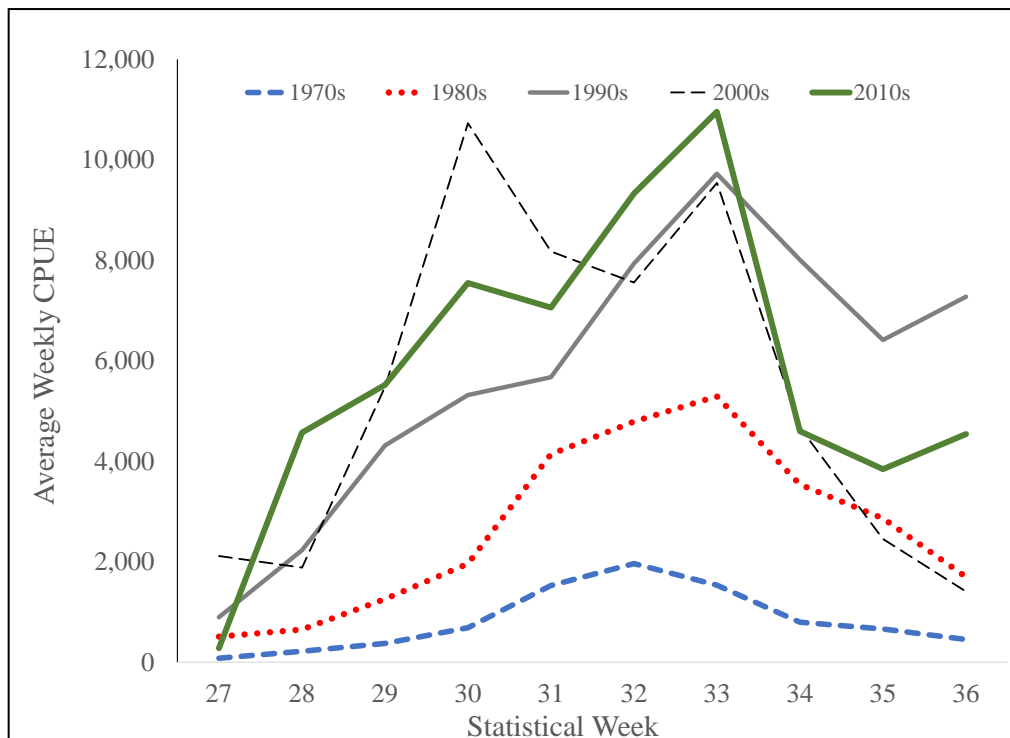


Figure 38.—Average weekly pink salmon CPUE (pink salmon harvest per boat day) by decade in the District 104 purse seine fishery, 1970–2018. Years where the fishery did not open in weeks 27–29 or closed prior to week 34 were excluded (1971, 1975, 1976).

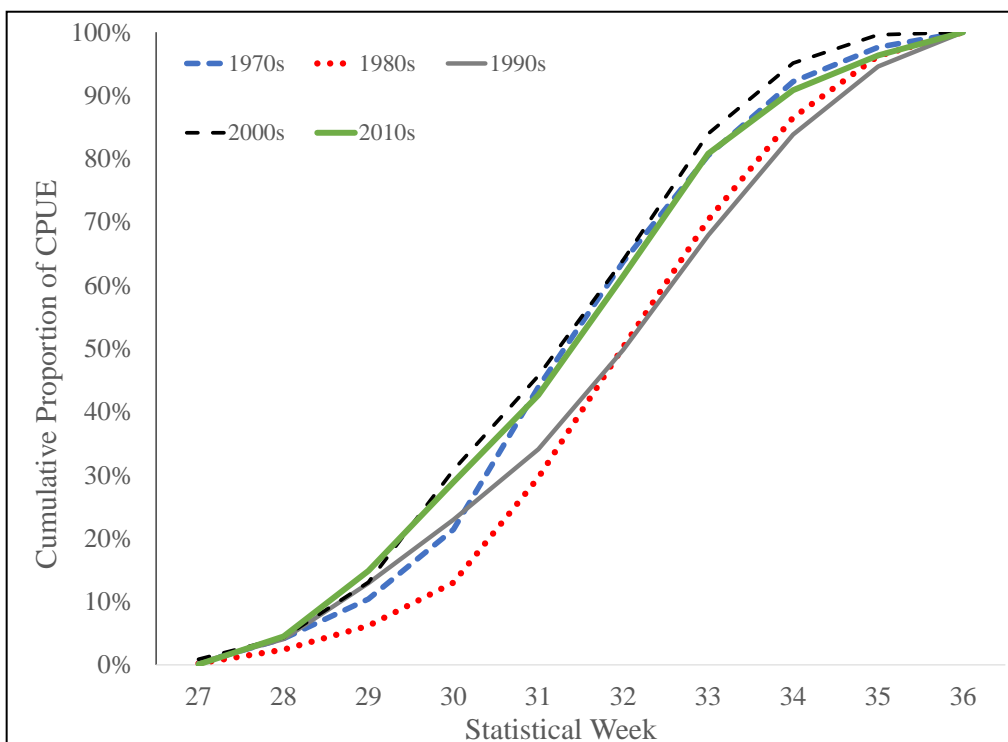


Figure 39.—Average cumulative proportion of weekly pink salmon CPUE (pink salmon harvest per boat day) by decade in the District 104 purse seine fishery, 1970–2018. Years where the fishery did not open in weeks 27–29 or closed prior to week 34 were excluded (1971, 1975, 1976).

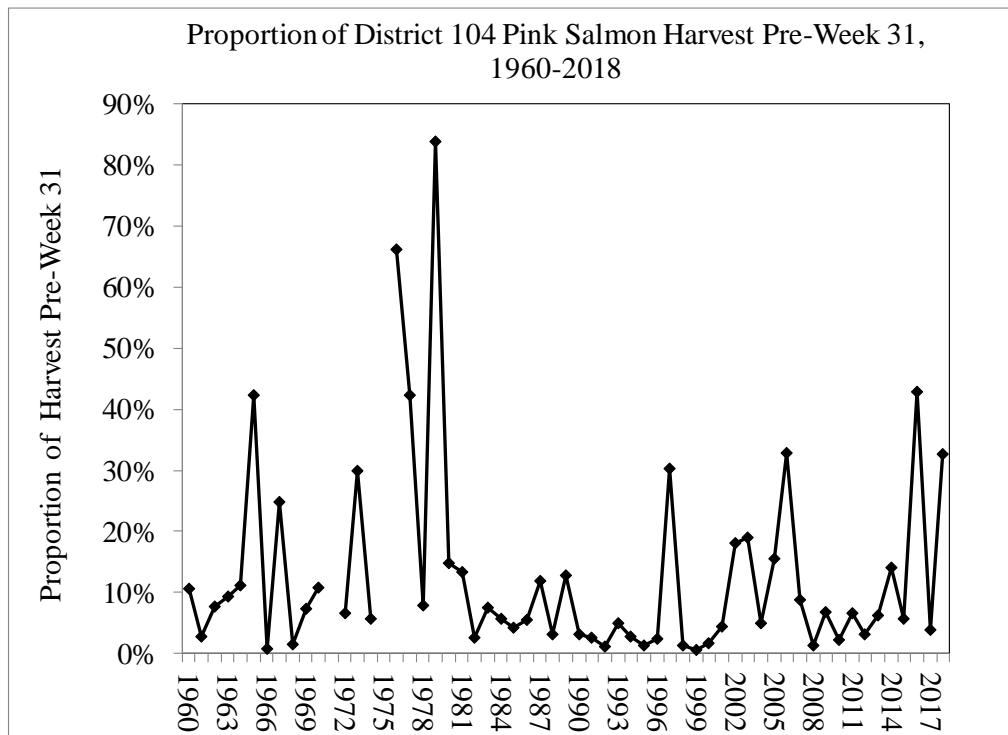


Figure 40.—Proportion of pink salmon harvest in the District 104 purse seine fishery occurring prior to week 31, 1960–2018.

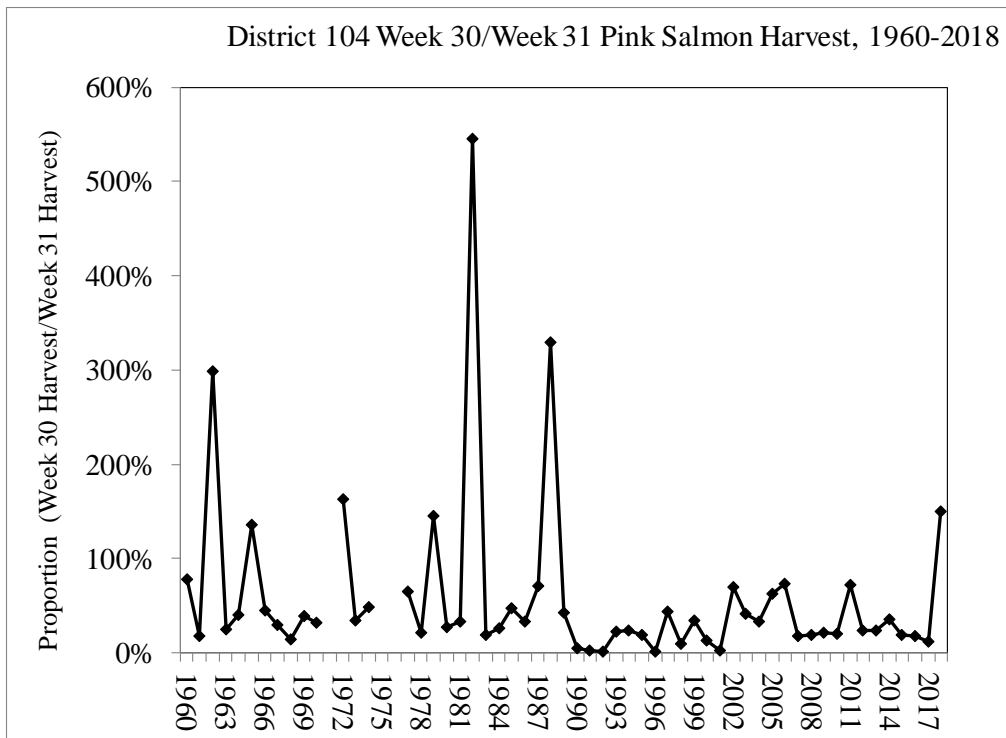


Figure 41.—The week 30 District 104 pink salmon harvest as a proportion of the week 31 pink salmon harvest, 1960–2018.

Purse Seine Harvest by Subdistrict

The largest harvests in District 104 have generally occurred in waters near Noyes Island (104-40) in the northern half of the district and along the west coast of Dall Island (104-10 and 104-20) in the southern half of the district (Appendices B and D). Since 1960, the average annual pink salmon harvest has been 2.38 million in subdistrict 104-40, 1.47 million in subdistrict 104-20, and 853,000 in subdistrict 104-10 (Figures 42 and 43). Smaller average annual harvests have occurred in subdistricts 104-35 (574,000), 104-30 (230,000), and 104-50 (27,000). For subdistricts 104-10, 104-20, 104-30, and 104-40, the overall harvest pattern is similar to the district as a whole, with low harvests in the 1960s and 1970s and a rapid increase in harvests in the 1980s and early 1990s, followed by declines since that time (Appendix B). From 1960 to 1979, approximately 70% of the District 104 harvest occurred in subdistrict 104-40 near Noyes Island (Figures 42 and 43; Appendix B). From 1980 through 2018, the average proportion of the District 104 pink salmon harvest caught in subdistrict 104-40 declined to 45%.

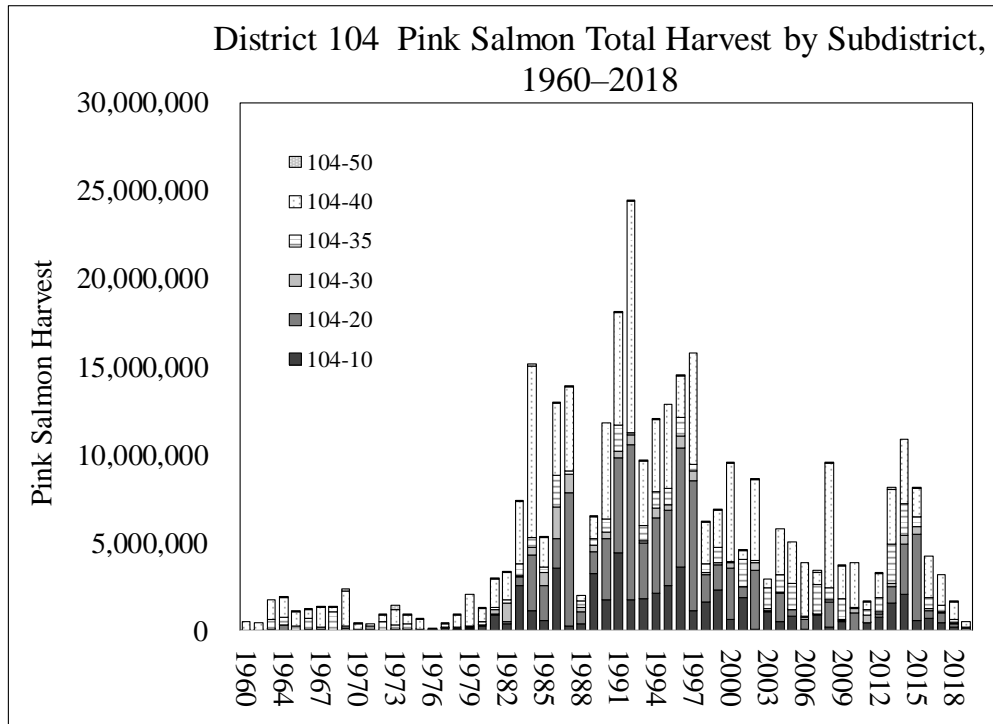


Figure 42.–Pink salmon harvest in the District 104 purse seine fishery by subdistrict, 1960–2018. Southern subdistricts are represented by solid shaded bars and northern subdistricts are represented by patterned fill.

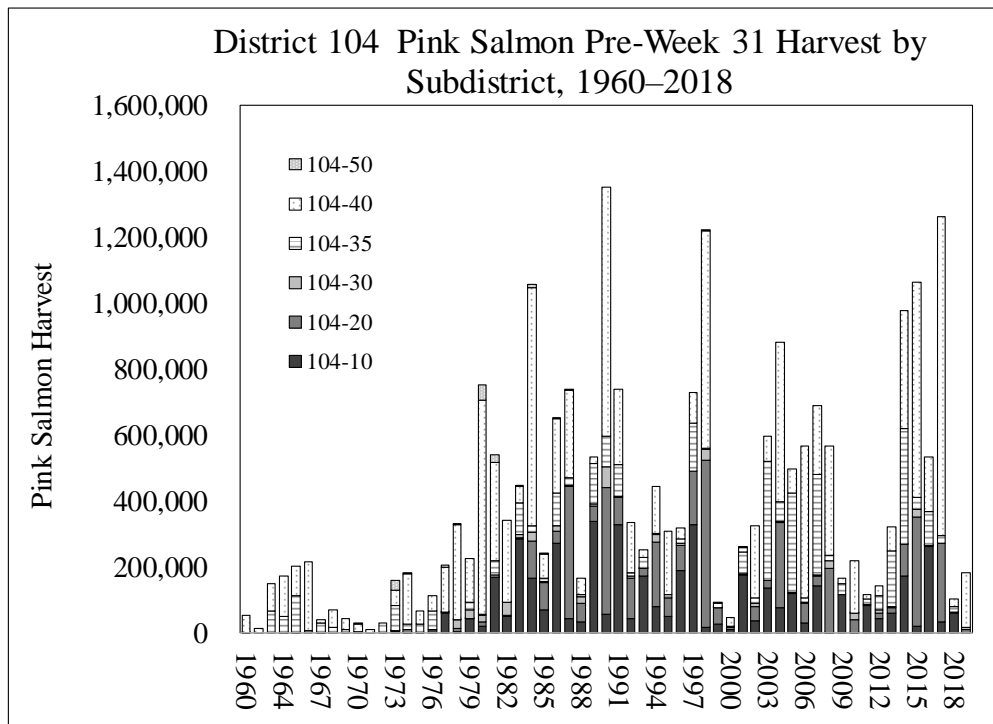


Figure 43.–Pink salmon harvest in the District 104 purse seine fishery by subdistrict, 1960–2018. Southern subdistricts are represented by solid shaded bars and northern subdistricts are represented by patterned fill.

Pink Salmon Harvest Anomalies

To identify potential reasons for pink salmon harvest anomalies, we first identified anomalies as the top and bottom 10% of total harvests in District 104 since 1985. We also considered weekly harvests that were in the top and bottom 10% of harvests as a proportion of the total harvest for that year; we considered additional weeks when several years had similar low or high values. For statistical weeks 27–29 and 35, we only considered harvests on the high end because it is not unusual to have weekly harvests that represent 1% or less of the total harvest in those weeks. We also did not consider years prior to 1985 due to the much lower abundance of pink salmon and the fact that the fishery was not under Treaty management restrictions. In the following paragraphs, only years with anomalies as defined above are included.

In many cases harvest anomalies were the result of management actions related to the Treaty or the strength of domestic pink salmon returns, which occasionally result in unusually high or low harvests in particular weeks. Anomalously high and low yearly harvests were generally linked to broad-scale trends in Southeast Alaska pink salmon survival; the largest harvests in the 1985–2018 time period generally occurred from the mid-1980s through late 1990s, when pink salmon runs were at their highest levels historically, and the lowest harvests have occurred since 2000, a period of generally declining pink salmon harvests (Figure 22). These long-term patterns in salmon production and connections to long-term climate indices have been widely noted (Beamish et al. 1993, Mantua et al. 1997, Downton and Miller 1998), but the reasons for these patterns are not well understood. In a few instances, there were significant environmental events that likely played roles in observed harvest anomalies, but even in these cases the exact mechanisms leading to exceptionally high or low abundance or shifts in harvest timing are generally unknown. Specific references to climate indices such as the Pacific Decadal Oscillation (PDO; Mantua et al. 1997) and El Niño/Southern Oscillation (Wolter and Timlin 2011) are included as a general guide to broad scale ocean conditions during specific harvest anomalies listed below.

1986

The total harvest of 18.9 million pink salmon in District 104 was a new record harvest at the time (now third largest) and was nearly eight times higher than the 1960–1985 average harvest of 2.4 million (Appendix B). The total southern Southeast Alaska harvest of 45.0 million fish was also a record at the time and remains the third largest harvest in the subregion since 1960. The peak harvests in District 104 occurred in weeks 32 and 33, which are typically the peak weeks of harvest in this district. Effort in the fishery was above average prior to week 31 and the large increase in pink salmon harvest in week 31 reflects an increase in abundance of pink salmon in the district post week 30, rather than just an increase in effort. The harvest increased from 755,000 in week 30 to 2.3 million in week 31 with similar effort levels. The harvest peaked in week 32 at approximately 8.0 million pink salmon, which represented 42% of the total harvest for the year in District 104, the second highest proportion for that week, 1986–2018. The high harvest reflected the overall pattern of higher abundance for Southeast Alaska pink salmon stocks starting in the early-to-mid 1980s. Pink salmon that returned in 1986 went to sea during a weak La Niña event.

1987

Pink salmon returns to Southeast Alaska were very poor in 1987, and only 1.7 million were harvested in District 104 and just 4.6 million in southern Southeast Alaska, which is the second

lowest harvest for the subregion from 1985–2018. Approximately 61% of the District 104 harvest occurred in week 32, which is the highest proportion for that week, 1985–2018. The timing of the peak harvest was normal, but due to low abundance the opening time in the fishery was reduced to only 15 hours in week 34 and the fishery was closed in week 35. Pink salmon returning in 1987 were at sea during a strong El Niño event and the PDO was also strongly positive in 1986 and positive in 1987.

1988

In 1988, the pink salmon harvest in District 104 was approximately 3.5 million and only 14% of the harvest occurred in weeks 28–32 (Appendix B). The peak harvest of 1.3 million fish was very late and occurred in week 35. Effort levels were nearly identical in weeks 33 (865,000 harvest) and 35, so the late increase in harvest appears to reflect late-season abundance and not lower effort in earlier weeks of the fishery. Due to general low abundance in Southeast Alaska, the fishery was only open for 15 hours in weeks 30, 31, and 34, which resulted in lower harvest in those weeks. Pink salmon returning in 1988 were at sea during a strong El Niño event that persisted in 1987 and 1988. The PDO was also strongly positive in 1987 and positive in 1988.

1990

The total harvest of 14.6 million pink salmon in District 104 was the 4th highest from 1985–2018 (Appendix B). Timing of the harvest was normal with approximately 61% of the total harvest occurring in weeks 32 and 33.

1991

The total harvest of 28.4 million pink salmon in District 104 was the highest harvest since 1960 and was 9.4 million higher than the next highest harvest (Appendix B). Timing of the harvest was approximately normal with 76% of the total harvest occurring in weeks 31–33. The peak catch of 8.6 million fish in week 31 is the largest weekly harvest ever in District 104, and was a massive increase from the 171,000 fish caught in week 30. The massive increase in catch was primarily due to reduced opportunity during the Treaty period. District 104 was only open for 15 hours in week 28, 20 hours in week 29, and 6 hours in week 30 to ensure sockeye salmon Treaty obligations were met. The Treaty agreement in place at the time limited the District 104 purse seine fishery to a total of 480,000 sockeye salmon prior to week 31 for the four-year period 1990–1993, even though total runs to the Skeena River averaged 3.9 million sockeye salmon during that time. The number of boats fishing dropped to 35 in week 30 and then rebounded to 223 in week 31 when the Treaty period ended, and the fishery opened for 78 hours.

1995

In 1995, harvest timing was slightly later than average and peaked in weeks 33 and 34. Thirty percent of the total harvest occurred in week 34, which was the second highest proportion of the total catch for that week, 1985–2018. Only 1% of the harvest occurred during the Treaty period, in part due to limited hours and participation in the fishery, but also due to apparent low abundance early in the season. The fishery opened for 23 hours in week 30 and the number of boats fishing increased to 106 boats, but the pink salmon catch remained low at 150,600 fish. The final catch of 13.3 million pink salmon was well above the 1985–2018 average of 8.0 million fish. Pink salmon returning in 1995 were at sea during a moderate El Niño event that persisted in 1994 and 1995. The PDO was slightly negative in 1994 and moderately positive in 1995.

1996

The total harvest of 19.0 million pink salmon in District 104 was the second highest since 1960 (Appendix B). Timing of the harvest was normal with approximately 74% of the total harvest occurring in weeks 31, 32, and 33. Pink salmon returning in 1996 were at sea during a moderate La Niña event that persisted in 1995 and 1996. The PDO was strongly positive in 1996.

1997

In 1997, 30% of the District 104 pink salmon harvest occurred in weeks 28–30, which is a high proportion for the Treaty period weeks. Peak harvest timing was also slightly early and occurred in week 31 when 1.6 million pink salmon were harvested. The fishery was open 30 hours in week 28, 14 hours in week 29, and 12 hours in week 30, and then opened for 30 to 78 hours weekly through week 34. The number of boats fishing ranged from 92 to 143 prior to week 31 and 87 to 179 from week 31 to 34. A very strong El Niño event began in 1997 and the PDO index was strongly positive.

1999

In 1999, only 1% of the total harvest occurred in weeks 28–30. This was likely primarily due to very low opportunity during the Treaty period when the fishery was only open 10 hours per week from week 28 to 30 due to a poor run of sockeye salmon to the Skeena River. Effort remained low in week 31 and it appears overall timing of the harvest was nearly normal. Otherwise, the pink salmon harvest peaked in weeks 32–34, and the total harvest of 12.0 million fish was well above the 1985–2018 average of 8.0 million fish. Pink salmon returning in 1999 were at sea during a strong La Niña event that persisted in 1998 and 1999. The PDO index was strongly negative in 1999.

2000

The pink salmon harvest in District 104 was only 1.8 million fish in 2000. Peak harvests occurred in weeks 32 and 33, and 42% of the harvest occurred in week 33. The high proportion of the catch in week 33 is primarily a reflection of increased opening time from 30 hours in prior weeks to 78 hours in week 33 during the peak of the run. Pink salmon returning in 2000 went to sea during a strong La Niña event that persisted in 1998 and 1999 and returned during weak La Niña conditions in 2000. The PDO index was strongly negative in 1999 and moderately negative in 2000.

2002

The harvest of 838,000 pink salmon in District 104 in 2002 was the second lowest harvest from 1985 to 2018. Peak harvest occurred in weeks 32 and 33 and timing appeared to be normal. The overall southern Southeast Alaska harvest was 23.3 million and 19.6 million fish were caught in nearby southernmost districts 1, 2, and 3 (Appendix A1); pink salmon harvests were above the 1985–2018 average in each of these districts. Effort was very low in District 104 all season long despite opening hours ranging from 78 to 131 hours weekly in weeks 31 to 35. The low harvest in District 104 appears to be related to a combination of reduced opportunity during Treaty period weeks due to a low Skeena River sockeye salmon run and low effort later in the season due to better opportunity elsewhere. Pink salmon returning in 2002 went to sea during a weak La Niña event that persisted in 2000 and 2001 and returned during moderate El Niño conditions in 2002.

2006

The harvest of 872,500 pink salmon in District 104 in 2006 was the third lowest harvest from 1985 to 2018. Peak harvest occurred in weeks 30 and 31 and fishing time was reduced to 23 hours in week 32 and 15 hours in weeks 33 and 34 before being closed in week 35. The southern Southeast Alaska harvest of only 3.3 million was the lowest harvest in the 1985–2018 time period.

The poor return in 2006 was likely related to anomalously warm conditions in the Gulf of Alaska in 2004 and the summer of 2005 (Crawford 2006), which adversely affected spawning success of adults in 2004 and survival rates of juveniles that went to sea in 2005. The summer of 2004 was exceptionally warm and dry throughout Southeast Alaska and low water levels and warm stream temperatures persisted throughout much of the pink salmon spawning season. Surface water temperatures in 2004 at the Hugh Smith Lake weir, in southernmost Southeast Alaska, exceeded 20 °C from mid-July through early September (ADF&G unpublished data). Taylor and Lum (2004) estimated that approximately 50% of the female pink salmon at Auke Creek, in northern Southeast Alaska, died prior to spawning in 2004. Although pink salmon escapement goals were met or exceeded in 2004, the number of fish that effectively spawned may have been much lower than general abundance indicated.

Water temperatures in Southeast Alaska inside waters and in the Gulf of Alaska continued to be well above normal through the summer of 2005 (Orsi et al. 2006; Crawford 2006). A host of unusual species were documented in inside and coastal waters of Southeast Alaska in 2004 and 2005, including several types of zooplankton and numerous species of fish, such as Pacific sardines (*Sardinops sagax*), which occurred in larger numbers and farther north than ever before (Wing 2006). Trawl surveys conducted by NOAA in Icy Strait in 2005 indicated relatively low abundance of juvenile pink salmon leaving Southeast Alaska inside waters, yet harvest forecasts based on this information still greatly overestimated the catch in 2006, likely due to unaccounted mortality in offshore marine waters (Wertheimer et al. 2011). Like pink salmon, sockeye and summer-run chum salmon that entered the marine environment in 2005 also experienced widespread low survivals, which resulted in very poor runs in 2008 when the typically dominant age classes for these two species returned (Heinl et al. 2011; Piston and Heinl 2011b). Unusual migratory predators and competitors documented in nearshore Gulf of Alaska waters in 2005 (Orsi et al. 2006) and higher energetic demands related to warmer ocean temperature potentially contributed to poor marine survival rates of Southeast Alaska salmon that migrated to sea in that year (Wertheimer et al. 2011).

2007

In 2007, 38% of the District 104 pink salmon harvest occurred in week 31, which was the highest proportion for the week, 1985–2018. In order to reduce harvests of Canadian sockeye salmon, Alaska made reductions to fishing time in weeks 27 to 30. In week 30, despite very high pink salmon harvests of nearly 19,000 fish per boat day, the initial opening was reduced from 15 to 12 hours, and the midweek opening was reduced from 15 to 6 hours. The peak harvest occurred in week 31 when 4.3 million pink salmon were harvested. Approximately 85% of the harvest occurred in weeks 31–33. Opening time in the fishery increased from 18 to 54 hours in week 31, and the number of boats fishing peaked for the season at 95 in week 31. Pink salmon returning in 2007 went to sea and returned during weak El Niño conditions.

2008

In 2008, 42% of the District 104 pink salmon harvest occurred in week 33, which is the highest proportion for the week, 1985–2018. The peak harvest also occurred in week 33 when 1.2 million pink salmon were harvested. Approximately 89% of the harvest occurred in weeks 32–34. Effort in the fishery increased from 30 to 78 hours in week 33, and the number of boats fishing peaked from week 31 to 34, with 51, 65, 40, and 45 boats fishing, respectively.

2009

In 2009, only 13% of the total harvest occurred in week 32, which was one of the lowest proportions for the week from 1985 to 2018. Overall, harvest timing appeared to be normal and the reduced harvest in week 32 was likely a result of the number of boats dropping from 58 in week 32 to 33 in week 32, and then increasing to 61 in week 33.

2010

The harvest of 987,000 pink salmon in District 104 in 2010 was the fourth lowest harvest from 1985 to 2018. Peak harvests occurred in weeks 31, 32, and 33, and timing appeared to be approximately normal. The overall southern Southeast Alaska harvest of 13.6 million was approximately half of the 1985–2018 average. Effort was very low in District 104 all season long with a maximum of 24 boats in week 33.

2014

In 2014, only 4% of the total harvest occurred in week 34, which was one of the lowest proportions for the week from 1985 to 2018. Overall, harvest timing appeared to be normal and peaked in weeks 31–33. The number of boats dropped from 91 in week 33 to 56 in week 34, but the number of hours the fishery was opened increased from 39 to 78 at the same time.

2016

In 2016, the District 104 harvest of 1.2 million pink salmon in week 29 was the largest harvest since 1960 and nearly double the second highest harvest for the week. Approximately 40% of the pink salmon harvest occurred during the Treaty period weeks 28 and 29, and then the fishery was reduced to only 6 hours in week 30 to stay within Treaty harvest limits for Skeena and Nass River sockeye salmon. The pink salmon catch dropped off to only 285,000 fish in week 33, which is typically a peak week for District 104, and 158,000 in week 34 before closing in week 35. The overall District 104 harvest of 3.7 million pink salmon was well below the 1985–2018 average harvest of 8.0 million and the harvest timing was clearly early. Pink salmon that returned in 2016 entered the Gulf of Alaska during a period of very warm sea surface temperatures, referred to as the blob (Bond et al. 2015), that persisted from the parent year 2014 through their return as adults in 2016 (McKinnell 2017).

Escapements were very strong at early-timed systems in District 101 (Appendix B) and the harvest of 4.8 million was 86% of the 1985–2018 average, with a peak harvest in week 31. Harvests typically peak from week 31–33 in the district with maximum harvests occurring in week 32 on average and similar sized average harvests in weeks 31 and 33. For District 102 escapements were above management targets for the Kasaan stock group and near the lower end of the management target range for the Moira stock group (Appendix B). The peak harvest in District 102 occurred in week 32 (1.5 million), which is a week earlier than the long-term average and harvests dropped quickly in weeks 33 (478,000) and 34 (72,000). Escapements were

within management targets for all four stock groups in District 103 (Appendix B), and the peak harvest occurred in week 32, which is two weeks earlier than the typical peak in weeks 33 and 34. Harvests dropped to 116,000 fish by week 34 and the fishery closed in week 35. The early harvest peaks in all three of the southernmost districts of Southeast Alaska, each with different general run timing, suggests that the early harvest timing in District 104 was likely in part due to earlier run timing for individual pink salmon stocks, rather than just differences in run strength between stocks.

2017

In 2017, the District 104 pink salmon harvest of 2.1 million fish was only 26% of the 1985–2018 average. Approximately 53% of the District 104 pink salmon harvest occurred in weeks 34 and 35, and a record 21% of the harvest occurred in week 35. This harvest pattern is largely a result of the fishery only opening for 20 hours during the entire Treaty period due to a poor Skeena River sockeye salmon run and continued low effort and opportunity through week 33 when only 16 boats fished District 104. In weeks 34 and 35, the fishing time increased from 39 hours in week 33 to 78 hours, and the number of boats fishing were at their highest levels for the year at 41 in week 34 and 31 in week 35.

Pink salmon returns were also very poor in districts 101 and 102, and effort was very low in most weeks of the fisheries. Peak catches occurred in week 34 in District 101 and week 36 in District 102, but these late peaks were also related to limited opportunity and effort in earlier weeks of the fisheries. The District 102 pink salmon harvest typically peaks in week 33, but in 2017 there was no effort that week. For late-timed stocks in District 103, the harvest was 86% of the 1985–2018 average and the peak harvest occurred in week 34, which is the typical peak week for that district. Although harvests were low, in part due to conservative management aimed at achieving escapement goals, escapements to Districts 101–103 were within or above management targets for all stock groups except Sea Otter Sound.

2018

The harvest of 790,000 pink salmon in District 104 in 2018 was the lowest harvest from 1985 to 2018. Peak harvest occurred in weeks 30 (201,000), 31 (135,000), and 32 (247,000) and timing appeared to be normal. The fishery never opened for more than 30 hours and was closed in week 35. The number of boats fishing weekly was below average all season and only 14 boats fished in week 33, which is typically a peak week of the fishery. The overall southern Southeast Alaska harvest of 5.4 million fish was the third lowest from 1985 to 2018. Pink salmon returning in 2018 went to sea and returned during weak La Niña conditions that persisted in 2017 and 2018. The PDO index was moderately positive in 2017.

ASSESSING PINK SALMON RUN TIMING THROUGH DISTRICT 104

It is possible that changes in run timing of southern Southeast Alaska pink salmon impacts the abundance of pink salmon in District 104 in specific weeks. For a variety of reasons, effectively evaluating pink salmon run timing through the District 104 fishery is not possible. There is no stock-specific harvest data collected for marine harvests of pink salmon in Southeast Alaska and genetic stock separation is not currently possible. The timing of the harvest of pink salmon is largely driven by factors unrelated to run timing of individual stocks passing through the district and is instead driven by the overall size of pink salmon runs in Southeast Alaska, the abundance

of pink salmon in the northern half of the region versus the south (which influences fleet behavior), the relative run strength of early- versus later-timed pink salmon stocks in southern Southeast Alaska, the size of Nass and Skeena sockeye salmon runs (which influences fishing opportunity prior to week 31), weather on the outer coast, and likely numerous other factors unrelated to run timing.

Although there have been numerous short-term weir projects in southern Southeast Alaska, the Hugh Smith Lake (Figure 1) weir project is the only one that has run continuously since before the Treaty was implemented, has the weir in place through the entire pink salmon run, has the majority of the pink salmon run spawning well above the weir, and has fish counts backed up by annual mark-recapture estimates (for both sockeye and coho salmon) to ensure the weir is fish tight throughout the year (Brunette and Piston 2016). Run timing of pink salmon through the Hugh Smith weir has been relatively stable over the past 39 years (Figure 44). The average midpoint of the run was reached on August 31st from 1980 to 1999 and August 27th from 2000 to 2018, with a similar 3–4-day earlier shift for the 25th and 75th percentiles of the run. Any slight perceived shift towards earlier run timing is confounded by changes with weir operations that began in the early 2000s and continue to be refined, aimed at allowing as many fish as possible to swim freely through the weir and reducing the length of time fish movement is held up by the weir structure (Piston 2008).

Long-term trends in pink salmon run timing are also available from the Tyee Test fishery on the Skeena River in northern British Columbia. The Tyee Test fishery has been conducted in the tidal portion of the Skeena River since 1955 using variable mesh gillnets with either multifilament material prior to 2002 or monofilament from 2002 forward (Beacham et al. 2014). Conversion factors were implemented to standardize the data over the entire time series (Cox-Rogers and Spilsted 2002). The test fishery typically runs from the second week of June to mid-to-late September and covers the entire pink salmon run; the vast majority of which occurs from mid-July to late August. Timing of Skeena River pink salmon has been highly variable and cyclical from 1956 to 2018 (Figure 45). The average mid-point of the run has remained essentially unchanged from the 1956–1984 period (8 August) to the 1985–2018 Treaty period (7 August). The average 25th percentile of the run date shifted from 2 August to 31 July, and the average 75th percentile of the run remained unchanged at 14 August over the same time periods. During the recent ten-year period (2009–2018), the average 25th, 50th, and 75th percentiles of the run have been reached 2, 4, and 4 days earlier, respectively, than the long-term average (Figure 45). The influence of marine harvests on the timing of Skeena River pink salmon, as measured at the Tyee Test fishery, is unknown and these small changes in perceived run timing at the test fishery may not be meaningful.

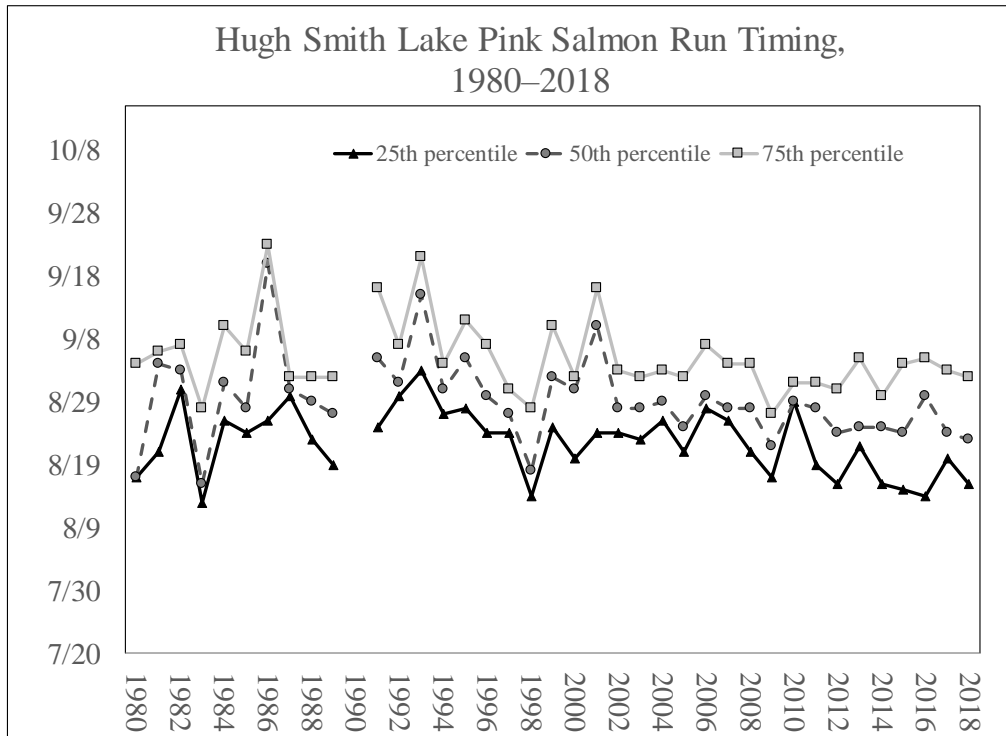


Figure 44.—Run timing of pink salmon through the Hugh Smith Lake weir, 1980–2018. No data on pink salmon were available from 1990.

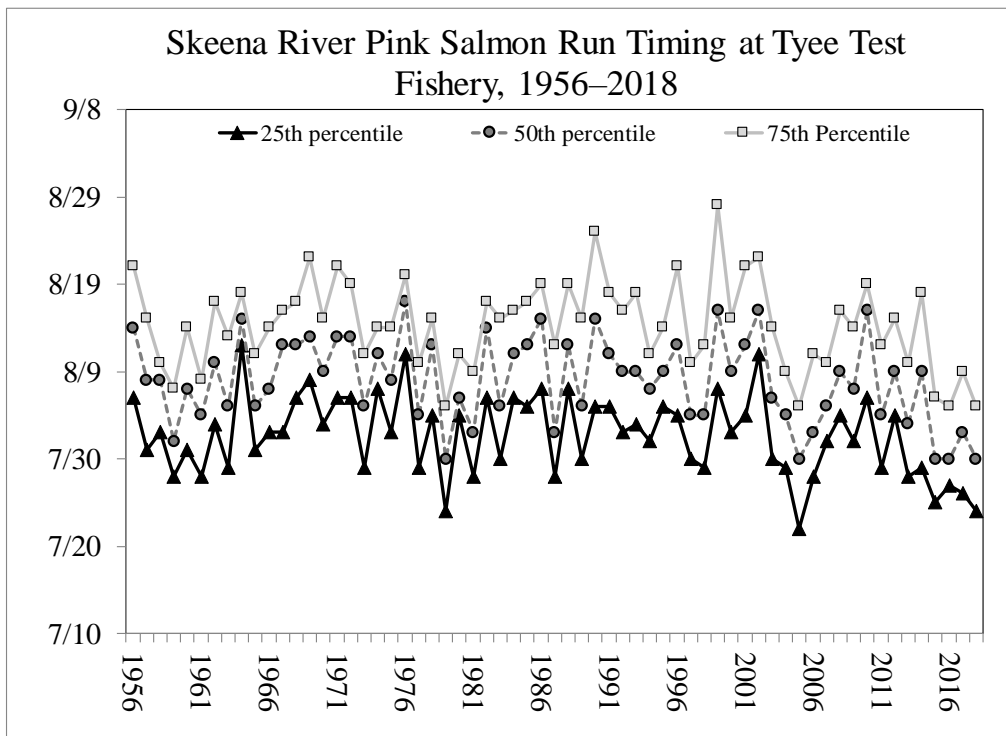


Figure 45.—Run timing of pink salmon at the Tye Test fishery on the lower Skeena River, 1956–2018.

IMPACT OF THE DISTRICT 104 PINK SALMON FISHERY ON NASS AND SKEENA RIVER SOCKEYE SALMON

METHODS FOR ESTIMATING THE ALASKA HARVEST OF SOCKEYE SALMON ORIGINATING FROM THE NASS AND SKEENA RIVERS

The harvest of Nass and Skeena sockeye salmon in Alaska fisheries was determined through extensive sampling of commercial harvests at the major fish processing ports in Southeast Alaska. Genetic samples, scale samples, and other biological data were collected through the ADF&G Port Sampling program from commercial sockeye salmon harvests in the commercial purse seine (primarily districts 101–104) and drift gillnet fisheries (districts 101, 106, 108) relevant to Treaty agreements (Buettner et al. 2020). Sample sizes in treaty fisheries (520–600/week) were originally chosen based in the number of scales that could be practically collected and the number of samples necessary to ensure sufficient samples were available from each of the four major age classes to provide stock separation using scale pattern analysis. These sample sizes were reduced with the adoption of genetic stock identification (GSI) because fewer samples were necessary for reliable estimates of Treaty stocks. In recent years, to ensure that samples were representative of the fishery, no more than 40 samples were collected from individual vessels or up to 200 samples from a tender, and weekly or seasonal sample size objectives were set for each fishery (Buettner et al. 2020). Final estimates of the harvest of Nass and Skeena river sockeye salmon for fisheries in Alaska and Canada, as well as harvest rates and total run sizes for both stocks, were derived through run reconstruction methods outlined in Gazey and English (2000).

From 1982 to 2009, sockeye salmon stock composition of Alaska commercial harvests used in run reconstructions was estimated through scale pattern analysis (Pella and Masuda 2004; Bloomquist et al. 2002; Marshall et al. 1984). Genetic stock identification (GSI) methods to estimate stock composition were first tested in 2002. Blind tests to directly compare estimates generated by these two methods were conducted from 2002 through 2009 (NBTC 2005; NBTC unpublished data). Results of these tests showed that both methods provided accurate results; however, GSI methods provide more precise estimates, allow for identification of many more individual stocks than scale pattern analysis, use a stable baseline that does not change annually (scale pattern analysis required annual collection of known-origin scale samples from spawning populations throughout the boundary area), and are standardized and highly automated. Stock identification estimates of Alaska fisheries used in annual run reconstructions transitioned to GSI methods in 2010 and 2011 and have been based solely on GSI methods since 2012 (Rogers Olive et al. 2018; Guthrie et al. 2014). Although two methods have been used to estimate the harvest of Nass and Skeena sockeye salmon since the inception of the Treaty, the performance of both methods in blind tests suggests that assessments of the harvest of these stocks since 1985 would not be greatly impacted by the transition that occurred from the use of scales to GSI. Supporting evidence for this conclusion comes from comparisons between GSI and scale pattern analysis in calculating Alaska’s compliance with Treaty harvest sharing agreements in the District 101 drift gillnet and District 104 purse seine fisheries, which showed a cumulative difference of only 0.2% and 1.6%, respectively, over the six-year period 2004–2009 (NBTC unpublished data).

GSI stock composition estimates for the district 101–103 purse seine fisheries and district 106 and 108 drift gillnet fisheries were computed by the ADF&G Gene Conservation Laboratory and estimates for the District 104 purse seine and District 101 drift gillnet fisheries were computed

by the NOAA Auke Bay Laboratory. The ADF&G and NOAA labs have collaborated to ensure that the same baseline populations (developed and maintained by ADF&G) are used for analyses of Treaty fisheries in each year, and that appropriate methodologies are employed. The number of populations in the baseline have evolved over time from 151 populations in 2010 to 238 populations genotyped for 96 single-nucleotide polymorphism (SNP) markers in the current ADF&G baseline (Rogers Olive 2018); the NOAA lab uses a baseline with a subset of 48 SNPs. Both labs used a Bayesian mixed stock analysis (MSA) approach; NOAA used the program BAYES (Pella and Masuda 2001, Rogers Olive et al. 2018) and ADF&G used the R package *rubias* (Moran and Anderson 2019) to generate estimates. Direct tests of the BAYES and *rubias* programs have produced very similar results (ADF&G unpublished data). In addition, stock and age composition estimates for the district 106 and 108 drift gillnet fisheries were computed by ADF&G using a method that incorporates ages from matched scales and hatchery thermal marks on matched otoliths to help inform the genetic estimates. This method (“mark- and age-enhanced genetic mixed-stock analysis”) is an extension of the Pella-Masuda model (Pella and Masuda 2001) and requires two sets of parameters: 1) a vector of stock compositions, summing to one, with a proportion for each of the wild and hatchery stocks weighted by harvest per stratum; and 2) a matrix of age composition, with a row for each of the wild and hatchery stocks (summing to one) and a column for each age class. This method utilizes all available information to assign individuals to stock of origin based on age, genotype, and otolith information.

NASS RIVER

Nass River sockeye salmon use two main migration routes as they enter inside waters on their approach to the river. The majority of these fish move inshore through Dixon Entrance and enter lower Revillagigedo Channel and upper Hecate Strait before moving into Portland Canal and arriving at the Nass River (92–97%; Hoffman et al. 1983, 1984). A smaller proportion (3–8%) move around the north end of Prince of Wales Island and move south down Clarence Strait towards the Nass River (Hoffman et al. 1983, 1984). A portion of the fish entering Dixon Entrance or moving around the north end of Prince of Wales Island enter District 104 waters, and Nass River sockeye salmon have accounted for an annual average of 15% of the total District 104 sockeye salmon harvest from 1985 to 2018 (NBTC unpublished data).

Overall harvest rates on Nass River sockeye salmon in the District 104 purse seine fishery averaged 8.3% from 1985–2018 (Table 2; NBTC unpublished data). Harvest rates have generally declined along with effort in the fishery, and the recent 10-year average (2009–2018) harvest rate of 3.1% is well below the 1985–2000 average of 11.2%. Harvest rates on Nass River sockeye salmon in the District 104 purse seine fishery have ranged from a low of 0.2% in 2010 to a high of 28.8% in 2007 (Figure 46). Harvest rates during the pre-week 31 Treaty period averaged 2.5% (range = 0.1–16.2%) from 1985 to 2018 and only 1.0% from 2009 to 2018. Harvest rates post week 30 averaged 5.9% (range = 0.1–24.8%) from 1985 to 2018 and 2.1% from 2009 to 2018 (NBTC unpublished data). The overall harvest rate of Nass River sockeye salmon in all Canadian and Alaska fisheries has declined from an average of 68% from 1985 to 2000 to 48% from 2009 to 2018 (Figure 47).

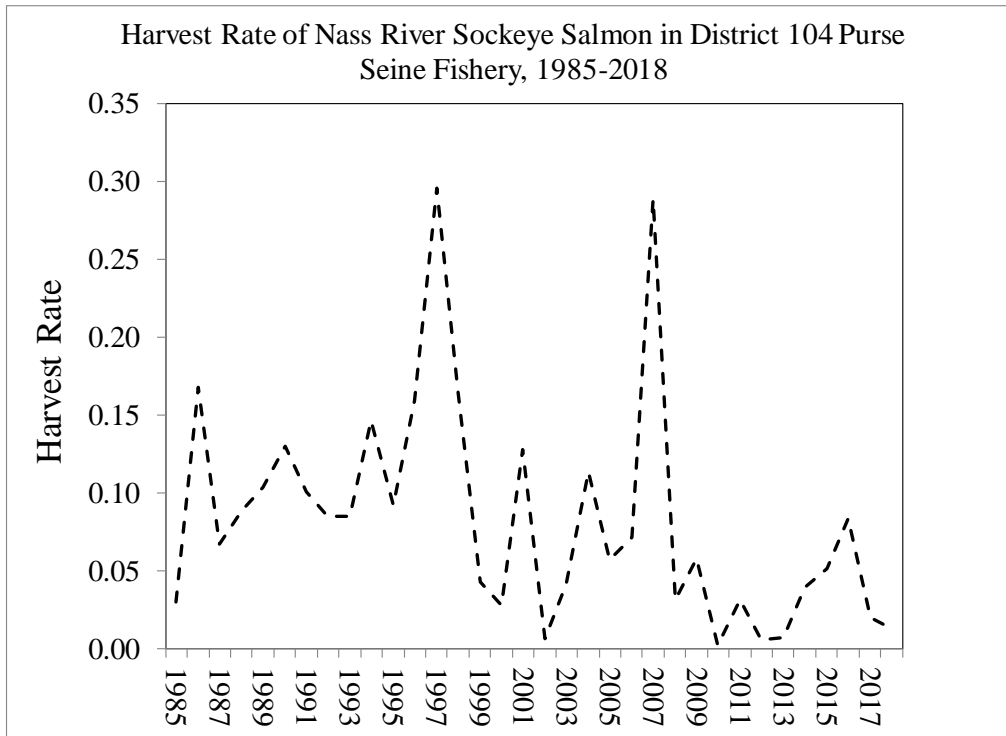


Figure 46.—Harvest rate on Nass River sockeye salmon in the District 104 purse seine fishery, 1985–2018.

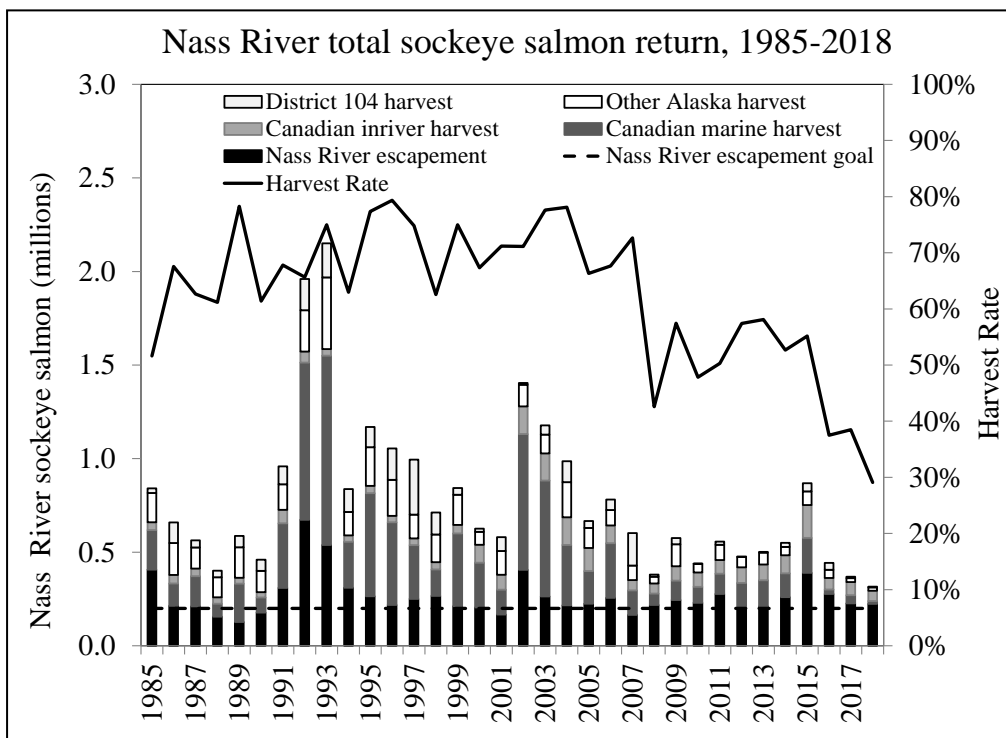


Figure 47.—Total run of Nass River sockeye salmon and overall harvest rate by year, 1985–2018.

Average weekly harvest rates on Nass River sockeye salmon peaked in weeks 30, 31, and 32 at 1.0, 2.7, and 1.7%, respectively (Table 2). Average harvest rates were less than 1% in all other

weeks of the fishery. There have been thirteen instances of weekly harvest rates exceeding 5% and the maximum weekly harvest rates were 11.8% in week 31 in 1996 and 12.3% in week 31 in 1997 (Table 2). In both 1996 and 1997 Nass River total runs were approximately one million fish

SKEENA RIVER

Skeena River sockeye salmon use three migration routes as they enter inside waters on their approach to the river. Most of these fish move inshore through Dixon Entrance and enter upper Hecate Strait before arriving at the Skeena River (77–98%; Hoffman et al. 1983, 1984). A small proportion (2–3%) move around the north end of Prince of Wales Island and move south down Clarence Strait towards the Skeena River (Hoffman et al. 1983, 1984). In some years a significant component of the Skeena River sockeye salmon run may arrive via lower Hecate Strait (20% in 1982; Hoffman et al. 1983). A portion of the fish entering Dixon Entrance or moving around the north end of Prince of Wales Island enter District 104 waters, and Skeena River sockeye salmon have accounted for an annual average of 45% of the total District 104 sockeye salmon harvest from 1985 to 2018 (NBTC unpublished data).

Harvest rates on Skeena River sockeye salmon in the District 104 purse seine fishery averaged 7.6% from 1985–2018 (NBTC unpublished data). Harvest rates have generally declined along with effort in the fishery, and the recent 10-year average (2009–2018) harvest rate of 5.6% is well below the 1985–2000 average of 9.3%. Harvest rates on Skeena River sockeye salmon in the District 104 purse seine fishery have ranged from a low of 0.4% in 2010 to a high of 16.8% in 1994 (Figure 48). Harvest rates during the pre-week 31 Treaty period averaged 1.6% (range = 0.2–7.9%) from 1985 to 2018 and only 0.8% from 2009 to 2018. Harvest rates post week 30 averaged 6.0% (range = 0.2–14.6%) from 1985 to 2018 and 4.6% from 2009 to 2018 (NBTC unpublished data). The overall harvest rate of Skeena River sockeye salmon in all Canadian and Alaska fisheries has declined from an average of 57% from 1985 to 2000 to 31% from 2009 to 2018 (Figure 49).

Harvest rates on Skeena River sockeye salmon in the District 104 purse seine fishery have been low in years of very poor Skeena River total runs (Figure 50). In the eight years since 1985 that had Skeena River sockeye salmon total runs of less than 1.5 million fish, the harvest rate in the District 104 purse seine fishery has averaged only 4.4% (Figure 50). In the four most recent runs below 1.5 million fish the District 104 harvest rate has averaged only 2.6% (range = 0.4–4.5%). In the two most recent years of very low runs, the total harvest rate in all Canadian and Alaskan fisheries combined was below 10% (Figure 50).

Table 2.—Weekly harvest rates on Nass River sockeye salmon in the District 104 purse seine fishery.

| Year | Statistical Week | | | | | | | | | | Total |
|------|------------------|------|------|------|-------|------|------|------|------|------|-------|
| | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | |
| 1985 | 0.0% | 0.1% | 0.1% | 0.7% | 0.6% | 0.6% | 0.2% | 0.5% | 0.2% | 0.0% | 3.0% |
| 1986 | 0.0% | 0.4% | 1.5% | 1.8% | 5.0% | 5.3% | 2.6% | 0.1% | 0.0% | 0.0% | 16.7% |
| 1987 | 0.0% | 0.3% | 2.1% | 1.2% | 0.5% | 2.6% | 0.0% | 0.0% | 0.0% | 0.0% | 6.7% |
| 1988 | 0.0% | 0.5% | 2.8% | 1.6% | 0.4% | 2.1% | 0.8% | 0.3% | 0.2% | 0.0% | 8.9% |
| 1989 | 0.2% | 0.7% | 1.3% | 2.0% | 3.5% | 1.6% | 0.8% | 0.2% | 0.1% | 0.0% | 10.4% |
| 1990 | 2.9% | 2.8% | 0.9% | 0.6% | 5.9% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 13.0% |
| 1991 | 0.0% | 0.6% | 0.8% | 0.2% | 4.6% | 3.5% | 0.2% | 0.0% | 0.0% | 0.0% | 10.1% |
| 1992 | 0.0% | 0.5% | 0.2% | 0.0% | 3.9% | 2.6% | 1.0% | 0.2% | 0.1% | 0.0% | 8.5% |
| 1993 | 0.0% | 0.9% | 0.4% | 0.7% | 3.1% | 2.8% | 0.3% | 0.1% | 0.1% | 0.0% | 8.5% |
| 1994 | 0.0% | 0.4% | 1.3% | 4.2% | 5.3% | 1.3% | 1.6% | 0.4% | 0.0% | 0.0% | 14.6% |
| 1995 | 0.1% | 0.1% | 0.6% | 1.2% | 4.6% | 1.0% | 0.8% | 0.5% | 0.3% | 0.0% | 9.2% |
| 1996 | 0.0% | 0.6% | 2.3% | 0.7% | 11.8% | 0.4% | 0.1% | 0.1% | 0.0% | 0.0% | 15.9% |
| 1997 | 0.0% | 6.1% | 4.3% | 5.8% | 12.3% | 0.4% | 0.5% | 0.2% | 0.0% | 0.0% | 29.6% |
| 1998 | 0.0% | 0.1% | 0.3% | 0.4% | 2.6% | 6.7% | 4.1% | 1.8% | 0.4% | 0.0% | 16.5% |
| 1999 | 0.0% | 0.0% | 0.1% | 0.0% | 0.1% | 1.4% | 1.3% | 1.0% | 0.3% | 0.0% | 4.2% |
| 2000 | 0.0% | 0.0% | 0.3% | 0.3% | 0.8% | 0.8% | 0.4% | 0.1% | 0.0% | 0.0% | 2.8% |
| 2001 | 0.5% | 2.6% | 2.1% | 0.0% | 5.9% | 0.9% | 0.3% | 0.4% | 0.1% | 0.0% | 12.8% |
| 2002 | 0.0% | 0.1% | 0.2% | 0.2% | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.6% |
| 2003 | 0.0% | 0.0% | 0.4% | 0.4% | 1.1% | 1.3% | 0.2% | 0.5% | 0.3% | 0.0% | 4.2% |
| 2004 | 0.0% | 0.2% | 0.2% | 0.7% | 1.6% | 2.9% | 2.6% | 2.6% | 0.6% | 0.0% | 11.3% |
| 2005 | 0.0% | 0.3% | 0.2% | 0.6% | 0.6% | 2.4% | 0.9% | 0.5% | 0.1% | 0.0% | 5.7% |
| 2006 | 0.1% | 0.2% | 0.2% | 2.3% | 3.0% | 0.8% | 0.3% | 0.3% | 0.0% | 0.0% | 7.1% |
| 2007 | 0.3% | 0.3% | 0.6% | 2.8% | 6.2% | 8.6% | 6.0% | 2.1% | 1.9% | 0.0% | 28.8% |
| 2008 | 0.0% | 0.0% | 0.2% | 0.3% | 0.9% | 0.8% | 0.5% | 0.3% | 0.1% | 0.0% | 3.1% |
| 2009 | 0.0% | 0.0% | 0.1% | 0.8% | 3.1% | 0.1% | 0.6% | 0.8% | 0.2% | 0.0% | 5.7% |
| 2010 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.2% |
| 2011 | 0.0% | 0.1% | 0.4% | 0.6% | 0.8% | 0.9% | 0.3% | 0.0% | 0.0% | 0.0% | 3.1% |
| 2012 | 0.0% | 0.0% | 0.1% | 0.0% | 0.1% | 0.2% | 0.1% | 0.0% | 0.0% | 0.0% | 0.6% |
| 2013 | 0.0% | 0.1% | 0.1% | 0.1% | 0.2% | 0.1% | 0.0% | 0.1% | 0.0% | 0.0% | 0.7% |
| 2014 | 0.0% | 0.3% | 0.6% | 1.1% | 0.5% | 0.4% | 0.2% | 0.8% | 0.0% | 0.0% | 3.9% |
| 2015 | 0.0% | 0.2% | 0.1% | 0.7% | 1.2% | 1.2% | 0.7% | 0.8% | 0.2% | 0.0% | 5.1% |
| 2016 | 0.0% | 1.2% | 2.1% | 0.3% | 1.4% | 2.6% | 0.5% | 0.3% | 0.0% | 0.0% | 8.3% |
| 2017 | 0.0% | 0.0% | 0.3% | 0.2% | 0.6% | 0.3% | 0.3% | 0.1% | 0.1% | 0.0% | 2.0% |
| 2018 | 0.0% | 0.0% | 0.1% | 0.2% | 0.0% | 0.2% | 0.3% | 0.4% | 0.0% | 0.0% | 1.3% |
| Mean | 0.1% | 0.6% | 0.8% | 1.0% | 2.7% | 1.7% | 0.8% | 0.5% | 0.2% | 0.0% | 8.3% |

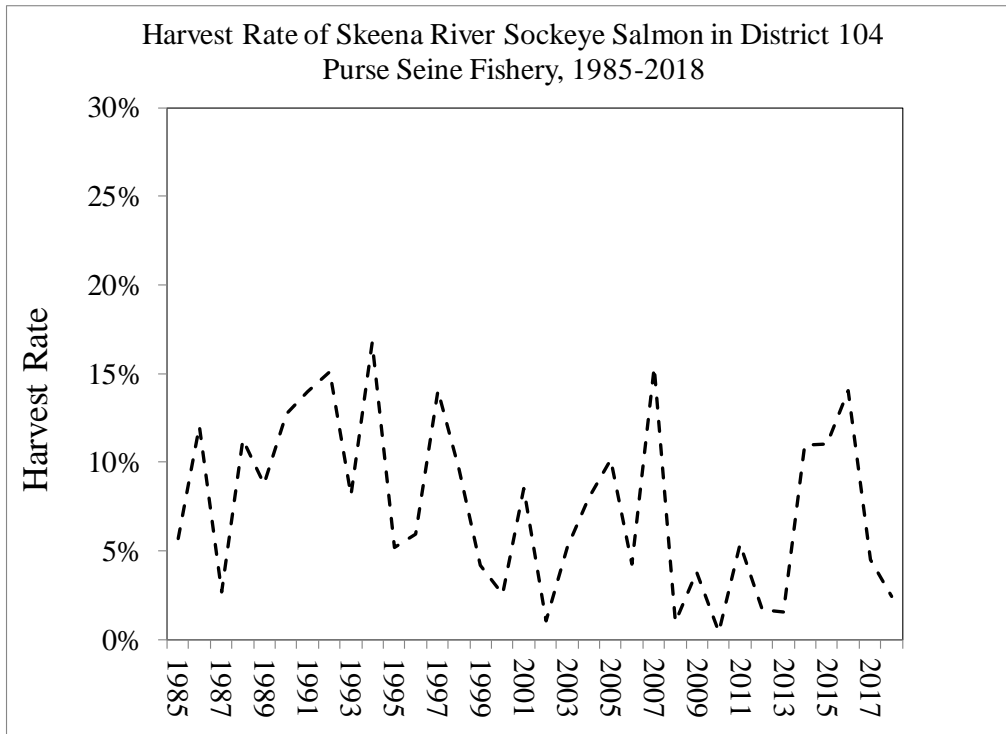


Figure 48.—Harvest rate on Skeena River sockeye salmon in the District 104 purse seine fishery, 1985–2018.

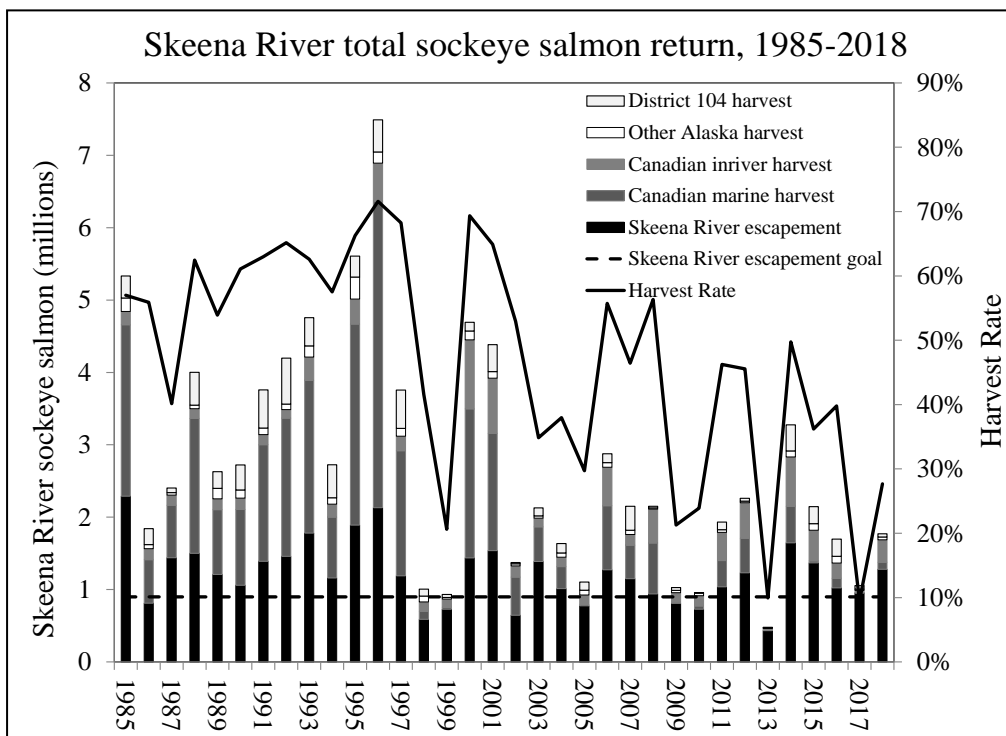


Figure 49.—Total run of Skeena River sockeye salmon and overall harvest rate by year, 1985–2018.

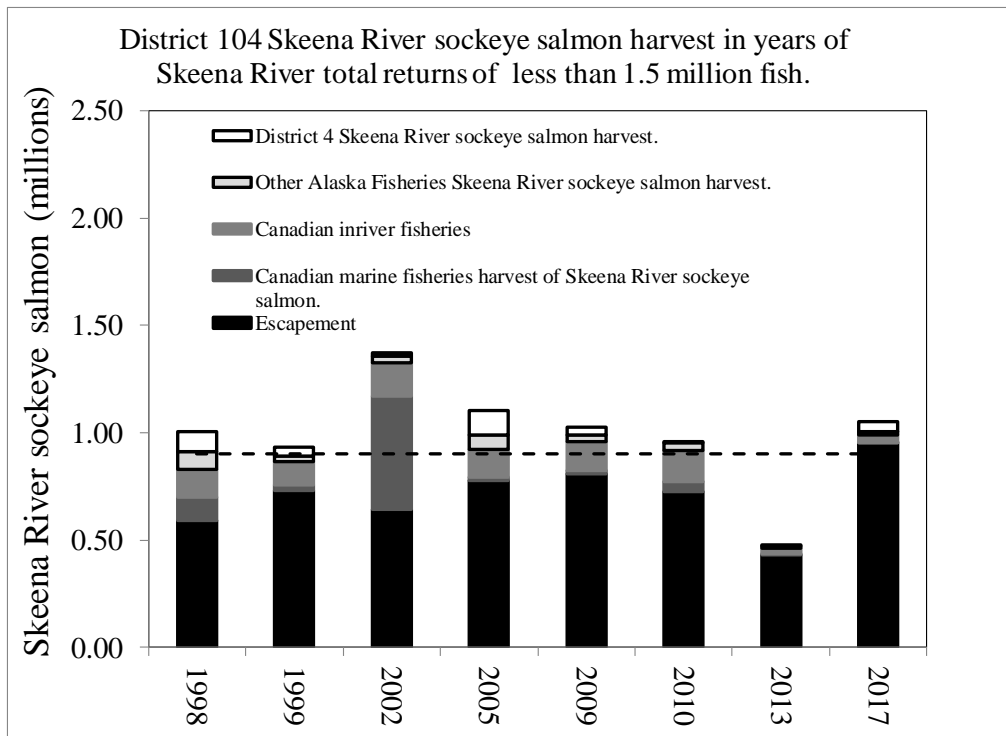


Figure 50.—Harvest of Skeena River sockeye salmon in the District 104 purse seine fishery in years of very low abundance. The dashed line represents the Skeena River sockeye salmon escapement goal of 900,000 fish.

Average weekly harvest rates on Skeena River sockeye salmon peaked in weeks 31, 32, and 33 at 1.9, 2.2, and 1.0% respectively (Table 3). Average harvest rates were less than 1% in all other weeks of the fishery. There have been five instances of weekly harvest rates exceeding 5% and the maximum weekly harvest rates were 7.0% in week 32 in 2016, 6.3% in week 31 in 1992, and 6.2% in week 32 in 1994 (Table 3).

Table 3.—Weekly harvest rates on Skeena River sockeye salmon in the District 104 purse seine fishery.

| Year | Statistical Week | | | | | | | | | | Total |
|------|------------------|------|------|------|------|------|------|------|------|------|-------|
| | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | |
| 1985 | 0.0% | 0.1% | 0.2% | 0.9% | 1.5% | 2.0% | 0.5% | 0.3% | 0.1% | 0.0% | 5.7% |
| 1986 | 0.0% | 0.1% | 0.5% | 1.6% | 2.7% | 4.9% | 1.5% | 0.5% | 0.2% | 0.0% | 12.0% |
| 1987 | 0.0% | 0.0% | 0.4% | 0.4% | 0.5% | 1.1% | 0.1% | 0.0% | 0.0% | 0.0% | 2.7% |
| 1988 | 0.0% | 0.2% | 2.0% | 2.0% | 0.6% | 4.5% | 1.3% | 0.3% | 0.3% | 0.1% | 11.3% |
| 1989 | 0.2% | 1.3% | 0.6% | 1.6% | 2.3% | 1.3% | 0.4% | 0.1% | 0.1% | 0.0% | 8.1% |
| 1990 | 0.2% | 0.7% | 1.7% | 1.0% | 3.8% | 2.5% | 1.8% | 1.0% | 0.1% | 0.0% | 12.7% |
| 1991 | 0.0% | 0.3% | 0.9% | 0.3% | 5.9% | 3.7% | 1.8% | 0.9% | 0.2% | 0.0% | 14.0% |
| 1992 | 0.0% | 0.3% | 0.6% | 0.2% | 6.3% | 4.2% | 2.4% | 0.8% | 0.3% | 0.0% | 15.1% |
| 1993 | 0.0% | 0.3% | 0.2% | 1.1% | 3.0% | 1.4% | 0.9% | 0.5% | 0.7% | 0.1% | 8.2% |
| 1994 | 0.0% | 0.1% | 0.4% | 1.6% | 3.6% | 6.2% | 3.5% | 0.9% | 0.2% | 0.1% | 16.8% |
| 1995 | 0.0% | 0.0% | 0.2% | 0.4% | 1.4% | 1.3% | 0.9% | 0.7% | 0.3% | 0.0% | 5.2% |
| 1996 | 0.0% | 0.1% | 1.2% | 0.1% | 1.6% | 2.0% | 0.5% | 0.2% | 0.2% | 0.0% | 5.9% |
| 1997 | 0.0% | 2.6% | 3.2% | 2.1% | 2.0% | 1.1% | 1.6% | 1.4% | 0.0% | 0.0% | 14.1% |
| 1998 | 0.0% | 0.1% | 0.1% | 0.3% | 1.3% | 5.1% | 1.4% | 1.0% | 0.2% | 0.0% | 9.6% |
| 1999 | 0.0% | 0.1% | 0.1% | 0.0% | 0.1% | 1.6% | 1.3% | 0.6% | 0.3% | 0.1% | 4.2% |
| 2000 | 0.0% | 0.1% | 0.3% | 0.2% | 0.8% | 0.8% | 0.4% | 0.0% | 0.0% | 0.0% | 2.5% |
| 2001 | 0.1% | 1.2% | 1.5% | 0.3% | 3.8% | 1.0% | 0.3% | 0.2% | 0.0% | 0.0% | 8.5% |
| 2002 | 0.0% | 0.1% | 0.3% | 0.4% | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 1.1% |
| 2003 | 0.0% | 0.0% | 0.5% | 1.1% | 1.1% | 1.3% | 0.4% | 0.6% | 0.2% | 0.0% | 5.2% |
| 2004 | 0.0% | 0.0% | 0.1% | 0.4% | 1.5% | 2.4% | 1.8% | 1.5% | 0.3% | 0.0% | 7.9% |
| 2005 | 0.0% | 0.2% | 0.3% | 0.6% | 0.8% | 2.8% | 1.4% | 3.5% | 0.5% | 0.0% | 10.1% |
| 2006 | 0.0% | 0.1% | 0.5% | 1.1% | 1.3% | 0.8% | 0.1% | 0.3% | 0.0% | 0.0% | 4.2% |
| 2007 | 0.2% | 0.5% | 0.5% | 1.3% | 3.8% | 3.5% | 3.7% | 1.4% | 0.5% | 0.0% | 15.3% |
| 2008 | 0.0% | 0.0% | 0.0% | 0.1% | 0.2% | 0.3% | 0.3% | 0.2% | 0.0% | 0.0% | 1.0% |
| 2009 | 0.0% | 0.0% | 0.1% | 0.3% | 1.9% | 0.3% | 0.6% | 0.5% | 0.1% | 0.0% | 3.8% |
| 2010 | 0.0% | 0.0% | 0.0% | 0.1% | 0.1% | 0.1% | 0.0% | 0.0% | 0.1% | 0.0% | 0.4% |
| 2011 | 0.0% | 0.0% | 0.2% | 0.3% | 1.3% | 2.8% | 0.7% | 0.1% | 0.0% | 0.0% | 5.4% |
| 2012 | 0.0% | 0.0% | 0.2% | 0.1% | 0.2% | 0.7% | 0.3% | 0.1% | 0.0% | 0.0% | 1.7% |
| 2013 | 0.0% | 0.1% | 0.2% | 0.3% | 0.6% | 0.3% | 0.1% | 0.0% | 0.0% | 0.0% | 1.5% |
| 2014 | 0.0% | 0.4% | 0.5% | 1.0% | 2.5% | 3.3% | 1.0% | 1.7% | 0.4% | 0.0% | 10.9% |
| 2015 | 0.0% | 0.1% | 0.1% | 0.4% | 3.3% | 3.3% | 1.5% | 1.8% | 0.5% | 0.0% | 11.0% |
| 2016 | 0.0% | 0.7% | 1.9% | 0.3% | 2.4% | 7.0% | 1.2% | 0.6% | 0.0% | 0.0% | 14.1% |
| 2017 | 0.0% | 0.0% | 0.3% | 0.2% | 0.8% | 0.5% | 0.6% | 1.0% | 0.9% | 0.2% | 4.5% |
| 2018 | 0.0% | 0.0% | 0.1% | 0.4% | 0.1% | 0.3% | 0.3% | 1.3% | 0.0% | 0.0% | 2.4% |
| Mean | 0.0% | 0.3% | 0.6% | 0.7% | 1.9% | 2.2% | 1.0% | 0.7% | 0.2% | 0.0% | 7.6% |

CONSERVATION ACTIONS IN THE DISTRICT 104 PURSE SEINE FISHERY

In order to meet Treaty obligations, Alaska typically reduces fishing time in District 104 to ensure the harvest of Canadian Skeena and Nass river sockeye salmon stays within agreed limits. From 1985 to 1988, the Chapter 2 agreement called for a maximum of 480,000 sockeye salmon harvested over a four-year period (prior to week 31), or approximately 120,000 fish per year. This agreement was rolled over for one year in 1989, and the pre-week 31 sockeye salmon harvest limit remained at 120,000 for the year. From 1990 to 1993, the agreement again called for a maximum of 480,000 sockeye salmon harvested over a four-year period (prior to week 31), or approximately 120,000 fish per year. From 1994 through 1998 there was no agreement in place.

In 1999, the new agreement switched management to an abundance-based approach that has remained in place to the present time. Since 1999, Alaska has had an annual catch share of 2.45% of the Nass and Skeena rivers sockeye salmon AAH for the year, which was calculated as the combined total run of adult Nass and Skeena sockeye salmon minus the combined escapement target of 1.1 million fish, or the actual spawning escapement if it is below the target level. Since 1999, the allowable harvest in the District 104 fishery prior to week 31 has only exceeded 100,000 fish in one year (2000) and has been below 50,000 fish 75% of the time from 1999 to 2018. Due to this reduction in allowable sockeye salmon harvest in most years, Alaska has had to reduce fishing time and/or area in the fishery specifically to conserve Canadian sockeye salmon on an annual basis since 1999.

The following paragraphs describe conservation actions Alaska has taken in the District 104 fishery specifically for Canadian sockeye salmon conservation; closures and reduced time related to domestic stock considerations were not included in this assessment. The District 104 traditional purse seine fishery opens on the first Sunday in July, which typically occurs in weeks 27 or 28. Fishing time typically begins with single day openings of varying length and if pink salmon returns are strong enough to warrant additional fishing time, the fishery will go to a 2-days-on/2-days-off, or a more continuous fishing schedule in years of very large pink salmon returns (Gray et al. 2018). In the following paragraphs “initial” opening simply refers to the first opening in a statistical week and “midweek” openings refers to the second opening that may occur.

In 1989, there was a 1-year rollover of the existing agreement and the fishery was managed with a goal of 120,000 sockeye salmon prior to week 31. To conserve Canadian sockeye salmon, Alaska delayed the initial opening in week 29 by one day and the fishery remained closed for the potential midweek opening in week 30.

In 1990, the fishery was managed under an agreement for a total maximum harvest of 480,000 sockeye salmon over a 4-year period (1990–1993; prior to week 31), with a yearly goal of 120,000 fish. Fishing was stopped if a harvest of 160,000 sockeye salmon was reached prior to week 31. To conserve Canadian sockeye salmon, Alaska reduced the initial openings in week 29 from 15 to 6 hours and the fishery remained closed for the potential midweek opening. The initial opening in week 30 was reduced from 15 to 6 hours and was open only north of Juel Point, and the midweek opening was again closed.

In 1991, the fishery continued to be managed under an agreement for a total maximum harvest of 480,000 sockeye salmon over a 4-year period (1990–1993; prior to week 31), with a yearly goal of 120,000 fish. To conserve Canadian sockeye salmon, Alaska reduced the initial openings in

week 29 from 15 to 10 hours and reduced the midweek opening from 15 to 10 hours. In week 30, the initial opening was reduced from 15 to 6 hours and was only open south of Ritter Point, and the fishery remained closed for the potential midweek opening.

In 1992, the fishery continued to be managed under an agreement for a total maximum harvest of 480,000 sockeye salmon over a 4-year period (1990–1993; prior to week 31), with a yearly goal of 120,000 fish. To conserve Canadian sockeye salmon, Alaska closed for the potential midweek opening in week 28. In week 29, the initial opening was reduced from 15 to 8 hours, and the fishery remained closed for the potential midweek opening. In week 30, the initial opening was reduced from 15 to 6 hours and was only open south of Cape Augustine, and the fishery remained closed for the potential midweek opening.

In 1993, the fishery continued to be managed under an agreement for a total maximum harvest of 480,000 sockeye salmon over a 4-year period (1990–1993; prior to week 31), with a yearly goal of 120,000 fish. To conserve Canadian sockeye salmon, Alaska reduced the initial openings in weeks 28 and 29 from 15 to 10 hours and remained closed for the potential midweek openings. In week 30, the midweek opening was reduced from 15 to 10 hours.

In 1994, there was no Annex in place and the U.S. conducted the fishery in a manner limiting fishing time and sockeye salmon harvest in District 104 to levels like the 1990–1993 time period (120,000 sockeye salmon harvest pre-week 31). To conserve Canadian sockeye salmon, Alaska reduced the initial openings in week 28 from 15 to 10 hours and the fishery remained closed for the potential midweek opening. The initial opening in week 29 was reduced from 39 to two 7-hour openings, and the midweek opening was reduced from 15 to 8 hours. The midweek opening in week 30 was also reduced from 15 to 8 hours for Canadian sockeye salmon conservation.

In 1995, there was no Annex in place and the U.S. conducted the fishery in a manner limiting fishing time and sockeye salmon harvest in District 104 to levels like the 1990 to 1993 time period. To conserve Canadian sockeye salmon, Alaska reduced the initial openings in weeks 27 and 28 from 15 to 10 hours, and the fishery remained closed for the potential midweek openings in both weeks. The midweek opening in week 30 was also reduced from 15 to 8 hours for Canadian sockeye salmon conservation.

In 1996, there was no Annex in place and the U.S. managed the District 104 fishery consistent with Treaty principles and objectives. To conserve Canadian sockeye salmon, Alaska reduced the initial opening in week 28 from 15 to 10 hours, and the fishery remained closed for the potential midweek opening. In week 29, the initial opening was reduced from 15 to 7 hours and the potential midweek opening was closed. In week 30, the fishery was open only north of Cape Bartolome for 7 hours for Canadian sockeye salmon conservation. The potential midweek opening in week 30 was also closed. These closures were implemented despite the highest pink salmon abundance on record at the time. The final southern Southeast Alaska pink salmon harvest was 53.7 million fish, and approximately 19 million were harvested in District 104.

In 1997, there was no Annex in place and the U.S. managed the District 104 fishery consistent with Treaty principles and objectives. The initial opening in week 30 was closed to conserve Canadian Nass River sockeye salmon.

In 1998, there was no Annex in place and the U.S. managed the District 104 fishery consistent with Treaty principles and objectives. In week 28, the initial opening was reduced from 15 to 8 hours, and in weeks 29 and 30 the initial opening was reduced to 12 hours. In all three weeks of

the Treaty period, the potential midweek openings remained closed for Canadian sockeye salmon conservation.

In 1999, the new Treaty agreement adopted an abundance-based management approach and dictated a District 104 sockeye harvest of 2.45% of AAH of Nass and Skeena rivers sockeye salmon prior to week 31. Canada forecasted a combined 1.2 million sockeye salmon run to the Skeena and Nass rivers. To stay within the AAH on Canadian sockeye salmon, Alaska reduced the initial openings in weeks 28–30 from 15 to 10 hours and closed for midweek openings in all three Treaty period weeks. The total run of 1.8 million sockeye salmon to the Skeena and Nass rivers was above the preseason forecasts and Alaska ended the season with a 17,209 fish underage of Canadian sockeye salmon in the District 104 fishery.

In 2000, Canada forecasted a combined 3.1 million sockeye salmon run to the Skeena and Nass rivers. To stay within the AAH on Canadian sockeye salmon, Alaska reduced the initial and midweek openings in week 28 from 15 to 12 hours. In week 29, the initial opening was reduced from 15 to 12 hours. The total run of 5.3 million sockeye salmon to the Skeena and Nass rivers was well above the preseason forecasts and Alaska ended the season with a 74,126 fish underage of Canadian sockeye salmon in the District 104 fishery.

In 2001, Canada forecasted a combined 3.5 million sockeye salmon run to the Skeena and Nass rivers. To stay within the AAH on Canadian sockeye salmon, Alaska reduced the initial opening in week 27 from 15 to 12 hours and closed for the midweek opening. In week 28, the initial opening was reduced from 15 to 12 hours and the midweek opening was reduced from 15 to 10 hours. In week 29 the initial opening was reduced from 15 to 10 hours and closed for the midweek opening, and in week 30 the initial opening was reduced from 15 to 6 hours and there was no midweek opening. The total run of 5.0 million sockeye salmon to the Skeena and Nass rivers was well above the preseason forecasts, and Alaska ended the season with a 73,154 fish overage of Canadian sockeye salmon in the District 104 fishery despite closures and decreased hours in all weeks of the Treaty period. The overage occurred primarily due to very high abundance of Canadian sockeye salmon.

In 2002, Canada forecasted a combined 1.7 million sockeye salmon run to the Skeena and Nass rivers. To stay within the AAH on Canadian sockeye salmon, Alaska reduced the initial opening in week 28 from 15 to 12 hours and closed for the midweek opening. The total run of 2.8 million sockeye salmon to the Skeena and Nass rivers was well above the preseason forecasts, and Alaska ended the season with a 23,640 fish underage of Canadian sockeye salmon in the District 104 fishery.

In 2003, Canada forecasted a combined 1.9 million sockeye salmon run to the Skeena and Nass rivers. To stay within the AAH on Canadian sockeye salmon, Alaska reduced the initial opening in week 28 from 15 to 10 hours and closed for the midweek opening. In week 29, the initial opening was reduced from 15 to 10 hours and the midweek opening was reduced from 39 hours to two 6-hour openings. In week 30, the initial opening was reduced from 39 hours to two 6-hour openings and the midweek opening was reduced from 15 to 8 hours. The total run of 3.3 million sockeye salmon to the Skeena and Nass rivers was well above the preseason forecasts, and Alaska ended the season with a 9,802 fish underage of Canadian sockeye salmon in the District 104 fishery.

In 2004, Canada forecasted a combined 2.9 million sockeye salmon run to the Skeena and Nass rivers. To stay within the AAH on Canadian sockeye salmon, Alaska reduced initial and

midweek openings in week 28 from 15 to 10 hours and from 15 to 12 hours in week 29. In week 30, the midweek opening was reduced from 39 hours to two 12-hour openings. The total run of 2.6 million sockeye salmon to the Skeena and Nass rivers was below the preseason forecasts, and Alaska ended the season with a 18,032 fish underage of Canadian sockeye salmon in the District 104 fishery.

In 2005, Canada forecasted a combined 2.4 million sockeye salmon run to the Skeena and Nass rivers. To stay within the AAH on Canadian sockeye salmon, Alaska reduced initial opening in weeks 28 and 29 from 15 to 12 hours, and the midweek openings were reduced from 15 to 10 hours. In week 30, the initial and midweek openings were reduced from 39 hours to two 6-hour openings each. The total run of 1.8 million sockeye salmon to the Skeena and Nass rivers was below the preseason forecasts, and Alaska ended the season with a 569 fish overage of Canadian sockeye salmon in the District 104 fishery.

In 2006, Canada forecasted a combined 3.0 million sockeye salmon run to the Skeena and Nass rivers. To stay within the AAH on Canadian sockeye salmon, Alaska reduced the initial opening in week 27 from 15 to 12 hours and the midweek opening in week 28 was reduced from 15 to 8 hours. The total run of 3.6 million sockeye salmon to the Skeena and Nass rivers was above the preseason forecasts and Alaska ended the season with a 6,452 fish overage of Canadian sockeye salmon in the District 104 fishery.

In 2007, Canada forecasted a combined 3.3 million sockeye salmon run to the Skeena and Nass rivers. To stay within the AAH on Canadian sockeye salmon, Alaska reduced the initial openings in weeks 27 and 28 from 15 to 12 hours and had no midweek fishery in week 28. In week 29, the initial opening was reduced from 15 to 8 hours. In week 30, the initial opening was reduced from 15 to 12 hours, and the midweek opening was reduced from 15 to 6 hours. The total run of 2.8 million sockeye salmon to the Skeena and Nass rivers was below the preseason forecasts and Alaska ended the season with a 35,139 fish overage of Canadian sockeye salmon in the District 104 fishery.

In 2008, Canada forecasted a combined 1.6 million sockeye salmon run to the Skeena and Nass rivers. To stay within the AAH on Canadian sockeye salmon, Alaska reduced the initial opening in week 28 from 15 to 8 hours and had no midweek fishery. In week 29, the initial opening was reduced from 15 to 10 hours and there was again no midweek opening. The total run of 2.5 million sockeye salmon to the Skeena and Nass rivers was above the preseason forecasts, and Alaska ended the season with a 30,197 fish underage of Canadian sockeye salmon in the District 104 fishery.

In 2009, Canada forecasted a combined 2.8 million sockeye salmon run to the Skeena and Nass rivers. To stay within the AAH on Canadian sockeye salmon, Alaska reduced the initial opening in week 28 from 15 to 12 hours. The total run of 1.6 million sockeye salmon to the Skeena and Nass rivers was well below the preseason forecasts. Despite the fact that the Skeena River total run of 1.0 million was less than half of the preseason forecast, Alaska ended the season with a 3,325 fish underage of Canadian sockeye salmon in the District 104 fishery and the total harvest rate on Skeena River sockeye salmon in District 104 was only 3.8% for the season.

In 2010, Canada forecasted a combined 1.3 million sockeye salmon run to the Skeena and Nass rivers. To stay within the AAH on Canadian sockeye salmon, Alaska reduced the initial and midweek openings in week 28 from 15 to 10 hours. The total run of 1.4 million sockeye salmon

to the Skeena and Nass rivers was very close to the preseason forecasts. Alaska ended the season with a 9,656 fish underage of Canadian sockeye salmon in the District 104 fishery.

In 2011, Canada forecasted a combined 1.3 million sockeye salmon run to the Skeena and Nass rivers. To stay within the AAH on Canadian sockeye salmon, Alaska reduced the initial and midweek openings in week 28 from 15 to 12 hours. Fish passage through the Tyee test fishery began to increase in early July and the total run of 2.5 million sockeye salmon to the Skeena and Nass rivers was well above preseason forecasts. Alaska ended the season with a 17,407 fish underage of Canadian sockeye salmon in the District 104 fishery.

In 2012, Canada forecasted a combined 1.8 million sockeye salmon run to the Skeena and Nass rivers. To stay within the AAH on Canadian sockeye salmon, Alaska reduced the initial opening in week 27 from 15 to 12 hours. The total run of 2.7 million sockeye salmon to the Skeena and Nass rivers was well above preseason forecasts and Alaska ended the season with a 30,513 fish underage of Canadian sockeye salmon in the District 104 fishery.

In 2013, Canada forecasted a combined 1.2 million sockeye salmon run to the Skeena and Nass rivers. The Skeena River forecast of 700,000 sockeye salmon was particularly poor and was well below the escapement target of 900,000 fish. To stay within the AAH on Canadian sockeye salmon, Alaska reduced the initial openings in weeks 28 and 29 to 12 hours and remained closed for potential mid-week openings. Opening time remained restrictive in week 30 when the fishery was only opened initially for 12 hours. Due to very low catches of sockeye salmon, the fishery was opened for a short 10-hour midweek opening in week 30. Although Southeast Alaska was experiencing the largest pink salmon returns ever recorded, Alaska took the unprecedented step of making a closure to the District 104 fishery after the Treaty period due to extreme concerns with the Skeena River sockeye salmon run. In week 31, District 104 was closed south of Juel Point to further reduce the harvest of Skeena River sockeye salmon. The total run of 981,000 sockeye salmon to the Skeena and Nass rivers was just below the preseason forecasts. Despite harvesting 10.9 million pink salmon in the District 104 fishery, only 7,400 Skeena River sockeye salmon were harvested, and Alaska ended the season with a 4,078 fish underage of Canadian sockeye salmon.

In 2014, Canada forecasted a combined 2.9 million sockeye salmon run to the Skeena and Nass rivers. To stay within the AAH on Canadian sockeye salmon, Alaska did not open the fishery for the mid-week potential opening in week 29. The total run of 3.8 million sockeye salmon to the Skeena and Nass rivers was well above preseason forecasts and Alaska ended the season with a 7,254 fish overage of Canadian sockeye salmon in the District 104 fishery.

In 2015, Canada forecasted a combined 4.2 million sockeye salmon run to the Skeena and Nass rivers. To stay within the AAH on Canadian sockeye salmon, Alaska did not open the fishery for the midweek potential opening in week 29 and reduced the midweek openings in week 30 from 15 to 12 hours. The total run of 3.0 million sockeye salmon to the Skeena and Nass rivers was below preseason forecasts. Despite the lower-than-expected run, Alaska ended the season with a 25,485 fish underage of Canadian sockeye salmon in the District 104 fishery.

In 2016, Canada forecasted a combined 1.8 million sockeye salmon run to the Skeena and Nass rivers. To stay within the AAH on Canadian sockeye salmon, Alaska reduced the midweek openings in weeks 28 and 29 to 12 hours. Opening time was more restrictive in week 30 when the fishery was only opened initially for 6 hours and there was no mid-week opening. The total run of 2.1 million sockeye salmon to the Skeena and Nass rivers was just above the preseason

forecasts. Despite the higher than expected run and reduced fishing time, Alaska ended the season with a 39,553 fish overage of Canadian sockeye salmon in the District 104 fishery.

In 2017, Canada forecasted an extremely poor run of sockeye salmon to the Skeena River and a below average run to the Nass River. The Skeena River sockeye salmon forecast of 594,000 fish was well below the escapement target, and the combined forecast for the Nass and Skeena rivers of just over one million fish indicated that there would be very little AAH on Canadian sockeye salmon. Alaska implemented a very restrictive fishing regime in District 104 and kept the fishery closed for the first four potential openings in weeks 27, 27 midweek, 28, and 28 midweek. In week 29, the fishery initially opened for a restrictive 10 hours and was closed for the potential midweek opening due to continued Canadian sockeye salmon concerns. Opening time continued to be very restrictive in week 30 when the fishery was only opened initially for 6 hours and there was no mid-week opening. Fish passage through the Tyee test fishery began to increase in mid-July, and the total run of 1.1 million sockeye salmon to the Skeena River greatly exceeded the preseason and early inseason forecasts. Despite the higher-than-expected total run to the Skeena River, Alaska ended the season very close to the AAH with a 992 fish underage of Canadian sockeye salmon in the District 104 fishery.

In 2018, Canada again forecasted an extremely poor run of sockeye salmon to the Skeena River and a below-average run to the Nass River. The Skeena River sockeye salmon forecast of 645,000 fish was well below the escapement target and the combined forecast for the Nass and Skeena rivers of just over one million fish indicated that there would be very little AAH on Canadian sockeye salmon. Alaska implemented a very restrictive fishing regime in District 104 and kept the fishery closed for the first four potential openings in weeks 27, 27 midweek, 28, and 28 midweek. In week 29, the fishery initially opened for a restrictive 8 hours and in the midweek opening for 10 hours due to continued Canadian sockeye salmon concerns. Opening time continued to be very restrictive in week 30 when the fishery was only opened initially for 6 hours and there was no mid-week opening. Fish passage through the Tyee Test Fishery began to increase significantly in mid-July, and the total run of 1.8 million sockeye salmon to the Skeena River greatly exceeded the preseason and early inseason forecasts. Alaska ended the season with a preliminary estimate of a 14,200 fish underage of Canadian sockeye salmon in the District 104 fishery.

DISCUSSION

The District 104 purse seine fishery has undergone continuous change since it began in the early 1930s. Until the late 1960s, the fishery was generally opened for 5.5 days, which was two days longer than fisheries on more inside waters (ADF&G unpublished document). The long fishing periods were allowed due to the belief that weather and rough seas would limit effort and that the fishery utilized only a small area of the outer coast (ADF&G unpublished document). To manage the district based on run strength, the standard fishing week was reduced to 3.5 days in 1969 to match inside districts. Throughout the 1970s and early 1980s, opening hours were based on domestic pink salmon returns and were frequently reduced, or in some cases closed for openings when pink salmon abundance was very low. The fishery also became a limited entry fishery in 1975, when 419 permanent purse seine permits were issued for Southeast Alaska (Shriver 2014).

With the signing of the Treaty in 1985, early season management of the fishery became tied to the abundance of Skeena and Nass river sockeye salmon, as well as domestic pink salmon returns. The initial agreements allowed for an annual harvest of 120,000 sockeye salmon in the

District 104 fishery prior to week 31. At the time this agreement was reached, pink salmon abundance was increasing dramatically, and Skeena and Nass river sockeye salmon runs were at historical high levels. This resulted in a situation where Alaska frequently had to reduce opportunity in the fishery prior to week 31 despite very high abundance of both Canadian sockeye salmon and Alaskan pink salmon. From 1985 to 1998, pink salmon harvests in Southeast Alaska averaged approximately 43 million fish (Piston and Heintz 2014) and the combined Nass and Skeena river sockeye salmon runs averaged 4.7 million fish. From 1985 to 1998, opportunity in the District 104 fishery prior to week 31 averaged just 61 hours, compared to 198 hours from 1969 to 1984, despite a much higher abundance of fish. A high abundance of both species in most years made it much more likely that Alaska would reach the 120,000 sockeye salmon harvest limit prior to week 31. Conversely, in a poor year for Skeena River sockeye salmon, like 1998 (the last year Alaska could have managed to a 120,000 pre-week 31 sockeye salmon harvest), fishing to attain that level of harvest could have led to an overharvest of Canadian sockeye salmon, and in practice Alaska greatly restricted openings in all three Treaty period weeks and only harvested 17,000 total sockeye salmon prior to week 31 (Appendix D).

In 1999, the new Chapter 2 Treaty agreement moved to an abundance-based management approach to the District 104 fishery, allowing Alaska to harvest 2.45% of the annual allowable harvest of Nass and Skeena river sockeye salmon prior to week 31. The allowable harvest was now tied to the total run size of the Nass and Skeena rivers, which allowed for higher effort and harvest in District 104 when Nass and Skeena sockeye salmon runs were strong and required greater restrictions in District 104 when runs were low. Since switching to an abundance-based management regime in 1999, the combined run size of Nass and Skeena river sockeye salmon has generally declined and the average allowable harvest in District 104 was approximately 39,000 fish from 1999 to 2018. During this same time, Nass and Skeena sockeye salmon comprised approximately 54% of the District 104 sockeye salmon harvest, which would allow for average annual sockeye salmon harvests of approximately 73,000 fish. The actual harvest of sockeye salmon in District 104 has averaged approximately 51,000 fish since 1999.

The size of the Southeast Alaska purse seine fleet has also been reduced since the 1999 agreement. Permit buybacks occurred in 2008 (35 permit reduction) and 2012 (65 permit reduction) and resulted in an overall 24% reduction in the size of the purse seine fleet (Shriver 2014). An additional buyback of 36 permits was approved in 2019, which will result in another significant reduction in fleet size. The initial 419 Southeast Alaska purse seine permits that were issued in 1975 will have been reduced to 279 permits in 2019, a 33% reduction. This large decrease in permits means that effort is unlikely to ever return to historical high levels observed in the 1980s and early 1990s in the District 104 fishery; a time when weekly effort levels could occasionally exceed 200 boats in a single week.

Another factor impacting the District 104 purse seine fishery, as well as other net fisheries in Southeast Alaska, was the maturing of the enhancement program in Southeast Alaska. The modern Alaska enhancement program began in the early 1970s in response to a period of poor salmon production and depressed commercial fisheries (Clark et al. 2006). For Southeast Alaska purse seine fisheries, enhanced chum salmon have become an increasingly important part of the annual harvest, particularly since the early 1990s when releases first surpassed 300 million fry (Piston and Heintz 2017). By 2018, release numbers had risen to 550 million fry, and from 2007 to 2016, chum salmon were the most valuable species, on average, in Southeast Alaska

commercial fisheries (Piston and Heintz 2017). Despite a reduction in effort in the District 104 purse seine fishery, the harvest of chum salmon increased from an average of 79,000 from 1960 to 1999 to 278,000 from 2000 to 2018. An important impact of the hatchery program on Treaty fisheries in southern Southeast Alaska was to help keep the net gear fleets more dispersed throughout Southeast Alaska. Since the mid-1980s, there has generally been close to 20 chum salmon release sites distributed throughout the region (McNair 1995; Stopha 2018; Piston and Heintz 2017), and most of these sites offer terminal harvest opportunities for the various gear groups. Additional hatchery terminal harvest opportunities can factor in a fisherman's decision about where to concentrate their effort and likely draws some fisherman away from District 104 in some weeks.

Although highly variable, the average harvest rates on Nass and Skeena River sockeye salmon have declined significantly since 1985 when the Treaty was signed. Over the most recent decade, harvest rates in the District 104 purse seine fishery have averaged 3.1% on Nass River sockeye salmon and 5.6% on Skeena River sockeye salmon. Overall harvest rates on Nass River sockeye salmon in all Canadian and Alaskan fisheries combined have also declined from 68.2% from 1985 to 2000 to 48.4% from 2009 to 2018. In that same time, Alaska's average overall harvest rate in all fisheries dropped by more than half, from 30.0% to 13.8%, while Canada's harvest rate dropped modestly from 38.2% to 34.6%. For the Skeena River, harvest rates have dropped significantly in both countries. Total harvest rates in Alaska's fisheries dropped from an average 12.6% from 1985 to 2000 to 8.4% from 2009 to 2018, while Canadian harvest rates dropped from 44.7% to 22.6% during the same time periods.

Despite the general decline in average harvest rates, Canada has expressed concern regarding the harvest of Canadian sockeye salmon in District 104 in years when run timing of Canadian sockeye salmon is later than average, particularly in years where Nass and/or Skeena runs were poor. Following a six-year period from 2008 to 2013 when the District 104 harvest rate on Skeena sockeye salmon averaged only 2.3%, harvest rates bumped up to 11.0% in 2014 and 2015, and 14.1% in 2016 (Table 3). In 2015 and 2016, the midpoint of the run through the Tyee Test Fishery at the mouth of the Skeena River was reached 5 to 7 days later than the long-term average date of 23 July. Widespread late run timing of Canadian sockeye salmon would potentially result in more of these fish being available to harvest in District 104 after the Treaty period is over and effort increases in the fishery. Although the harvest rate in District 104 did increase in 2015 and 2016, the harvest rates were within the range of previous years since 1985. The midpoint of the run through the Tyee Test Fishery was approximately 8 days later than average in 2017, but the harvest rate in District 104 declined to 4.5%.

The higher harvest rate observed in 2016 was in part due to the impact of regionwide pink salmon distribution in Southeast Alaska on fishing fleet behavior. Since 2006, pink salmon returns to northern Southeast Alaska inside waters have exhibited extreme odd-year dominance, with almost no harvest in even years since 2012 (Figure 51) and escapements below formal escapement goals (Piston and Heintz 2018). Due to the poor pink salmon returns to this subregion, very little fishing opportunity has been offered in northern inside waters and as a result the fleet became more concentrated in southern Southeast Alaska and off the northern outer coast. Although effort levels have remained well below the levels of the 1980s to mid-1990s, the number of boats fishing District 104 was above what has been typical since the late 1990s in 2014 and 2016 (Figure 27). In 2018, pink salmon returns were poor regionwide and the number of hours open and boats fishing both dropped to less than half of the 1985 to 2017 average in the

District 104 fishery (Figures 24 and 27). Effort levels in the District 104 fishery can vary depending on a myriad of variables that affect fishermen's decisions on where to fish each opening.

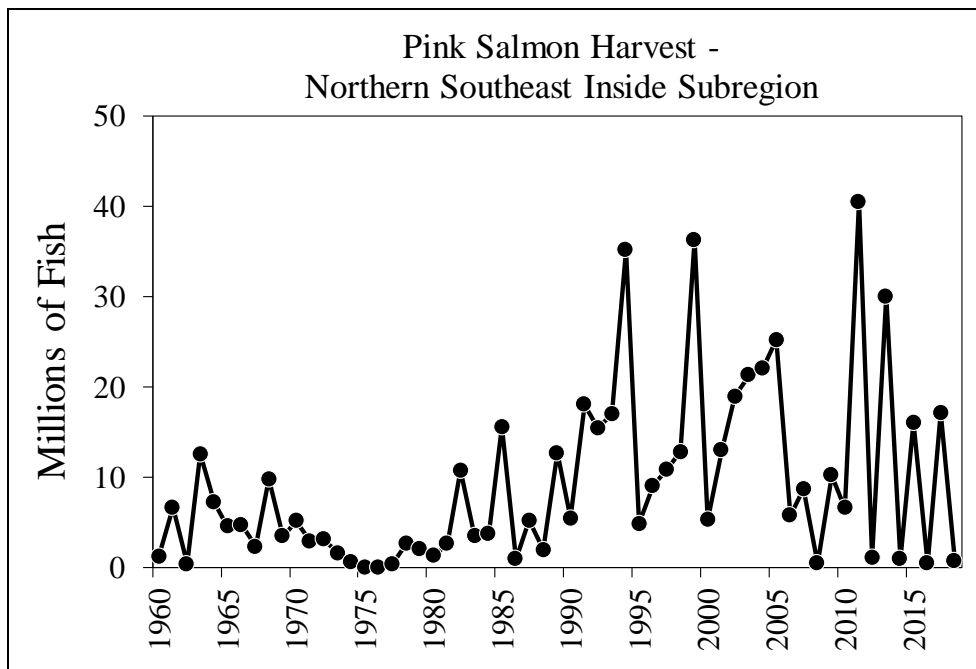


Figure 51.—Annual pink salmon harvest for the Northern Southeast Inside Subregion of Southeast Alaska, 1960–2018.

At the same time Canada was concerned about late run timing and increased harvest on their sockeye salmon stocks, Alaska expressed concerns that the timing of pink salmon runs to southern Southeast Alaska were earlier than normal and fishermen were losing valuable harvest opportunity. Sustainable harvest of wild salmon stocks is of paramount importance, but Alaska felt that in some years reductions in opportunity that were necessary to ensure the AAH of Nass and Skeena river sockeye salmon led to unnecessary reductions in pink salmon harvest at times when the harvest rates on Canadian sockeye salmon in the District 104 fishery were very low. As noted above, there is very little information to assess the run timing of specific stocks of pink salmon through the District 104 fishery, but it is very clear that there have been more pink salmon available for harvest early in the season since the Treaty was signed due to the general increase in pink salmon abundance since the early 1980s, and the strong returns to early-timed pink salmon stock groups in recent decades (Figures 3–23, 36).

The ability to assess the stock specific timing for pink salmon passing through District 104 is limited by a lack of data. Large scale tagging studies, such as those conducted in the early 1980s to address migration patterns and timing of salmon stocks in Southeast Alaska and northern B.C. (Hoffman et al. 1983, 1985), are extremely expensive and labor intensive, and would be unlikely to answer questions regarding persistent changes in run timing or stock compositions unless conducted over many years. Escapements of pink salmon in Southeast Alaska are primarily monitored by aerial surveys, which have limited utility in identifying modest changes in run timing. Genetic stock identification may provide stock specific harvest information on pink

salmon in the future, which would potentially allow for an assessment of stock specific timing changes in the District 104 fishery. ADF&G has been collecting baseline pink salmon genetic samples in recent years and has obtained samples from approximately 70 streams in Southeast Alaska (ADF&G Gene Conservation Laboratory unpublished data). A small-scale project to genotype 12 populations in Southeast Alaska and determine if regional groupings can be identified using existing markers (see Lescak et al. 2019 for description of markers) was initiated by ADF&G in 2020; the results of that work may lead to further efforts to look for new pink salmon genetic markers to improve stock separation.

Canada's concern with later-than-average Nass and Skeena sockeye salmon run timing has focused on the 2014–2016 time period, while the north Pacific Ocean was experiencing very warm conditions commonly known as the Blob (Bond et al. 2015). In 2016, earlier than average pink salmon harvest timing occurred in Alaska districts 101–104 (Figures 52 and 53). In that year, Alaska lost out on potentially large pink salmon catches in week 30 in District 104 when closures became necessary despite record pink salmon catches (1.2 million pink salmon; Appendix B) and CPUE of approximately 11,000 fish per boat day in week 29 (Figure 52). Despite the record catches of pink salmon for the timing, the District 104 fishery was only opened for 6 hours in week 30 to reduce the harvest of Nass and Skeena river sockeye salmon. Although fishing opportunity was reduced during the Treaty period, Alaska still had an overage of approximately 40,000 sockeye salmon in the fishery in 2016. In 2016, peak catches of pink salmon occurred three weeks earlier than average in District 104, although peak abundance may have been only two weeks early. With similar opportunity in the fishery in week 30, catches may have surpassed week 29 as the CPUE remained near 11,000 fish per boat day (Figure 52). In 2016, harvests were also two weeks earlier than average in District 103, one week earlier in District 102, and one week earlier than average in District 101 (ADF&G unpublished data). Large harvests and high CPUE prior to week 31 also occurred in 2014, although peak harvest and peak CPUE occurred with normal timing in week 32. The timing of peak pink salmon CPUE in 2015, 2017, and 2018 also occurred in weeks 32 and 33 (Figure 52).

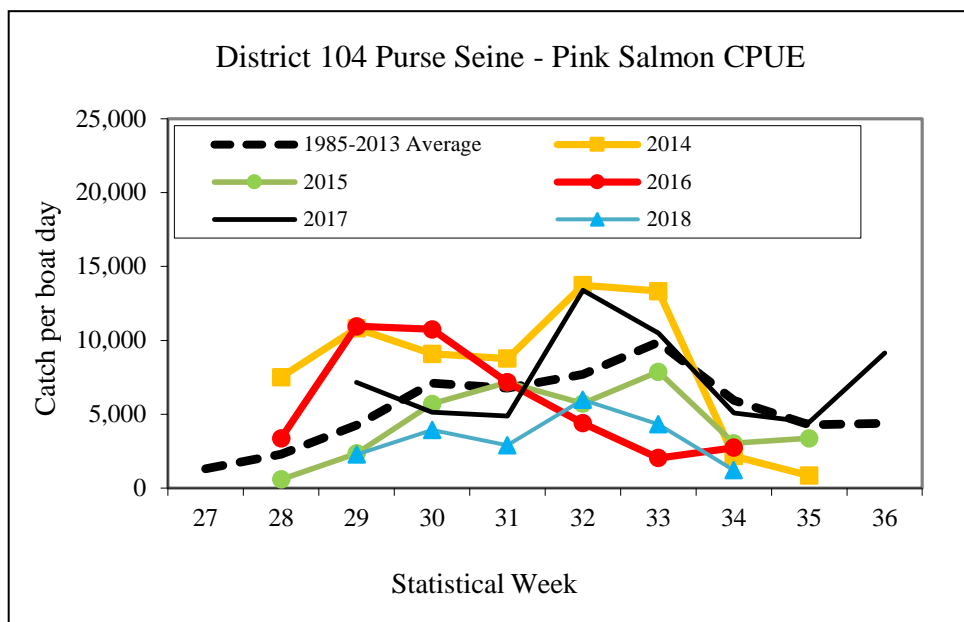


Figure 52.—Pink salmon CPUE in the District 104 purse seine fishery from 2014 to 2018 compared to 1985–2013 average by statistical week.

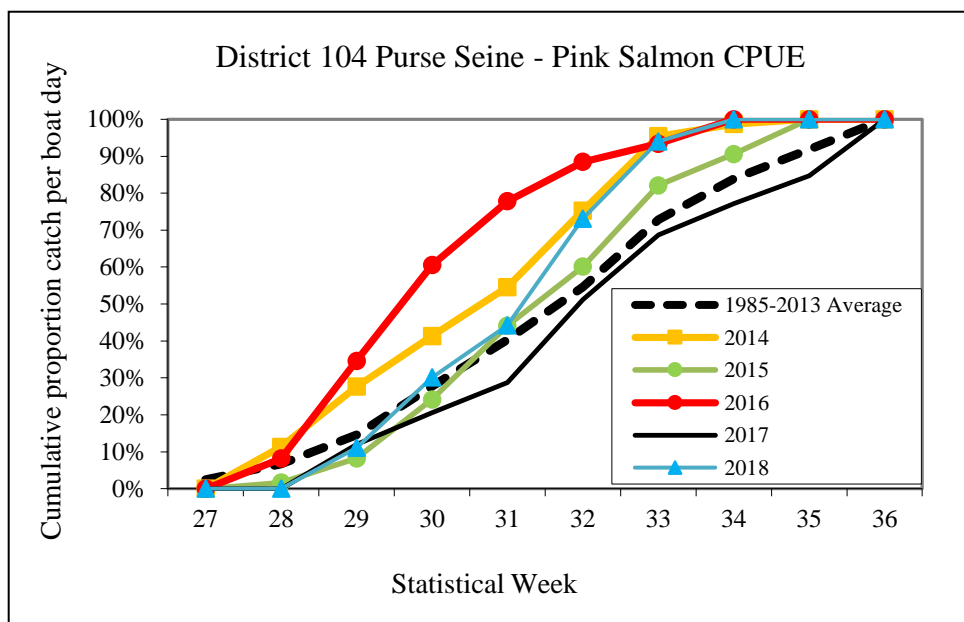


Figure 53.—Cumulative pink salmon CPUE proportions in the District 104 purse seine fishery from 2014 to 2018 compared to 1985–2013 average by statistical week.

In practice, it would be very difficult to reach an agreement on how to handle situations where either Canadian sockeye salmon exhibit later than normal run timing or Alaskan pink salmon show high abundance early in the season, especially if both situations happen concurrently as they did in 2016. The timing of a specific salmon stock, and whether it deviates from average, is not generally apparent until after the season is over. The cost of being wrong could be very high; either by potentially overharvesting Canadian sockeye salmon in a situation where Alaska sought to fish harder in District 104 prior to week 31 based on assumed early timing of pink salmon, or in a large, missed harvest opportunity for Alaska in a situation where fishing in District 104 was curtailed into week 31 based on the assumption of late sockeye salmon run timing. In a typical year, the timing of pink salmon entering Southeast Alaska (Figure 23) ensures that Alaska can manage the District 104 fishery to take advantage of surplus pink salmon abundance while limiting lost opportunity due to Canadian sockeye salmon concerns. The timing of Nass and Skeena river sockeye salmon ensures that a high proportion of the runs pass through District 104 during the pre-week 31 Treaty period, which helps maintain the Alaska harvest rate on these stocks to relatively low levels in most years (Tables 2 and 3).

Article III of the Treaty outlines guiding principles of fisheries management for the U.S. and Canada, which includes preventing overfishing and taking into account the “desirability in most cases” of reducing interceptions, avoiding undue disruption of existing fisheries, and accounting for annual variations in stock abundance. Since 1985, when the Treaty took effect, each of these principles has been met regarding management of Boundary Area fisheries in Alaska. Harvest rates on Canadian sockeye salmon have trended downward since the Treaty was signed and Alaska has consistently met Treaty obligations in its fisheries. Alaska has had an underage in 14 of 20 years and currently has a cumulative underage of approximately 117,000 sockeye salmon in the District 104 fishery.

ACKNOWLEDGEMENTS

I would like to thank Sara Miller, Steve Heinl, Lowell Fair, and Michele Masuda for their thoughtful reviews of this report. Kyle Shedd provided numerous answers to questions regarding the use of GSI in Southeast Alaska fisheries. Milo Adkison and Randall Peterman acted as independent reviews for the U.S. and Canada respectively, and provided extensive reviews that improved the final product. Scott Walker provided a very helpful summary of management actions taken in the District 104 fishery for Canadian sockeye salmon concerns.

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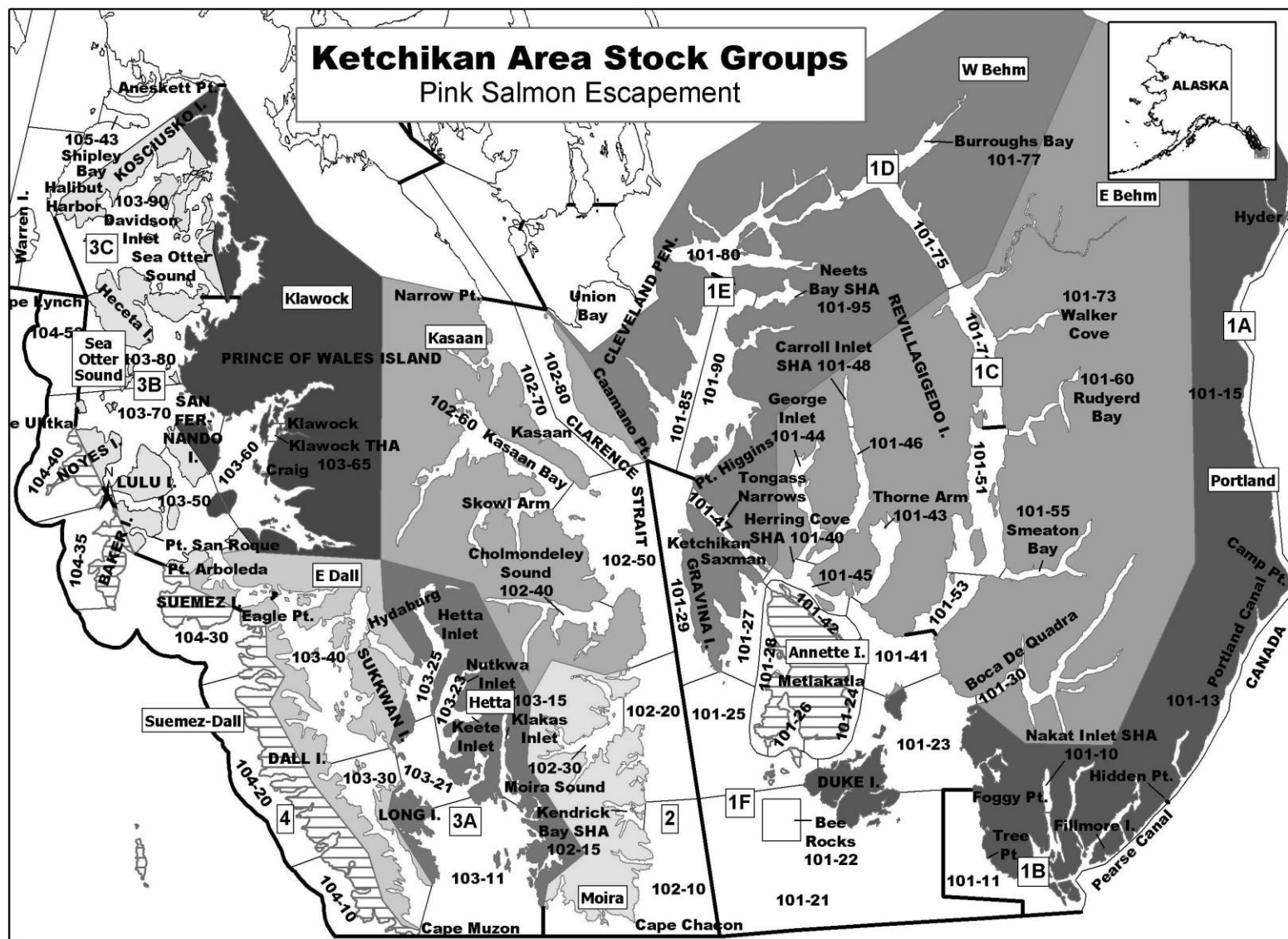
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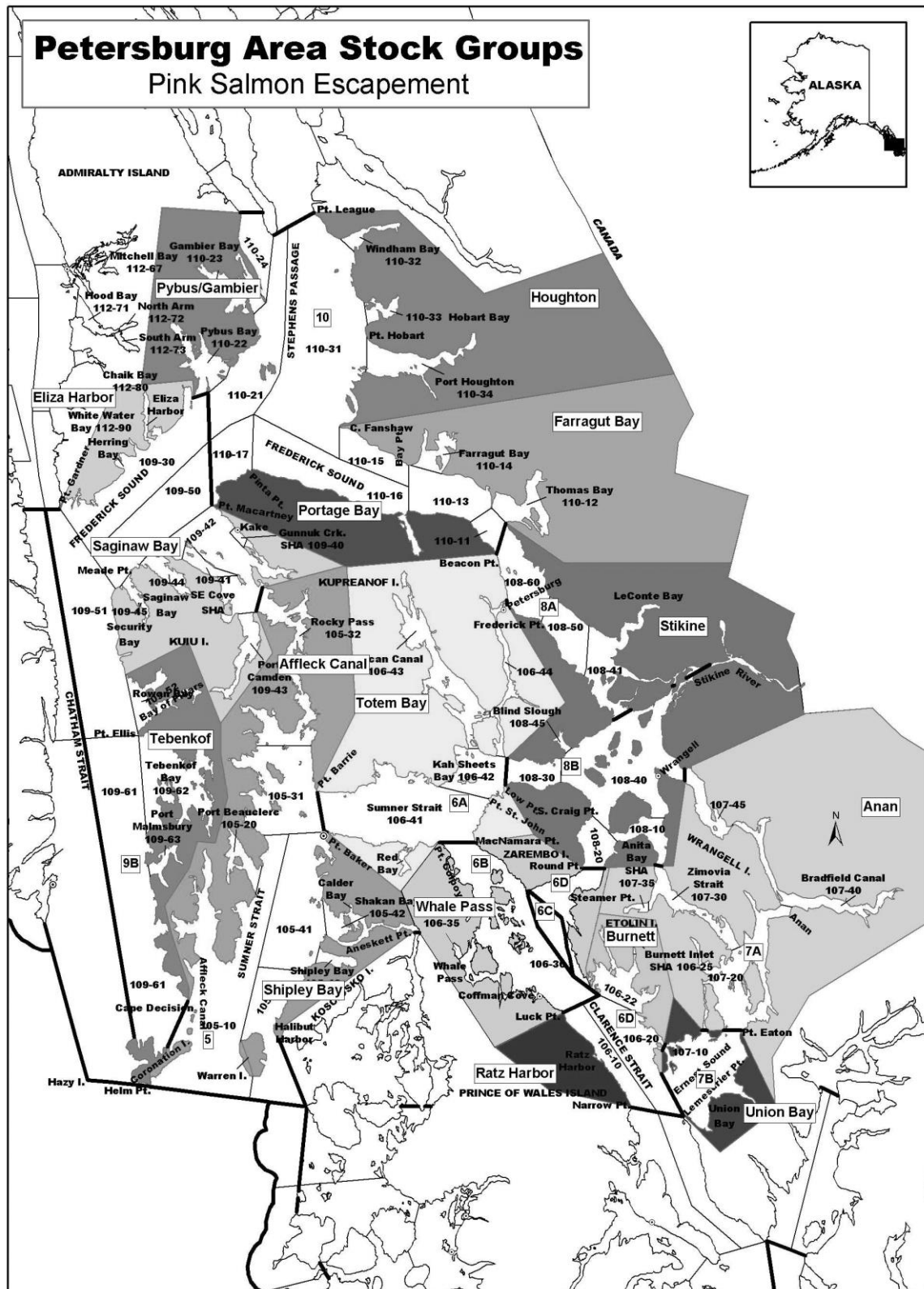
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APPENDIX A
ADF&G PINK SALMON STOCK GROUP MAPS IN
SOUTHERN SOUTHEAST ALASKA

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Appendix A2.—The ADF&G Petersburg salmon management area and associated pink salmon escapement stock groups.



APPENDIX B
PINK SALMON ESCAPEMENT AND HARVEST IN
SOUTHERN SOUTHEAST ALASKA

Appendix B1.–Southern Southeast Alaska pink salmon escapement index in millions of index fish, 1960–2018.

| BEG Lower Range | 3.00 |
|------------------------|-------------|
| BEG Upper Range | 8.00 |
| 1960 | 0.66 |
| 1961 | 1.22 |
| 1962 | 2.91 |
| 1963 | 2.50 |
| 1964 | 2.90 |
| 1965 | 2.32 |
| 1966 | 3.40 |
| 1967 | 1.48 |
| 1968 | 2.99 |
| 1969 | 1.72 |
| 1970 | 2.57 |
| 1971 | 2.90 |
| 1972 | 2.45 |
| 1973 | 2.42 |
| 1974 | 2.25 |
| 1975 | 3.26 |
| 1976 | 3.39 |
| 1977 | 5.04 |
| 1978 | 4.22 |
| 1979 | 3.43 |
| 1980 | 4.84 |
| 1981 | 4.68 |
| 1982 | 4.04 |
| 1983 | 6.52 |
| 1984 | 7.67 |
| 1985 | 9.95 |
| 1986 | 11.42 |
| 1987 | 4.51 |
| 1988 | 3.27 |
| 1989 | 7.33 |
| 1990 | 5.14 |
| 1991 | 5.63 |
| 1992 | 5.49 |
| 1993 | 6.47 |
| 1994 | 5.27 |
| 1995 | 7.79 |
| 1996 | 11.90 |
| 1997 | 5.97 |
| 1998 | 6.95 |
| 1999 | 11.28 |
| 2000 | 5.40 |
| 2001 | 10.99 |
| 2002 | 8.85 |
| 2003 | 9.78 |
| 2004 | 8.26 |
| 2005 | 9.40 |
| 2006 | 4.33 |
| 2007 | 10.59 |
| 2008 | 6.29 |
| 2009 | 7.20 |
| 2010 | 5.94 |
| 2011 | 5.50 |
| 2012 | 6.47 |
| 2013 | 14.45 |
| 2014 | 9.65 |
| 2015 | 4.30 |
| 2016 | 6.60 |
| 2017 | 6.39 |
| 2018 | 4.87 |

Appendix B2.–Southern Southeast Alaska pink salmon escapement index series and management target ranges by district (in millions of index fish), 1960–2018.

| Management Target | 101 | 102 | 103 | 105 | 106 | 107 | 108 |
|-------------------|------|------|------|------|------|------|------|
| Lower | 1.02 | 0.29 | 0.95 | 0.25 | 0.21 | 0.26 | 0.02 |
| Upper | 2.71 | 0.77 | 2.54 | 0.66 | 0.57 | 0.69 | 0.06 |
| 1960 | 0.24 | 0.06 | 0.18 | 0.08 | 0.04 | 0.05 | 0.00 |
| 1961 | 0.31 | 0.10 | 0.37 | 0.13 | 0.16 | 0.11 | 0.04 |
| 1962 | 0.79 | 0.21 | 0.73 | 0.41 | 0.31 | 0.45 | 0.01 |
| 1963 | 0.73 | 0.23 | 0.77 | 0.24 | 0.20 | 0.28 | 0.04 |
| 1964 | 0.77 | 0.28 | 0.73 | 0.36 | 0.38 | 0.34 | 0.04 |
| 1965 | 0.39 | 0.18 | 0.80 | 0.45 | 0.29 | 0.20 | 0.01 |
| 1966 | 0.98 | 0.35 | 0.92 | 0.39 | 0.33 | 0.41 | 0.03 |
| 1967 | 0.43 | 0.14 | 0.47 | 0.22 | 0.11 | 0.09 | 0.01 |
| 1968 | 0.92 | 0.26 | 0.80 | 0.39 | 0.35 | 0.21 | 0.05 |
| 1969 | 0.49 | 0.23 | 0.51 | 0.15 | 0.12 | 0.20 | 0.01 |
| 1970 | 0.87 | 0.18 | 0.80 | 0.21 | 0.18 | 0.30 | 0.04 |
| 1971 | 0.71 | 0.36 | 0.88 | 0.29 | 0.27 | 0.36 | 0.03 |
| 1972 | 0.86 | 0.19 | 0.63 | 0.20 | 0.19 | 0.36 | 0.02 |
| 1973 | 0.73 | 0.24 | 0.66 | 0.25 | 0.31 | 0.20 | 0.02 |
| 1974 | 0.82 | 0.21 | 0.61 | 0.14 | 0.22 | 0.24 | 0.01 |
| 1975 | 0.99 | 0.44 | 0.93 | 0.22 | 0.32 | 0.34 | 0.01 |
| 1976 | 1.06 | 0.38 | 1.01 | 0.14 | 0.44 | 0.36 | 0.02 |
| 1977 | 1.87 | 0.45 | 1.23 | 0.27 | 0.31 | 0.89 | 0.03 |
| 1978 | 1.59 | 0.38 | 1.33 | 0.27 | 0.24 | 0.40 | 0.01 |
| 1979 | 0.73 | 0.41 | 1.22 | 0.31 | 0.29 | 0.41 | 0.06 |
| 1980 | 1.80 | 0.46 | 1.62 | 0.24 | 0.33 | 0.36 | 0.04 |
| 1981 | 1.51 | 0.33 | 1.89 | 0.38 | 0.30 | 0.24 | 0.03 |
| 1982 | 1.39 | 0.28 | 1.40 | 0.24 | 0.31 | 0.36 | 0.06 |
| 1983 | 2.20 | 0.79 | 2.14 | 0.48 | 0.44 | 0.41 | 0.05 |
| 1984 | 3.16 | 0.72 | 2.54 | 0.46 | 0.33 | 0.42 | 0.04 |
| 1985 | 3.20 | 0.79 | 3.66 | 0.67 | 0.82 | 0.77 | 0.05 |
| 1986 | 4.03 | 0.95 | 4.46 | 0.65 | 0.72 | 0.56 | 0.06 |
| 1987 | 1.83 | 0.38 | 1.57 | 0.17 | 0.22 | 0.30 | 0.05 |
| 1988 | 1.14 | 0.38 | 1.07 | 0.19 | 0.21 | 0.26 | 0.02 |
| 1989 | 2.39 | 0.57 | 2.50 | 0.45 | 0.52 | 0.83 | 0.08 |
| 1990 | 1.59 | 0.47 | 1.77 | 0.41 | 0.47 | 0.38 | 0.06 |
| 1991 | 1.42 | 0.51 | 1.97 | 0.63 | 0.41 | 0.58 | 0.11 |
| 1992 | 2.63 | 0.71 | 1.23 | 0.14 | 0.19 | 0.53 | 0.06 |
| 1993 | 1.77 | 0.61 | 2.42 | 0.58 | 0.56 | 0.49 | 0.04 |
| 1994 | 1.58 | 0.34 | 1.78 | 0.39 | 0.64 | 0.51 | 0.04 |
| 1995 | 3.10 | 0.50 | 2.63 | 0.53 | 0.60 | 0.39 | 0.03 |
| 1996 | 4.23 | 1.58 | 4.27 | 0.66 | 0.59 | 0.55 | 0.03 |
| 1997 | 2.00 | 0.67 | 1.59 | 0.61 | 0.52 | 0.54 | 0.04 |
| 1998 | 2.44 | 0.82 | 2.19 | 0.40 | 0.56 | 0.51 | 0.04 |
| 1999 | 2.58 | 1.23 | 3.30 | 1.70 | 1.56 | 0.83 | 0.07 |
| 2000 | 1.73 | 0.89 | 1.70 | 0.33 | 0.30 | 0.43 | 0.01 |
| 2001 | 3.71 | 1.15 | 3.14 | 1.05 | 1.01 | 0.81 | 0.12 |
| 2002 | 3.03 | 1.25 | 2.69 | 0.68 | 0.57 | 0.58 | 0.04 |
| 2003 | 3.17 | 1.13 | 2.67 | 0.97 | 0.89 | 0.79 | 0.15 |
| 2004 | 2.48 | 0.64 | 3.30 | 0.64 | 0.58 | 0.56 | 0.06 |
| 2005 | 2.89 | 1.22 | 2.63 | 1.03 | 0.71 | 0.80 | 0.11 |
| 2006 | 1.36 | 0.63 | 1.33 | 0.24 | 0.34 | 0.37 | 0.05 |
| 2007 | 3.98 | 1.42 | 3.48 | 0.45 | 0.54 | 0.67 | 0.05 |
| 2008 | 2.13 | 0.94 | 1.98 | 0.26 | 0.38 | 0.59 | 0.01 |
| 2009 | 2.66 | 1.06 | 2.32 | 0.38 | 0.32 | 0.43 | 0.03 |
| 2010 | 2.35 | 0.71 | 1.58 | 0.35 | 0.43 | 0.46 | 0.06 |
| 2011 | 2.08 | 0.80 | 1.51 | 0.58 | 0.30 | 0.20 | 0.03 |
| 2012 | 2.90 | 0.83 | 1.72 | 0.29 | 0.28 | 0.42 | 0.02 |
| 2013 | 5.07 | 2.59 | 4.56 | 0.96 | 0.63 | 0.56 | 0.08 |
| 2014 | 4.42 | 1.29 | 2.72 | 0.30 | 0.47 | 0.43 | 0.01 |
| 2015 | 1.18 | 0.69 | 1.35 | 0.45 | 0.28 | 0.32 | 0.04 |
| 2016 | 3.34 | 0.87 | 1.56 | 0.19 | 0.31 | 0.29 | 0.03 |
| 2017 | 1.98 | 0.88 | 2.18 | 0.50 | 0.27 | 0.51 | 0.08 |
| 2018 | 2.04 | 0.25 | 1.42 | 0.28 | 0.33 | 0.53 | 0.02 |

Appendix B3.—Escapement index series and management targets for pink salmon stock groups in the Ketchikan management area, 1960–2018.

| Stock Group | E. Behm | Portland | W. Behm | Kasaan | Moira | E. Dall | Hetta | Klawock | Sea Otter Sound |
|---------------------|------------------|----------------|----------------|----------------|----------------|----------------|----------------|------------------|-----------------|
| Management Area | Ketchikan | Ketchikan | Ketchikan | Ketchikan | Ketchikan | Ketchikan | Ketchikan | Ketchikan | Ketchikan |
| Subregion | SSE ¹ | SSE | SSE | SSE | SSE | SSE | SSE | SSE | SSE |
| District | 1 | 1 | 1 | 2 | 2 | 3 | 3 | 3 | 3 |
| No. of Streams | 41 | 16 | 34 | 28 | 12 | 32 | 15 | 47 | 18 |
| Lower Target | 670,000 | 100,000 | 250,000 | 240,000 | 50,000 | 130,000 | 300,000 | 420,000 | 100,000 |
| Upper Target | 1,770,000 | 280,000 | 660,000 | 640,000 | 130,000 | 360,000 | 790,000 | 1,110,000 | 280,000 |
| 1960 | 177,762 | 15,677 | 47,524 | 48,694 | 10,031 | 29,595 | 22,514 | 114,806 | 15,418 |
| 1961 | 190,729 | 44,518 | 79,186 | 82,099 | 15,787 | 41,190 | 77,649 | 223,948 | 28,660 |
| 1962 | 494,675 | 109,169 | 184,078 | 162,294 | 44,083 | 127,845 | 158,409 | 344,883 | 101,136 |
| 1963 | 415,782 | 150,249 | 167,517 | 179,102 | 49,914 | 83,866 | 241,314 | 377,034 | 65,623 |
| 1964 | 362,407 | 126,098 | 278,438 | 238,199 | 41,836 | 151,831 | 171,108 | 316,618 | 94,581 |
| 1965 | 190,649 | 123,325 | 71,566 | 142,112 | 34,359 | 117,830 | 155,231 | 396,870 | 133,524 |
| 1966 | 541,879 | 160,780 | 282,144 | 279,978 | 67,182 | 131,155 | 222,798 | 414,378 | 147,840 |
| 1967 | 274,793 | 55,330 | 102,635 | 120,129 | 21,111 | 65,940 | 126,628 | 230,205 | 48,313 |
| 1968 | 434,209 | 253,016 | 233,417 | 217,108 | 45,510 | 124,471 | 219,406 | 355,436 | 98,620 |
| 1969 | 291,218 | 75,133 | 123,124 | 207,180 | 26,164 | 73,417 | 111,051 | 267,493 | 56,138 |
| 1970 | 574,954 | 78,351 | 219,415 | 154,966 | 26,303 | 114,748 | 200,292 | 395,666 | 85,561 |
| 1971 | 426,284 | 86,675 | 192,388 | 309,370 | 50,992 | 94,095 | 256,895 | 443,449 | 87,721 |
| 1972 | 511,517 | 139,943 | 206,490 | 157,909 | 33,756 | 84,567 | 152,099 | 328,905 | 65,422 |
| 1973 | 493,350 | 92,631 | 145,144 | 170,175 | 68,941 | 98,027 | 145,135 | 316,629 | 105,086 |
| 1974 | 563,905 | 76,914 | 175,297 | 139,030 | 75,222 | 94,748 | 199,357 | 230,419 | 85,846 |
| 1975 | 677,986 | 122,204 | 185,297 | 345,515 | 98,941 | 127,590 | 298,404 | 342,434 | 166,169 |
| 1976 | 705,487 | 129,350 | 222,197 | 295,889 | 85,020 | 196,788 | 216,352 | 452,477 | 140,045 |
| 1977 | 1,050,919 | 283,948 | 534,872 | 370,922 | 80,294 | 200,353 | 279,569 | 568,795 | 179,246 |
| 1978 | 960,140 | 188,526 | 439,113 | 328,594 | 55,885 | 228,084 | 309,043 | 617,811 | 177,048 |
| 1979 | 328,634 | 40,758 | 361,852 | 366,742 | 45,532 | 175,154 | 258,256 | 630,763 | 155,592 |
| 1980 | 1,102,909 | 137,872 | 563,365 | 348,505 | 107,446 | 332,478 | 421,149 | 687,148 | 174,841 |
| 1981 | 916,630 | 206,445 | 386,107 | 253,952 | 72,403 | 292,054 | 435,151 | 977,223 | 185,718 |
| 1982 | 831,492 | 98,591 | 463,851 | 215,146 | 61,378 | 203,456 | 450,062 | 570,045 | 172,789 |
| 1983 | 1,512,445 | 227,730 | 454,986 | 682,319 | 111,334 | 252,267 | 504,541 | 1,133,029 | 253,631 |
| 1984 | 1,944,340 | 319,785 | 900,031 | 589,139 | 135,556 | 458,267 | 587,422 | 1,291,220 | 204,216 |
| 1985 | 1,635,238 | 436,835 | 1,126,743 | 644,636 | 145,200 | 563,605 | 777,601 | 1,980,094 | 337,400 |
| 1986 | 2,972,027 | 246,917 | 812,796 | 727,851 | 217,642 | 671,939 | 1,179,279 | 2,198,456 | 412,000 |
| 1987 | 1,193,959 | 294,478 | 343,920 | 302,747 | 77,344 | 159,787 | 546,813 | 793,468 | 65,484 |
| 1988 | 881,041 | 102,629 | 157,873 | 244,388 | 138,592 | 223,809 | 387,521 | 374,067 | 82,582 |

¹ SSE = Southern Southeast Subregion

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Appendix B3.—continued (page 2 of 2)

| Stock Group | E. Behm | Portland | W. Behm | Kasaan | Moirra | E. Dall | Hetta | Klawock | Sea Otter Sound |
|---------------------|------------------|----------------|----------------|----------------|----------------|----------------|----------------|------------------|-----------------|
| Management Area | Ketchikan | Ketchikan | Ketchikan | Ketchikan | Ketchikan | Ketchikan | Ketchikan | Ketchikan | Ketchikan |
| Subregion | SSE ¹ | SSE | SSE | SSE | SSE | SSE | SSE | SSE | SSE |
| District | 1 | 1 | 1 | 2 | 2 | 3 | 3 | 3 | 3 |
| No. of Streams | 41 | 16 | 34 | 28 | 12 | 32 | 15 | 47 | 18 |
| Lower Target | 670,000 | 100,000 | 250,000 | 240,000 | 50,000 | 130,000 | 300,000 | 420,000 | 100,000 |
| Upper Target | 1,770,000 | 280,000 | 660,000 | 640,000 | 130,000 | 360,000 | 790,000 | 1,110,000 | 280,000 |
| 1989 | 1,252,591 | 470,927 | 670,662 | 525,579 | 46,192 | 199,110 | 475,862 | 1,656,890 | 163,556 |
| 1990 | 955,415 | 93,081 | 539,208 | 387,781 | 80,443 | 274,125 | 493,803 | 772,110 | 234,031 |
| 1991 | 954,414 | 138,228 | 328,444 | 430,891 | 74,595 | 173,309 | 543,332 | 1,119,384 | 135,890 |
| 1992 | 1,789,005 | 123,521 | 714,492 | 594,910 | 110,210 | 234,098 | 313,004 | 484,713 | 200,144 |
| 1993 | 1,105,713 | 279,700 | 386,450 | 572,800 | 40,550 | 270,031 | 596,193 | 1,418,734 | 136,300 |
| 1994 | 1,197,482 | 134,109 | 247,384 | 268,078 | 74,997 | 249,976 | 489,543 | 780,511 | 257,286 |
| 1995 | 2,080,905 | 327,500 | 691,600 | 378,342 | 124,800 | 375,214 | 835,500 | 1,184,535 | 233,010 |
| 1996 | 3,126,352 | 263,783 | 837,221 | 1,440,395 | 144,483 | 738,609 | 1,518,661 | 1,558,227 | 451,221 |
| 1997 | 1,297,271 | 172,701 | 525,755 | 619,436 | 53,962 | 161,180 | 451,655 | 876,723 | 95,825 |
| 1998 | 1,446,994 | 320,292 | 669,793 | 706,035 | 116,904 | 281,482 | 503,160 | 1,231,699 | 171,668 |
| 1999 | 1,602,403 | 268,371 | 711,714 | 1,038,954 | 195,475 | 274,985 | 1,374,047 | 1,321,969 | 330,960 |
| 2000 | 1,187,349 | 186,759 | 355,116 | 818,729 | 73,930 | 231,491 | 889,726 | 428,055 | 150,552 |
| 2001 | 2,717,693 | 307,792 | 680,731 | 1,053,217 | 98,007 | 343,951 | 488,500 | 1,821,121 | 485,438 |
| 2002 | 1,996,170 | 412,327 | 621,950 | 1,149,593 | 101,561 | 439,418 | 998,994 | 987,733 | 262,986 |
| 2003 | 2,158,576 | 331,150 | 675,373 | 1,027,646 | 107,346 | 253,985 | 474,400 | 1,606,070 | 335,740 |
| 2004 | 1,462,810 | 423,550 | 592,932 | 588,519 | 49,672 | 584,072 | 644,590 | 1,722,373 | 346,700 |
| 2005 | 2,026,508 | 339,694 | 528,558 | 1,095,679 | 123,650 | 317,780 | 833,377 | 1,323,920 | 153,193 |
| 2006 | 1,037,370 | 76,379 | 243,303 | 519,826 | 108,756 | 141,772 | 530,522 | 514,772 | 146,516 |
| 2007 | 2,531,650 | 557,100 | 895,829 | 1,262,000 | 158,000 | 437,883 | 866,119 | 1,968,846 | 209,206 |
| 2008 | 1,373,134 | 54,850 | 700,899 | 733,500 | 211,400 | 251,221 | 849,949 | 758,068 | 123,808 |
| 2009 | 1,785,355 | 299,223 | 576,673 | 933,327 | 130,833 | 326,752 | 579,728 | 1,234,026 | 176,000 |
| 2010 | 1,626,270 | 262,013 | 466,569 | 602,492 | 106,000 | 234,650 | 480,430 | 683,946 | 180,833 |
| 2011 | 1,260,400 | 483,099 | 338,045 | 703,461 | 91,844 | 234,100 | 504,700 | 566,764 | 204,000 |
| 2012 | 1,825,824 | 474,322 | 611,455 | 766,900 | 60,410 | 262,750 | 746,544 | 514,000 | 193,946 |
| 2013 | 2,904,710 | 1,063,332 | 1,097,510 | 1,978,000 | 615,000 | 532,100 | 1,863,500 | 1,787,632 | 373,768 |
| 2014 | 2,829,611 | 690,215 | 895,307 | 1,174,507 | 118,000 | 399,388 | 929,364 | 1,152,250 | 238,000 |
| 2015 | 818,240 | 130,026 | 231,499 | 561,072 | 125,300 | 192,329 | 410,726 | 578,879 | 166,000 |
| 2016 | 2,184,218 | 435,509 | 723,576 | 812,000 | 59,500 | 257,628 | 553,800 | 646,993 | 105,250 |
| 2017 | 1,204,658 | 417,394 | 357,858 | 608,495 | 269,000 | 182,075 | 905,432 | 1,021,688 | 72,618 |
| 2018 | 1,073,570 | 529,456 | 438,944 | 200,733 | 47,000 | 241,823 | 284,450 | 742,315 | 146,850 |

¹ SSE = Southern Southeast Subregion.

Appendix B4.—Escapement index series and management targets for pink salmon stock groups in the Petersburg management area, 1960–2018.

| Stock Group | Affleck Canal | Shipley Bay | Burnett | Ratz Harbor | Totem Bay | Whale Pass | Anan | Union Bay | Stikine |
|---------------------|------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|---------------|
| Management Area | Petersburg | Petersburg | Petersburg | Petersburg | Petersburg | Petersburg | Petersburg | Petersburg | Petersburg |
| Subregion | SSE ¹ | SSE | SSE | SSE | SSE | SSE | SSE | SSE | SSE |
| District | 5 | 5 | 6 | 6 | 6 | 6 | 7 | 7 | 8 |
| No. of Streams | 33 | 12 | 10 | 4 | 13 | 10 | 27 | 8 | 6 |
| Lower Target | 140,000 | 110,000 | 50,000 | 40,000 | 50,000 | 70,000 | 210,000 | 50,000 | 20,000 |
| Upper Target | 380,000 | 280,000 | 140,000 | 120,000 | 130,000 | 180,000 | 570,000 | 120,000 | 60,000 |
| 1960 | 56,874 | 22,310 | 11,550 | 11,093 | 13,166 | 6,429 | 42,794 | 7,955 | 4,087 |
| 1961 | 74,339 | 50,943 | 40,571 | 44,013 | 45,652 | 27,755 | 103,336 | 9,733 | 40,618 |
| 1962 | 315,377 | 97,339 | 42,737 | 40,793 | 87,067 | 138,456 | 405,147 | 46,603 | 11,009 |
| 1963 | 97,325 | 145,371 | 43,516 | 42,059 | 45,197 | 70,966 | 238,163 | 41,490 | 41,166 |
| 1964 | 241,853 | 115,376 | 178,169 | 48,812 | 60,893 | 88,234 | 299,409 | 45,390 | 37,150 |
| 1965 | 153,497 | 295,773 | 74,494 | 87,152 | 49,045 | 79,089 | 154,275 | 47,802 | 9,077 |
| 1966 | 231,652 | 155,599 | 60,480 | 57,336 | 71,513 | 144,414 | 337,890 | 68,023 | 27,104 |
| 1967 | 72,436 | 150,244 | 21,837 | 24,903 | 27,512 | 36,129 | 81,790 | 8,355 | 9,355 |
| 1968 | 184,459 | 207,042 | 122,870 | 50,333 | 98,850 | 82,573 | 183,423 | 26,442 | 49,493 |
| 1969 | 67,882 | 81,999 | 13,503 | 40,617 | 31,524 | 37,848 | 172,749 | 28,544 | 11,397 |
| 1970 | 129,948 | 75,689 | 42,015 | 31,198 | 53,612 | 53,908 | 266,527 | 29,447 | 38,702 |
| 1971 | 138,841 | 150,207 | 45,652 | 62,240 | 51,714 | 113,759 | 297,139 | 64,458 | 28,088 |
| 1972 | 151,062 | 48,888 | 50,854 | 44,876 | 45,620 | 47,925 | 318,011 | 44,942 | 17,595 |
| 1973 | 132,759 | 112,327 | 97,417 | 15,615 | 44,388 | 156,723 | 163,409 | 41,041 | 20,422 |
| 1974 | 98,977 | 41,438 | 50,581 | 37,318 | 35,629 | 95,447 | 202,365 | 37,747 | 9,157 |
| 1975 | 106,500 | 115,722 | 96,097 | 21,500 | 60,761 | 145,081 | 293,493 | 47,928 | 11,919 |
| 1976 | 96,352 | 39,023 | 138,003 | 60,817 | 40,803 | 201,678 | 261,615 | 93,602 | 19,184 |
| 1977 | 109,549 | 158,069 | 110,856 | 69,743 | 54,178 | 72,579 | 752,891 | 136,570 | 26,450 |
| 1978 | 165,405 | 104,074 | 44,248 | 70,400 | 50,147 | 72,002 | 326,129 | 70,541 | 8,154 |
| 1979 | 163,469 | 148,839 | 67,722 | 47,304 | 98,575 | 72,087 | 365,703 | 48,789 | 58,611 |
| 1980 | 156,218 | 78,975 | 66,601 | 77,412 | 75,422 | 112,301 | 281,714 | 79,778 | 35,080 |
| 1981 | 196,117 | 187,128 | 77,582 | 53,653 | 60,233 | 106,979 | 173,749 | 69,910 | 30,113 |
| 1982 | 127,583 | 115,259 | 65,220 | 86,300 | 85,091 | 72,089 | 293,009 | 67,500 | 59,058 |
| 1983 | 281,474 | 203,496 | 115,251 | 66,482 | 99,580 | 163,179 | 331,447 | 78,082 | 51,972 |
| 1984 | 286,050 | 171,794 | 65,811 | 16,300 | 83,180 | 166,773 | 348,254 | 68,997 | 37,607 |
| 1985 | 356,587 | 309,768 | 116,600 | 223,500 | 231,159 | 247,362 | 608,270 | 160,984 | 53,200 |
| 1986 | 445,786 | 206,313 | 132,775 | 196,900 | 143,793 | 244,710 | 371,920 | 183,950 | 59,410 |
| 1987 | 68,864 | 96,521 | 43,665 | 22,510 | 102,391 | 46,517 | 240,188 | 58,600 | 52,209 |
| 1988 | 157,710 | 34,861 | 47,711 | 70,000 | 55,841 | 37,856 | 163,871 | 94,600 | 15,513 |
| 1989 | 229,656 | 220,500 | 83,540 | 141,442 | 126,821 | 165,907 | 628,423 | 197,917 | 76,478 |
| 1990 | 320,857 | 88,806 | 115,300 | 71,300 | 85,607 | 194,488 | 236,062 | 142,004 | 56,136 |

¹ SSE = Southern Southeast Subregion

-continued-

Appendix B4.–continued (page 2 of 2)

| Stock Group | Affleck Canal | Shipley Bay | Burnett | Ratz Harbor | Totem Bay | Whale Pass | Anan | Union Bay | Stikine |
|---------------------|------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|---------------|
| Management Area | Petersburg | Petersburg | Petersburg | Petersburg | Petersburg | Petersburg | Petersburg | Petersburg | Petersburg |
| Subregion | SSE ¹ | SSE | SSE | SSE | SSE | SSE | SSE | SSE | SSE |
| District | 5 | 5 | 6 | 6 | 6 | 6 | 7 | 7 | 8 |
| No. of Streams | 33 | 12 | 10 | 4 | 13 | 10 | 27 | 8 | 6 |
| Lower Target | 140,000 | 110,000 | 50,000 | 40,000 | 50,000 | 70,000 | 210,000 | 50,000 | 20,000 |
| Upper Target | 380,000 | 280,000 | 140,000 | 120,000 | 130,000 | 180,000 | 570,000 | 120,000 | 60,000 |
| 1991 | 249,688 | 375,693 | 121,845 | 67,700 | 124,099 | 96,027 | 457,152 | 125,847 | 114,009 |
| 1992 | 111,985 | 30,386 | 76,973 | 17,500 | 58,711 | 38,045 | 480,860 | 50,618 | 56,504 |
| 1993 | 278,371 | 296,693 | 67,650 | 119,500 | 283,415 | 93,105 | 402,151 | 89,273 | 35,864 |
| 1994 | 251,082 | 134,593 | 172,054 | 107,200 | 82,617 | 273,690 | 402,878 | 107,800 | 35,744 |
| 1995 | 256,297 | 277,912 | 58,250 | 191,700 | 133,828 | 217,765 | 263,085 | 129,691 | 26,186 |
| 1996 | 449,929 | 209,200 | 147,200 | 131,200 | 149,539 | 161,045 | 363,694 | 183,400 | 25,950 |
| 1997 | 319,271 | 290,546 | 128,366 | 70,462 | 132,101 | 188,081 | 485,466 | 57,990 | 44,185 |
| 1998 | 223,369 | 174,409 | 125,780 | 138,300 | 80,728 | 214,377 | 388,962 | 120,063 | 38,002 |
| 1999 | 821,107 | 874,712 | 387,587 | 391,000 | 469,386 | 316,310 | 632,197 | 198,069 | 66,598 |
| 2000 | 214,344 | 118,400 | 120,867 | 56,700 | 79,902 | 47,214 | 358,607 | 72,200 | 12,436 |
| 2001 | 578,079 | 476,567 | 263,219 | 178,800 | 271,757 | 295,729 | 610,633 | 196,732 | 118,313 |
| 2002 | 536,426 | 146,757 | 212,455 | 148,313 | 108,662 | 100,420 | 441,025 | 138,527 | 41,915 |
| 2003 | 396,633 | 578,350 | 203,072 | 247,200 | 154,436 | 282,876 | 631,599 | 158,721 | 154,196 |
| 2004 | 463,593 | 177,835 | 96,600 | 172,000 | 175,843 | 131,787 | 450,034 | 110,842 | 62,188 |
| 2005 | 564,872 | 467,966 | 162,221 | 132,800 | 134,719 | 278,036 | 633,828 | 168,548 | 110,330 |
| 2006 | 140,991 | 96,959 | 70,447 | 101,200 | 72,993 | 99,245 | 274,024 | 97,589 | 54,895 |
| 2007 | 231,447 | 220,266 | 161,032 | 137,950 | 70,771 | 166,498 | 535,219 | 131,031 | 50,525 |
| 2008 | 107,628 | 149,191 | 132,750 | 181,200 | 30,752 | 39,204 | 488,822 | 98,482 | 9,511 |
| 2009 | 188,558 | 190,990 | 88,327 | 86,300 | 44,075 | 103,505 | 355,772 | 72,826 | 29,498 |
| 2010 | 206,291 | 142,859 | 128,350 | 118,600 | 94,069 | 90,770 | 341,055 | 122,274 | 55,300 |
| 2011 | 347,775 | 230,003 | 38,349 | 88,000 | 84,676 | 89,684 | 127,211 | 71,112 | 34,500 |
| 2012 | 209,649 | 75,409 | 75,166 | 89,400 | 49,638 | 67,917 | 327,410 | 96,062 | 22,640 |
| 2013 | 554,918 | 409,800 | 175,193 | 192,400 | 127,479 | 135,987 | 417,989 | 138,984 | 79,840 |
| 2014 | 209,065 | 88,285 | 146,750 | 160,400 | 49,470 | 117,387 | 292,477 | 141,850 | 13,250 |
| 2015 | 329,978 | 118,838 | 69,531 | 63,750 | 49,737 | 94,771 | 240,028 | 76,568 | 38,400 |
| 2016 | 103,817 | 81,600 | 101,328 | 70,750 | 63,970 | 74,600 | 222,924 | 67,750 | 33,900 |
| 2017 | 259,502 | 236,084 | 51,569 | 56,500 | 87,668 | 72,043 | 406,898 | 99,300 | 79,683 |
| 2018 | 113,122 | 170,100 | 77,769 | 59,500 | 55,232 | 137,683 | 470,082 | 58,988 | 20,719 |

¹ SSE = Southern Southeast Subregion.

Appendix B5.—Harvest of pink salmon by statistical week in the Southern Southeast Alaska Subregion for all fisheries combined, 1960–2018.

| Year | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | Total ^a |
|------|---------|---------|-----------|-----------|-----------|------------|------------|-----------|-----------|-----------|--------------------|
| 1960 | 1,252 | 14,121 | 23,046 | 414,877 | 125,645 | 96,220 | 59,276 | 157,448 | 342,958 | 155,543 | 1,439,666 |
| 1961 | 3,469 | 6,735 | 40,136 | 43,931 | 263,849 | 599,186 | 1,149,259 | 1,115,690 | 352,126 | 65,296 | 3,771,200 |
| 1962 | 20,897 | 575,328 | 891,747 | 702,082 | 757,687 | 1,417,195 | 1,772,165 | 2,007,128 | 1,600,594 | 622,006 | 10,740,428 |
| 1963 | 9,005 | 20,604 | 37,077 | 280,049 | 1,043,840 | 1,004,122 | 1,217,210 | 841,911 | 535,161 | 63,755 | 5,136,144 |
| 1964 | 6,551 | 179,184 | 507,540 | 510,094 | 980,640 | 1,666,860 | 2,260,415 | 2,596,724 | 1,289,686 | 955,400 | 11,257,947 |
| 1965 | 2,456 | 21,331 | 76,557 | 344,563 | 331,750 | 564,025 | 1,433,003 | 1,452,150 | 1,064,752 | 366,035 | 5,710,458 |
| 1966 | 14,489 | 522,521 | 861,003 | 569,782 | 1,111,246 | 2,053,525 | 2,449,630 | 2,759,004 | 3,433,531 | 1,479,650 | 15,561,555 |
| 1967 | 3,830 | 13,231 | 41,734 | 93,915 | 260,092 | 140,096 | 71,402 | 553 | 1,792 | 3,521 | 641,540 |
| 1968 | 201,150 | 356,060 | 712,190 | 562,156 | 836,231 | 1,162,043 | 3,870,635 | 4,050,829 | 2,608,917 | 627,979 | 15,193,876 |
| 1969 | 5,855 | 9,128 | 45,364 | 89,985 | 228,045 | 520,698 | 240,265 | 54,626 | 1,633 | 855 | 1,199,140 |
| 1970 | 31,015 | 370,306 | 503,572 | 360,484 | 357,903 | 330,550 | 693,210 | 1,624,624 | 940,026 | 122,839 | 5,370,759 |
| 1971 | 2,782 | 4,362 | 25,128 | 48,516 | 81,406 | 122,133 | 884,213 | 1,939,705 | 1,436,638 | 1,176,309 | 6,259,244 |
| 1972 | 21,518 | 554,584 | 918,986 | 1,180,265 | 864,929 | 1,125,061 | 1,214,674 | 1,789,962 | 866,655 | 466,049 | 9,152,645 |
| 1973 | 10,739 | 62,249 | 317,092 | 542,771 | 1,097,215 | 1,608,700 | 619,689 | 216,916 | 42,266 | 25,539 | 4,558,505 |
| 1974 | 15,048 | 17,994 | 192,044 | 185,214 | 387,416 | 822,923 | 884,153 | 855,700 | 717,112 | 121,732 | 4,220,805 |
| 1975 | 17,682 | 30,980 | 77,015 | 11,062 | 6,310 | 908,924 | 1,158,544 | 762,783 | 338,438 | 289 | 3,332,982 |
| 1976 | 12,895 | 21,015 | 94,778 | 235,984 | 57,404 | 88,676 | 336,563 | 755,926 | 1,905,959 | 1,175,120 | 5,161,936 |
| 1977 | 38,211 | 157,862 | 577,961 | 787,436 | 2,868,582 | 3,651,723 | 2,387,388 | 518,598 | 189,009 | 105,362 | 11,298,253 |
| 1978 | 114,316 | 435,843 | 860,152 | 1,733,756 | 3,863,745 | 2,148,312 | 4,423,833 | 3,350,278 | 1,323,362 | 114,070 | 18,424,978 |
| 1979 | 77,453 | 285,765 | 740,937 | 744,074 | 464,218 | 2,266,879 | 1,969,188 | 399,751 | 16,993 | 764 | 6,989,781 |
| 1980 | 29,458 | 200,087 | 229,246 | 309,055 | 697,583 | 2,447,867 | 3,745,608 | 3,662,877 | 1,289,489 | 290,327 | 12,924,273 |
| 1981 | 21,709 | 236,227 | 226,523 | 460,709 | 1,632,955 | 4,819,424 | 4,449,997 | 1,199,597 | 322,914 | 145,278 | 13,524,934 |
| 1982 | 25,419 | 104,385 | 227,077 | 251,062 | 194,315 | 725,186 | 2,134,365 | 2,612,464 | 2,779,676 | 3,335,280 | 12,961,072 |
| 1983 | 60,020 | 255,935 | 487,385 | 1,698,717 | 5,624,186 | 6,024,283 | 9,325,737 | 4,728,897 | 2,731,590 | 476,982 | 31,461,882 |
| 1984 | 70,893 | 373,620 | 995,346 | 1,097,137 | 2,274,889 | 4,119,659 | 4,746,400 | 4,043,517 | 1,602,542 | 277,461 | 19,676,515 |
| 1985 | 42,943 | 123,868 | 350,640 | 846,141 | 1,978,744 | 6,383,526 | 8,774,755 | 9,140,442 | 2,674,277 | 353,053 | 30,712,155 |
| 1986 | 17,761 | 178,267 | 685,501 | 2,361,520 | 4,223,500 | 11,411,143 | 10,327,554 | 6,298,081 | 7,948,314 | 1,502,215 | 45,019,457 |
| 1987 | 23,690 | 100,332 | 310,473 | 602,295 | 465,904 | 1,724,192 | 727,012 | 328,180 | 155,255 | 146,759 | 4,631,329 |
| 1988 | 2,487 | 59,951 | 276,327 | 232,023 | 224,497 | 1,040,696 | 2,046,956 | 1,362,835 | 2,675,243 | 764,029 | 9,054,789 |
| 1989 | 63,937 | 472,516 | 2,084,025 | 5,694,928 | 8,477,888 | 11,315,173 | 10,462,673 | 4,326,184 | 2,746,942 | 94,536 | 45,763,480 |

^aTotal includes small harvests before and after weeks 27–36.

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Appendix B5.—continued (page 2 of 2)

| Year | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | Total ^a |
|------|---------|-----------|-----------|-----------|------------|------------|------------|-----------|------------|-----------|--------------------|
| 1990 | 78,736 | 195,215 | 433,690 | 689,328 | 3,031,519 | 4,708,680 | 9,637,342 | 5,248,315 | 2,473,260 | 150,147 | 26,683,252 |
| 1991 | 18,972 | 286,039 | 1,471,030 | 1,963,770 | 10,621,190 | 11,330,908 | 7,478,707 | 6,948,165 | 2,843,641 | 510,765 | 43,497,275 |
| 1992 | 45,479 | 533,205 | 732,118 | 543,337 | 2,480,476 | 4,497,734 | 3,905,899 | 3,380,048 | 2,742,039 | 125,471 | 19,009,576 |
| 1993 | 66,946 | 521,809 | 548,613 | 1,092,031 | 3,555,505 | 4,960,306 | 9,205,826 | 7,815,877 | 7,194,508 | 3,944,764 | 39,218,951 |
| 1994 | 22,055 | 169,616 | 500,080 | 368,020 | 1,274,171 | 4,352,741 | 5,301,919 | 4,251,415 | 3,548,219 | 1,252,452 | 21,060,265 |
| 1995 | 189,099 | 205,812 | 281,598 | 1,042,520 | 2,336,428 | 8,233,242 | 13,018,105 | 9,311,050 | 5,353,637 | 1,221,464 | 41,315,465 |
| 1996 | 49,535 | 834,299 | 2,048,421 | 2,351,256 | 7,252,462 | 13,493,739 | 11,370,546 | 7,564,821 | 8,033,452 | 626,880 | 53,676,323 |
| 1997 | 42,575 | 594,857 | 1,280,428 | 1,538,333 | 3,753,813 | 2,299,391 | 3,481,773 | 1,893,653 | 343,758 | 28,696 | 15,298,105 |
| 1998 | 22,288 | 155,104 | 252,534 | 1,306,760 | 2,812,067 | 5,866,820 | 6,065,777 | 5,434,380 | 1,491,589 | 324,889 | 23,748,765 |
| 1999 | 24,945 | 237,046 | 337,023 | 1,792,244 | 2,261,977 | 5,139,989 | 6,937,659 | 8,012,513 | 10,221,774 | 3,692,003 | 38,857,000 |
| 2000 | 7,649 | 123,520 | 268,932 | 547,924 | 1,196,895 | 1,623,293 | 4,320,879 | 3,038,376 | 1,189,369 | 34,185 | 12,376,777 |
| 2001 | 280,974 | 856,548 | 2,061,923 | 3,404,943 | 8,110,369 | 11,418,950 | 11,005,019 | 7,669,803 | 5,667,846 | 1,160,118 | 52,011,540 |
| 2002 | 91,445 | 164,201 | 387,246 | 681,728 | 2,629,846 | 5,465,177 | 5,115,598 | 6,395,650 | 2,242,528 | 120,825 | 23,319,261 |
| 2003 | 333,872 | 1,050,417 | 1,317,156 | 3,049,874 | 6,040,415 | 6,706,239 | 5,071,435 | 4,159,979 | 1,373,365 | 82,753 | 29,277,547 |
| 2004 | 28,823 | 226,138 | 448,662 | 1,120,042 | 2,251,280 | 5,068,060 | 5,879,436 | 4,363,041 | 1,417,501 | 112,907 | 20,924,256 |
| 2005 | 134,816 | 604,072 | 1,119,136 | 2,820,797 | 5,694,275 | 6,524,427 | 5,630,156 | 4,474,893 | 1,496,560 | 301,113 | 28,864,281 |
| 2006 | 46,970 | 165,444 | 323,378 | 598,579 | 853,094 | 716,417 | 284,125 | 225,704 | 27,300 | 16,463 | 3,267,182 |
| 2007 | 103,821 | 393,729 | 575,722 | 1,587,704 | 6,392,135 | 10,870,698 | 8,356,984 | 2,504,652 | 916,894 | 10,693 | 31,776,856 |
| 2008 | 32,277 | 114,560 | 285,383 | 340,932 | 380,717 | 1,724,447 | 5,406,558 | 4,122,926 | 962,405 | 230,917 | 13,638,249 |
| 2009 | 98,289 | 268,039 | 1,477,425 | 1,740,066 | 4,931,971 | 6,214,551 | 5,856,732 | 4,029,940 | 1,781,105 | 18,411 | 26,425,304 |
| 2010 | 62,879 | 140,203 | 334,347 | 417,349 | 1,530,384 | 3,099,528 | 3,586,302 | 2,923,880 | 1,330,078 | 245,885 | 13,694,673 |
| 2011 | 34,021 | 211,543 | 334,351 | 637,406 | 551,293 | 1,821,132 | 2,282,152 | 2,130,811 | 1,892,686 | 1,161,366 | 11,207,085 |
| 2012 | 200,650 | 212,235 | 291,740 | 993,756 | 3,199,730 | 7,519,028 | 4,462,144 | 1,512,265 | 168,991 | 11,109 | 18,586,213 |
| 2013 | 283,068 | 1,300,867 | 1,765,303 | 4,092,852 | 10,667,122 | 11,284,224 | 11,659,788 | 7,675,815 | 4,011,987 | 684,003 | 53,463,227 |
| 2014 | 94,687 | 637,588 | 2,222,577 | 3,491,929 | 6,248,727 | 9,817,940 | 6,486,347 | 3,566,347 | 624,952 | 16,610 | 33,213,584 |
| 2015 | 56,137 | 255,397 | 213,530 | 729,031 | 2,045,116 | 3,935,222 | 2,458,358 | 1,395,623 | 1,125,205 | 204,683 | 12,468,441 |
| 2016 | 80,980 | 777,533 | 2,173,148 | 2,073,275 | 2,772,784 | 4,912,446 | 2,277,181 | 1,049,691 | 90,974 | 42,926 | 16,269,948 |
| 2017 | 158,851 | 204,541 | 443,358 | 261,794 | 511,331 | 1,124,505 | 1,676,433 | 3,365,916 | 1,213,732 | 412,220 | 9,415,126 |
| 2018 | 14,894 | 66,417 | 341,539 | 848,414 | 1,143,923 | 1,501,791 | 1,123,268 | 305,216 | 37,768 | 11,710 | 5,398,004 |

^aTotal includes small harvests before and after week 27–36.

Appendix B6.—Harvest of pink salmon by statistical week in the Subdistrict 104-10 purse seine fishery, 1960–2018 (– indicates no effort or harvest).

| Year | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | Total |
|------|-------|--------|--------|---------|---------|-----------|---------|---------|---------|---------|-------|-----------|
| 1960 | – | – | 72 | – | 97 | 6 | 9 | – | – | – | – | 184 |
| 1961 | – | – | – | – | – | – | – | – | – | – | – | 0 |
| 1962 | – | – | – | – | – | – | – | – | – | – | – | 0 |
| 1963 | – | – | – | – | – | 8,426 | 38,209 | 13,741 | – | – | – | 60,376 |
| 1964 | – | – | – | 58 | – | – | – | – | – | – | – | 58 |
| 1965 | – | – | – | – | 46 | – | 18,200 | 1,811 | – | – | – | 20,057 |
| 1966 | – | – | – | – | 738 | – | 30,052 | 23,319 | 10,920 | – | – | 65,029 |
| 1967 | – | – | – | – | – | – | – | – | – | – | – | 0 |
| 1968 | – | – | – | – | – | – | 1,576 | – | – | – | – | 1,576 |
| 1969 | – | – | – | – | – | 293 | – | – | – | – | – | 293 |
| 1970 | – | – | – | – | 715 | – | – | – | – | – | – | 715 |
| 1971 | – | – | – | – | – | – | – | – | – | – | – | 0 |
| 1972 | – | – | – | – | – | 1,653 | 579 | 3,260 | 315 | – | 1,046 | 6,853 |
| 1973 | – | – | – | 4,353 | 17,930 | – | – | – | – | – | – | 22,283 |
| 1974 | – | – | 951 | – | 4,866 | 26,867 | 3,960 | 3,223 | – | – | – | 39,867 |
| 1975 | – | – | – | – | – | – | – | – | – | – | – | 0 |
| 1976 | – | 35 | 100 | 8,703 | – | – | – | – | – | – | – | 8,838 |
| 1977 | – | 6,195 | 35,250 | 18,771 | 12,650 | 35,876 | 4,778 | – | 3,517 | – | – | 117,037 |
| 1978 | 1,597 | 22 | 305 | – | 3,855 | 4,080 | – | 3,100 | 5,982 | – | – | 18,941 |
| 1979 | 743 | 2,670 | 14,642 | 23,659 | 10,746 | – | 6,273 | 1,571 | – | – | – | 60,304 |
| 1980 | – | 3,937 | 8,984 | 5,950 | 40,376 | 125,187 | 35,897 | 40,420 | – | 250 | – | 261,001 |
| 1981 | – | 10,839 | 18,343 | 140,979 | 221,225 | 307,923 | 135,687 | 49,382 | 4,074 | – | – | 888,452 |
| 1982 | – | 4,567 | 24,454 | 21,058 | 2,734 | 18,877 | 12,983 | 27,258 | 126,551 | 114,992 | – | 353,474 |
| 1983 | – | 66,182 | 42,838 | 174,852 | 554,631 | 972,103 | 758,558 | – | – | – | – | 2,569,164 |
| 1984 | 3,155 | 5,333 | 55,559 | 102,827 | 207,698 | 191,605 | 276,265 | 284,586 | 5,142 | – | – | 1,132,170 |
| 1985 | – | 7,729 | 12,201 | 50,695 | 123,427 | 301,976 | 5,224 | 41,890 | – | – | – | 543,142 |
| 1986 | – | 13,440 | 61,586 | 197,587 | 576,154 | 1,291,027 | 395,515 | 529,864 | 404,906 | 43,088 | – | 3,513,167 |
| 1987 | – | 4,448 | 15,367 | 24,299 | 22,213 | 118,454 | 39,450 | 40,032 | – | – | – | 264,263 |
| 1988 | – | 3,298 | 11,881 | 17,836 | 2,777 | 39,587 | 135,262 | 60,004 | 81,125 | 18,175 | – | 369,945 |
| 1989 | 1,008 | 14,941 | 84,769 | 238,156 | 769,268 | 819,086 | 958,723 | 229,181 | 129,428 | – | – | 3,244,560 |

-continued-

Appendix B6.—continued (page 2 of 2)

| Year | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | Total |
|------|--------|--------|---------|---------|-----------|-----------|---------|---------|---------|---------|--------|-----------|
| 1990 | 15,683 | 16,137 | 24,693 | — | 305,713 | 363,357 | 578,373 | 313,053 | 96,375 | — | — | 1,713,384 |
| 1991 | — | 48,299 | 153,095 | 127,674 | 1,422,712 | 1,115,567 | 608,721 | 579,217 | 240,300 | 88,433 | — | 4,384,018 |
| 1992 | — | 7,627 | 19,769 | 15,324 | 273,934 | 494,170 | 420,357 | 327,302 | 183,567 | — | — | 1,742,050 |
| 1993 | — | 49,356 | 35,219 | 86,935 | 289,497 | 265,010 | 323,265 | 266,851 | 294,612 | 158,018 | — | 1,768,763 |
| 1994 | — | 6,852 | 12,321 | 60,259 | 234,574 | 510,671 | 538,213 | 394,189 | 258,239 | 90,710 | — | 2,106,028 |
| 1995 | 1,255 | 675 | 8,772 | 38,563 | 139,397 | 370,265 | 718,734 | 712,401 | 339,806 | 210,651 | — | 2,540,519 |
| 1996 | — | 99,366 | 89,711 | — | 477,134 | 1,214,012 | 657,763 | 347,646 | 613,476 | 125,442 | — | 3,624,550 |
| 1997 | — | 58,731 | 133,119 | 136,319 | 241,090 | 232,198 | 224,911 | 91,184 | — | — | — | 1,117,552 |
| 1998 | — | 4,109 | 5,455 | 6,420 | 214,809 | 444,090 | 471,495 | 387,757 | 95,120 | — | — | 1,629,255 |
| 1999 | — | 2,062 | 4,203 | 19,258 | 70,591 | 456,273 | 525,209 | 514,824 | 550,175 | 81,731 | 52,101 | 2,276,427 |
| 2000 | — | 2,311 | 2,493 | 6,017 | 48,520 | 187,637 | 253,354 | 103,620 | 503 | — | — | 604,455 |
| 2001 | 22,514 | 66,708 | 38,735 | 48,256 | 641,269 | 456,537 | 372,590 | 188,484 | 9,681 | — | — | 1,844,774 |
| 2002 | — | 11,328 | 9,154 | 15,205 | 14,838 | — | 110 | — | — | — | — | 50,635 |
| 2003 | — | 1,846 | 42,660 | 91,900 | 319,292 | 386,971 | 91,486 | 125,940 | 20,667 | — | — | 1,080,762 |
| 2004 | — | 2,679 | 3,213 | 68,858 | 130,566 | 51,185 | 131,655 | 82,232 | 14,253 | — | — | 484,641 |
| 2005 | — | 5,159 | 17,791 | 96,901 | 205,539 | 233,532 | 142,649 | 104,432 | 17,455 | — | — | 823,458 |
| 2006 | 576 | — | 18,248 | 11,423 | 4,456 | 14,015 | 3,933 | 4,579 | — | — | — | 57,230 |
| 2007 | 3,391 | 7,402 | 20,726 | 109,847 | 414,063 | 267,215 | 25,129 | — | 39,422 | — | — | 887,195 |
| 2008 | — | 94 | 10 | 103 | 7 | — | 108,726 | 48,784 | 0 | 2,358 | — | 160,082 |
| 2009 | — | 2,225 | 24,775 | 88,302 | 109,922 | 181,751 | 25,517 | 39,722 | 7,355 | — | — | 479,569 |
| 2010 | — | — | 447 | — | 30 | — | 15,164 | — | 5,283 | — | — | 20,924 |
| 2011 | — | 473 | 19,199 | 63,244 | 41,722 | 70,060 | 160,582 | 807 | 20,579 | 23,238 | 1,032 | 400,936 |
| 2012 | — | 1,203 | 13,348 | 26,893 | 40,074 | 162,551 | 395,139 | 93,553 | 3,553 | — | — | 736,314 |
| 2013 | — | 31,185 | 1,917 | 26,715 | 218,370 | 361,155 | 518,798 | 211,932 | 169,011 | 27,279 | — | 1,566,362 |
| 2014 | — | 1,451 | 49,805 | 120,622 | 317,465 | 1,027,002 | 386,247 | 99,431 | 29,126 | — | — | 2,031,149 |
| 2015 | — | 1,752 | 1,586 | 17,224 | 78,036 | 258,344 | 95,522 | 32,817 | 54,886 | — | — | 540,167 |
| 2016 | — | 41,273 | 187,037 | 34,229 | 73,595 | 261,516 | 59,932 | 16,467 | — | — | — | 674,049 |
| 2017 | — | — | 24,629 | 7,106 | 26,884 | 77,315 | 40,072 | 105,293 | 140,009 | 6,697 | — | 428,005 |
| 2018 | — | — | 14,606 | 45,172 | 19,391 | 50,710 | 18,903 | 14,300 | — | — | — | 163,082 |

Appendix B7.–Harvest of pink salmon by statistical week in the Subdistrict 104-20 purse seine fishery, 1960–2018 (– indicates no effort or harvest).

100

| Year | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | Total |
|------|-------|--------|--------|---------|---------|-----------|-----------|---------|---------|---------|----|-----------|
| 1960 | – | – | 18 | – | 24 | 220 | 2 | 52 | 210 | 12 | – | 538 |
| 1961 | – | – | – | – | – | 381 | 580 | 313 | – | – | – | 1,274 |
| 1962 | – | – | – | – | – | – | – | – | 879 | – | – | 879 |
| 1963 | – | – | – | – | – | 214,159 | 111,776 | 871 | 60 | – | – | 326,866 |
| 1964 | – | – | – | 53 | – | – | 333 | – | – | – | – | 386 |
| 1965 | – | – | – | – | 274 | 4,572 | 7,200 | – | – | – | – | 12,046 |
| 1966 | – | – | – | – | – | – | 10,335 | 8,065 | – | – | – | 18,400 |
| 1967 | – | – | – | – | – | 277 | 112 | – | – | – | – | 389 |
| 1968 | – | – | – | – | 20,718 | 32 | 3,125 | – | 76,688 | – | – | 100,563 |
| 1969 | – | – | – | – | – | – | 272 | – | – | – | – | 272 |
| 1970 | – | – | – | – | 1,597 | 2,209 | – | – | – | – | – | 3,806 |
| 1971 | – | – | – | – | – | – | – | – | – | – | – | 0 |
| 1972 | – | – | 1,189 | – | – | – | – | – | 6,212 | – | – | 7,401 |
| 1973 | – | – | – | 8,862 | 25,348 | 10,403 | – | – | – | – | – | 44,613 |
| 1974 | – | 103 | 252 | – | 2,245 | 31,427 | 941 | 20,341 | – | – | – | 55,309 |
| 1975 | – | – | – | – | – | – | – | – | – | – | – | 0 |
| 1976 | – | 7 | 145 | – | – | – | – | – | – | – | – | 152 |
| 1977 | – | 365 | – | 10,635 | – | 15,194 | 11,273 | – | 470 | – | – | 37,937 |
| 1978 | 88 | – | 4 | 119 | 6,861 | 6,853 | 33,811 | 0 | – | – | – | 47,736 |
| 1979 | – | 736 | 3,128 | 11,223 | 4,288 | – | 1,727 | 0 | – | – | – | 21,102 |
| 1980 | – | – | 1 | 76 | 770 | 58,078 | – | 4,187 | – | – | – | 63,112 |
| 1981 | – | 1,779 | 750 | – | 6,500 | 81,028 | 21,063 | 164 | – | – | – | 111,284 |
| 1982 | – | 1,586 | 524 | 2,953 | 447 | 51,766 | 261,101 | 16,228 | 25,904 | 94,185 | – | 454,694 |
| 1983 | – | 24,304 | 37,854 | 49,207 | 966,059 | 742,706 | 1,100,065 | 165,436 | 81,077 | – | – | 3,166,708 |
| 1984 | 461 | 27,025 | 6,136 | 48,842 | 312,236 | 686,791 | 576,945 | 362,012 | 2,279 | – | – | 2,022,727 |
| 1985 | – | 3,204 | 1,365 | 31,784 | 104,623 | 660,256 | 283,667 | 519,700 | 104,305 | – | – | 1,708,904 |
| 1986 | – | 6,296 | 91,208 | 301,073 | 907,748 | 3,503,790 | 1,701,621 | 409,551 | 518,402 | 111,766 | – | 7,551,455 |
| 1987 | – | 1,891 | 31,068 | 22,646 | 64,984 | 470,820 | 57,284 | 43,941 | – | – | – | 692,634 |
| 1988 | – | 4,243 | 15,079 | 27,106 | 9,786 | 98,388 | 270,579 | 219,305 | 444,111 | 110,065 | – | 1,198,662 |
| 1989 | 2,786 | 24,094 | 87,281 | 270,596 | 760,378 | 806,680 | 1,200,467 | 241,316 | 79,600 | – | – | 3,473,198 |

-continued-

Appendix B7.—continued (page 2 of 2)

| Year | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | Total |
|------|--------|---------|---------|---------|-----------|-----------|-----------|-----------|---------|---------|----|-----------|
| 1990 | 18,718 | 30,465 | 32,354 | — | 838,535 | 1,655,212 | 1,978,331 | 719,945 | 158,027 | — | — | 5,431,587 |
| 1991 | — | 26,158 | 53,687 | 43,534 | 3,344,783 | 3,170,435 | 862,994 | 1,085,847 | 164,106 | 87,214 | — | 8,838,758 |
| 1992 | — | 5,686 | 4,016 | 13,202 | 370,806 | 612,876 | 1,023,065 | 784,272 | 355,629 | — | — | 3,169,552 |
| 1993 | — | 23,551 | 16,923 | 153,992 | 749,634 | 738,385 | 1,276,333 | 548,089 | 534,879 | 272,443 | — | 4,314,229 |
| 1994 | — | 6,750 | 26,254 | 23,499 | 423,777 | 1,140,113 | 1,001,795 | 901,048 | 557,653 | 201,420 | — | 4,282,309 |
| 1995 | 2,633 | 221 | 2,436 | 71,409 | 315,600 | 1,183,333 | 1,726,653 | 2,442,496 | 845,366 | 159,611 | — | 6,749,758 |
| 1996 | — | 16,445 | 145,859 | — | 1,562,741 | 2,081,244 | 2,107,973 | 486,660 | 968,692 | 41,470 | — | 7,411,084 |
| 1997 | — | 119,322 | 165,035 | 221,302 | 615,351 | 58,786 | 201,671 | 153,112 | — | — | — | 1,534,579 |
| 1998 | — | 2,668 | 6,814 | 40,742 | 193,984 | 536,033 | 448,145 | 192,234 | 46,287 | — | — | 1,466,907 |
| 1999 | — | 3,883 | 1,018 | — | 3,755 | 697,733 | 1,059,870 | 659,938 | 318,186 | 190,998 | — | 2,935,381 |
| 2000 | — | 1,042 | 260 | 2,102 | 52,752 | 150,760 | 326,344 | 81,379 | 885 | — | — | 615,524 |
| 2001 | 7,193 | 11,935 | 20,862 | 3,632 | 1,046,719 | 817,090 | 1,134,767 | 289,296 | — | — | — | 3,331,494 |
| 2002 | — | 11,999 | 10,929 | 696 | 21,141 | 2,300 | 7,786 | — | — | — | — | 54,851 |
| 2003 | — | 4,901 | 128,907 | 126,304 | 697,870 | 554,886 | 59,427 | 47,453 | — | — | — | 1,619,748 |
| 2004 | — | 1,005 | — | — | 54,225 | 11,202 | 201,575 | 63,042 | — | — | — | 331,049 |
| 2005 | — | 13,208 | — | 44,509 | 225,916 | 178,664 | 43,957 | 81,849 | — | — | — | 588,103 |
| 2006 | 30 | — | 7,523 | 21,677 | 7,390 | — | — | — | — | — | — | 36,620 |
| 2007 | 17,607 | 15,759 | 29,781 | 131,889 | 839,259 | 177,140 | 156,472 | 83,360 | 4,984 | — | — | 1,456,251 |
| 2008 | — | — | — | — | 4,425 | 45,552 | 43,101 | — | — | — | — | 93,078 |
| 2009 | — | 274 | 1,224 | 38,915 | 185,330 | 27,670 | 335,969 | 329,124 | 20,640 | — | — | 939,146 |
| 2010 | — | 277 | 4,056 | 76 | 1,874 | — | — | 4,447 | 2,861 | — | — | 13,591 |
| 2011 | — | 294 | 3,185 | 13,313 | — | 16,939 | 88,507 | 74,916 | — | — | — | 197,154 |
| 2012 | — | 337 | 385 | 14,167 | 64,801 | 251,205 | 471,132 | 126,582 | 2,966 | — | — | 931,575 |
| 2013 | — | 38,082 | 3,482 | 54,164 | 47,406 | 1,032,348 | 1,326,799 | 359,277 | 10,409 | — | — | 2,871,967 |
| 2014 | — | 18,874 | 120,148 | 190,223 | 1,015,210 | 2,677,546 | 785,668 | 100,633 | 4,806 | — | — | 4,913,108 |
| 2015 | — | 699 | — | 463 | 150,993 | 134,840 | 94,408 | 31,667 | 24,893 | — | — | 437,963 |
| 2016 | — | 26,152 | 199,645 | 12,652 | 81,735 | 141,200 | 65,013 | 37,577 | — | — | — | 563,974 |
| 2017 | — | — | 2,004 | — | — | 152,717 | — | 26,113 | 3,276 | — | — | 184,110 |
| 2018 | — | — | 6,783 | 3,432 | 23,417 | 60,036 | 1,588 | 3,668 | — | — | — | 98,924 |

Appendix B8.—Harvest of pink salmon by statistical week in the Subdistrict 104-30 purse seine fishery, 1960–2018 (– indicates no effort or harvest).

| Year | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | Total |
|------|-------|--------|-------|--------|---------|---------|---------|---------|---------|--------|----|-----------|
| 1960 | – | – | – | – | – | – | – | – | – | – | – | 0 |
| 1961 | – | – | – | – | – | – | 31 | 6,077 | – | – | – | 6,112 |
| 1962 | – | – | – | – | 123 | – | – | 5,204 | 1615 | – | – | 6,942 |
| 1963 | – | – | – | – | – | – | 24 | – | 309 | 41 | – | 374 |
| 1964 | – | – | – | – | – | – | – | – | – | – | – | 0 |
| 1965 | – | – | – | – | – | – | 640 | – | 5691 | – | – | 6,331 |
| 1966 | – | – | – | 1,232 | 407 | 5,454 | 18,720 | 2,687 | 96 | – | – | 28,596 |
| 1967 | – | – | – | – | – | – | – | – | – | – | – | 0 |
| 1968 | – | – | – | – | – | – | – | 1477 | – | – | – | 1,477 |
| 1969 | – | – | – | – | – | – | – | – | – | – | – | 0 |
| 1970 | – | – | – | – | – | – | – | 28330 | – | – | – | 28,330 |
| 1971 | – | – | – | – | – | – | – | – | – | – | – | 0 |
| 1972 | – | – | – | 996 | – | – | – | – | 156 | – | – | 1,152 |
| 1973 | – | – | – | – | – | – | – | – | – | – | – | 0 |
| 1974 | – | – | – | – | – | – | – | – | – | – | – | 0 |
| 1975 | – | – | – | – | – | – | – | – | – | – | – | 0 |
| 1976 | – | 168 | 586 | 1,226 | – | – | – | – | – | – | – | 1,980 |
| 1977 | – | 6,549 | 144 | 18,601 | 14,472 | 21,343 | 8,732 | – | 1 | – | – | 69,842 |
| 1978 | 1,941 | 1,509 | 1,682 | 22,596 | 33,503 | 11,003 | 27,605 | – | – | – | – | 99,839 |
| 1979 | 3,359 | 6,014 | 531 | 8,013 | 2,021 | – | 554 | 4,422 | – | – | – | 24,914 |
| 1980 | – | 718 | 296 | 5,464 | 572 | 52,206 | 73,112 | 105,566 | 3,150 | – | – | 241,084 |
| 1981 | – | 10,769 | 2,468 | 26,698 | 212,124 | 601,674 | 164,867 | 54,598 | – | – | – | 1,073,198 |
| 1982 | – | 1,843 | 4,158 | 3,004 | 1,202 | 26,157 | 17,043 | 1,565 | 3,054 | 3,400 | – | 61,426 |
| 1983 | – | 6,581 | 3,741 | 14,591 | 131,025 | 173,492 | 109,530 | 3,200 | – | – | – | 442,160 |
| 1984 | 55 | 268 | – | 2,518 | 5,871 | 171,689 | 297,715 | 227,131 | 15,416 | – | – | 720,663 |
| 1985 | – | 459 | 1,548 | 12,198 | 46,633 | 468,504 | 418,250 | 807,294 | 37,967 | – | – | 1,792,853 |
| 1986 | – | 833 | – | 1,906 | 10,063 | 395,435 | 483,295 | 138,423 | 63,330 | 732 | – | 1,094,017 |
| 1987 | – | 38 | 5,766 | 15,531 | 10,952 | 126,174 | 72,400 | – | – | – | – | 230,861 |
| 1988 | – | 950 | 3,183 | 1,858 | 712 | 11,416 | 43,268 | 137,972 | 156,668 | 18,757 | – | 374,784 |
| 1989 | 7,520 | 1,174 | – | 54,528 | 69,229 | 144,756 | 121,243 | 21,951 | – | – | – | 420,401 |

-continued-

Appendix B8.—continued (page 2 of 2)

| Year | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | Total |
|------|----|-------|--------|--------|---------|---------|---------|---------|---------|--------|----|---------|
| 1990 | 83 | 1,983 | 183 | 191 | 27,788 | 96,196 | 177,707 | 55,704 | 2,807 | — | — | 362,642 |
| 1991 | — | 1,531 | 3,862 | — | 313,433 | 75,612 | 108,045 | 13,803 | 2,492 | — | — | 518,778 |
| 1992 | — | 283 | — | — | 23,284 | 14,346 | 48,105 | 33,531 | 5,143 | — | — | 124,692 |
| 1993 | — | — | — | 25,066 | 72,291 | 33,760 | 72,648 | 182,244 | 92,589 | 49,749 | — | 528,347 |
| 1994 | — | — | — | — | 56,373 | 128,536 | 72,494 | 24,258 | 27,344 | 4,289 | — | 313,294 |
| 1995 | — | — | — | 6,626 | 10,225 | 163,450 | 126,293 | 224,625 | 125,697 | 1,430 | — | 658,346 |
| 1996 | — | — | — | — | 141,034 | 148,679 | 91,443 | 71,506 | 53,766 | — | — | 506,428 |
| 1997 | — | 1,017 | 10,315 | 24,161 | 13,022 | 0 | 37,929 | 12,021 | — | — | — | 98,465 |
| 1998 | — | 26 | — | — | 25,782 | 8,437 | 23,518 | 17,156 | 7,122 | — | — | 82,041 |
| 1999 | — | — | — | 1,672 | — | 14,146 | 103,174 | 68,587 | 80,639 | 22,386 | — | 290,604 |
| 2000 | — | — | — | — | — | 21,559 | 26,207 | — | — | — | — | 47,766 |
| 2001 | — | 6,131 | 5,294 | — | 101,108 | 215,823 | 80,867 | 63,093 | 8,068 | — | — | 480,384 |
| 2002 | — | — | — | — | 459 | 13,857 | 35,329 | 75,777 | 7,195 | — | — | 132,617 |
| 2003 | — | — | 3,749 | — | 33,753 | 12,650 | 7,456 | 9,151 | — | — | — | 66,759 |
| 2004 | — | — | — | — | — | 17,192 | — | — | — | — | — | 17,192 |
| 2005 | — | — | — | 4,673 | 12,880 | 12,653 | 47,268 | — | 9,577 | — | — | 87,051 |
| 2006 | — | — | — | 6,362 | — | 10,495 | — | — | — | — | — | 16,857 |
| 2007 | — | — | 1,822 | 20,862 | 76,530 | 707 | — | — | 5,390 | — | — | 105,311 |
| 2008 | — | — | — | — | 906 | — | 13,376 | — | — | — | — | 14,282 |
| 2009 | — | — | 964 | 17,202 | 65,871 | 103,383 | 78,307 | 15,502 | 13,332 | — | — | 294,561 |
| 2010 | — | — | — | — | 7,895 | 72,015 | 260,328 | 85,760 | 31,861 | — | — | 457,859 |
| 2011 | — | — | — | 10,968 | 16,659 | 41,222 | 71,082 | — | — | — | — | 139,931 |
| 2012 | — | — | — | 4,463 | 98,583 | 63,873 | 14,226 | 11,949 | 2,090 | — | — | 195,184 |
| 2013 | — | — | 980 | — | 143,385 | 76,460 | 189,654 | 44,141 | 24,441 | — | — | 479,061 |
| 2014 | — | 4,836 | — | 19,017 | 176,725 | 159,424 | 104,411 | — | 62 | — | — | 464,475 |
| 2015 | — | 668 | 970 | — | 26,462 | 28,998 | 68,031 | 23,409 | 2,618 | — | — | 151,156 |
| 2016 | — | — | — | — | 23,760 | 1,300 | 19,780 | 17,179 | — | — | — | 62,019 |
| 2017 | — | — | — | — | 6,630 | — | 55,666 | 18,789 | 878 | 21,138 | — | 103,101 |
| 2018 | — | — | — | 4,750 | 5,483 | 36,870 | 16,520 | 1,829 | — | — | — | 65,452 |

Appendix B9.–Harvest of pink salmon by statistical week in the Subdistrict 104-35 purse seine fishery, 1960–2018 (– indicates no effort or harvest).

| Year | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | Total |
|------|-------|--------|--------|--------|---------|---------|---------|---------|---------|--------|-----------|
| 1960 | – | – | – | – | – | – | – | – | – | – | 0 |
| 1961 | – | – | – | – | – | – | – | – | – | – | 0 |
| 1962 | – | – | – | – | – | 288 | – | – | – | 69 | 357 |
| 1963 | 281 | – | – | 67,077 | 253,044 | 105,358 | 73,835 | 52,753 | 24,001 | – | 576,349 |
| 1964 | 796 | 7,211 | 12,056 | 28,342 | 68,933 | 108,113 | 121,056 | 86,314 | 145 | – | 432,966 |
| 1965 | 30 | 5,888 | 17,505 | 89,889 | 66,246 | 61,004 | 11,002 | 668 | 46 | – | 252,278 |
| 1966 | – | 443 | 329 | 4,255 | 9,911 | 98,630 | 220,433 | 213,617 | 60,853 | 733 | 609,204 |
| 1967 | 144 | 2,636 | 7,131 | 18,151 | 61,032 | 16,306 | 7,259 | – | – | – | 112,659 |
| 1968 | 1,489 | 4,964 | 6,158 | 5,099 | 28,503 | 29,531 | 568,133 | 311,242 | 101,626 | 832 | 1,057,577 |
| 1969 | – | 263 | 3,186 | 7,064 | 22,786 | 83,304 | 18,654 | 13,413 | – | – | 149,129 |
| 1970 | – | 124 | 714 | 2,841 | 7,967 | 5,496 | 8,266 | 8,422 | 192 | – | 34,022 |
| 1971 | – | – | – | – | – | – | 71,365 | 115,148 | 25,698 | 29,765 | 241,976 |
| 1972 | – | – | 24,052 | 4,618 | 3,848 | 79,135 | 127,392 | 165,196 | 62,227 | 15,460 | 481,928 |
| 1973 | – | 10,147 | 28,533 | 36,399 | 110,603 | 71,175 | 51 | 1 | – | – | 256,909 |
| 1974 | – | 669 | 3,697 | 12,232 | 30,039 | 79,443 | 74,861 | 44,999 | 66,213 | 90 | 312,243 |
| 1975 | – | 6,090 | 20,514 | – | – | – | – | – | – | – | 26,604 |
| 1976 | – | 2,729 | 12,941 | 43,054 | – | – | – | 19,355 | – | – | 78,079 |
| 1977 | – | 1,975 | – | 6 | 13,000 | 40,628 | 26 | – | – | – | 55,635 |
| 1978 | 164 | 15 | 21 | – | 14,919 | 1,238 | 25,040 | 4,010 | 23,552 | – | 68,959 |
| 1979 | 0 | 16,264 | 1,341 | 3,781 | 14,600 | – | 2,935 | – | – | – | 38,921 |
| 1980 | – | 62 | 566 | 4,397 | 59,981 | 39,131 | 21,180 | 52,703 | 535 | – | 178,555 |
| 1981 | – | 13,430 | 4,903 | 22,923 | 31,725 | 37,353 | 5,443 | 18,435 | – | – | 134,212 |
| 1982 | – | 151 | 809 | 560 | 16 | 15,272 | 68,904 | 14,827 | 42,718 | 50,080 | 193,337 |
| 1983 | – | 3,782 | 31,227 | 59,636 | 369,214 | 66,635 | 169,626 | 25,738 | – | – | 725,858 |
| 1984 | 1,448 | 2,209 | 3,663 | 14,338 | 74,578 | 223,852 | 179,788 | 20,443 | 1,000 | – | 521,319 |
| 1985 | – | 495 | 58 | 7,943 | 49,732 | 162,388 | 21,314 | 41,071 | 30,401 | – | 313,402 |
| 1986 | – | 2,929 | 33,449 | 64,158 | 170,390 | 787,926 | 351,152 | 229,128 | 132,096 | 55,640 | 1,826,868 |
| 1987 | – | 216 | 17,814 | 7,623 | 8,319 | 110,897 | 1,779 | – | – | – | 146,648 |
| 1988 | – | 211 | 1,783 | 2,730 | 1,291 | 65,279 | 92,978 | 53,970 | 138,168 | 14,686 | 371,096 |
| 1989 | 1,991 | 20,654 | 36,431 | 62,812 | 39,211 | 134,672 | 96,285 | 11,571 | 2,846 | – | 406,473 |

-continued-

Appendix B9.—continued (page 2 of 2)

| Year | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | Total |
|------|-------|--------|---------|---------|---------|---------|---------|---------|---------|--------|-----------|
| 1990 | 959 | 5,573 | 72,683 | 12,474 | 68,505 | 108,211 | 270,731 | 126,256 | 41,594 | — | 706,986 |
| 1991 | — | 43,466 | 54,732 | — | 328,226 | 375,641 | 508,000 | 148,586 | 26,596 | — | 1,485,247 |
| 1992 | — | 2,134 | 9,012 | — | 19,814 | 47,879 | 15,334 | 35,869 | 40,328 | — | 170,370 |
| 1993 | — | 6,182 | 9,964 | 16,731 | 84,191 | 106,289 | 247,239 | 191,214 | 230,600 | 19,841 | 912,251 |
| 1994 | — | 1,357 | 841 | — | 48,518 | 263,019 | 247,137 | 201,494 | 171,454 | 17,441 | 951,261 |
| 1995 | 602 | 28 | 1,081 | 7,505 | 76,901 | 212,139 | 302,201 | 192,022 | 109,473 | 13,307 | 915,259 |
| 1996 | — | 617 | 4,792 | 5,359 | 131,582 | 283,661 | 281,458 | 30,061 | 345,990 | — | 1,083,520 |
| 1997 | — | 37,976 | 24,313 | 81,869 | 121,006 | 27,208 | 55,033 | 57,748 | — | — | 405,153 |
| 1998 | — | 135 | 60 | 1,549 | 8,569 | 87,956 | 216,146 | 188,650 | 14,358 | — | 517,423 |
| 1999 | — | 234 | 9,263 | 4,777 | — | 122,018 | 378,205 | 237,286 | 86,386 | 57,000 | 895,169 |
| 2000 | — | 507 | 865 | 954 | 8,015 | 56,386 | 1,147 | 6,672 | — | — | 74,546 |
| 2001 | 182 | 19,135 | 26,725 | 18,391 | 459,696 | 439,633 | 387,927 | 175,012 | 5,800 | — | 1,532,501 |
| 2002 | — | 1,211 | 7,223 | 5,103 | 8,582 | 56,394 | 2,909 | — | — | — | 81,422 |
| 2003 | — | — | 72,791 | 286,983 | 398,464 | 227,361 | 143,476 | 27,910 | — | — | 1,156,985 |
| 2004 | — | 880 | 4,773 | 53,520 | 83,407 | 312,054 | 332,693 | 178,002 | 14,807 | — | 980,136 |
| 2005 | — | 5,871 | 126,402 | 170,176 | 235,884 | 311,422 | 292,445 | 296,485 | 80,299 | — | 1,518,984 |
| 2006 | 10 | 2,411 | 5,152 | 5,868 | 5,450 | 17,514 | 15,884 | 5,228 | — | — | 57,517 |
| 2007 | 8,454 | 17,414 | 28,774 | 249,713 | 850,512 | 251,728 | 185,652 | 20,742 | 20,624 | — | 1,633,613 |
| 2008 | — | 179 | 1,613 | 16,757 | 28,734 | 123,866 | 361,494 | 154,160 | — | — | 686,803 |
| 2009 | — | 17 | 7,368 | 25,325 | 335,025 | 143,205 | 516,536 | 116,910 | 46,222 | — | 1,190,608 |
| 2010 | — | — | 1,192 | — | — | 19,576 | — | 9,033 | 13,322 | 1,549 | 44,672 |
| 2011 | — | 243 | 1,758 | 11,747 | 16,470 | 186,562 | 37,322 | — | 17,907 | — | 272,009 |
| 2012 | 320 | 976 | 3,425 | 39,274 | 149,911 | 180,359 | 329,252 | 77,088 | 374 | — | 780,979 |
| 2013 | — | 22,422 | 42,704 | 104,040 | 472,055 | 260,822 | 589,189 | 441,264 | 242,991 | 21,060 | 2,196,547 |
| 2014 | — | 13,750 | 114,592 | 220,943 | 582,046 | 260,003 | 470,966 | 139,204 | 42,318 | — | 1,843,822 |
| 2015 | — | 1,175 | 3,490 | 31,550 | 160,697 | 126,207 | 90,263 | 61,915 | 37,649 | — | 512,946 |
| 2016 | — | 17,835 | 77,733 | 6,146 | 98,413 | 268,329 | 60,949 | 47,313 | — | — | 576,718 |
| 2017 | — | — | 21,460 | 3,850 | 19,639 | 54,673 | 48,168 | 161,958 | 33,119 | 291 | 343,158 |
| 2018 | — | — | 3,566 | 14,089 | 19,362 | 48,874 | 26,353 | 22,918 | — | — | 135,162 |

Appendix B10.–Harvest of pink salmon by statistical week in the Subdistrict 104-40 purse seine fishery, 1960–2018 (– indicates no effort or harvest).

| Year | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | Total |
|------|--------|---------|---------|---------|-----------|-----------|-----------|---------|-----------|-----------|--------|-----------|
| 1960 | – | 12,485 | 20,757 | 19,674 | 25,166 | 21,179 | 18,901 | 92,046 | 220,555 | 53,589 | 12,497 | 496,849 |
| 1961 | 3 | – | 6,312 | 5,705 | 32,087 | 194,898 | 182,620 | 3,769 | 1,025 | 4 | – | 426,423 |
| 1962 | 4,768 | 3,651 | 16,225 | 58,016 | 19,296 | 144,583 | 390,017 | 363,229 | 78,236 | 477 | – | 1,078,498 |
| 1963 | 522 | – | – | 124,572 | 469,938 | 195,665 | 137,122 | 97,971 | 44,572 | – | – | 1,070,362 |
| 1964 | 1,478 | 13,392 | 22,389 | 52,636 | 128,018 | 200,781 | 224,817 | 160,297 | 270 | – | – | 804,078 |
| 1965 | 56 | 10,935 | 32,510 | 166,937 | 123,029 | 113,294 | 20,431 | 1,240 | 86 | – | – | 468,518 |
| 1966 | – | 822 | 612 | 7,901 | 18,406 | 183,170 | 409,375 | 396,718 | 113,013 | 1,362 | – | 1,131,379 |
| 1967 | 267 | 4,895 | 13,243 | 33,709 | 113,344 | 30,282 | 13,482 | – | – | – | – | 209,222 |
| 1968 | 2,764 | 9,219 | 11,437 | 9,470 | 52,934 | 54,842 | 1,055,105 | 578,022 | 188,733 | 1,545 | – | 1,964,071 |
| 1969 | – | 607 | 2,434 | 20,738 | 50,656 | 184,379 | 30,381 | 38,840 | – | – | – | 328,035 |
| 1970 | – | 655 | 2,482 | 5,536 | 15,736 | 10,398 | 13,670 | 19,481 | 495 | – | – | 70,843 |
| 1971 | – | – | – | – | – | – | 92,430 | 200,823 | 39,802 | 66,052 | – | 399,107 |
| 1972 | – | 8,449 | 30,909 | 8,377 | 8,322 | 152,731 | 266,642 | 287,899 | 114,398 | 34,082 | 4,559 | 916,368 |
| 1973 | – | 27,344 | 65,018 | 60,528 | 164,030 | 123,745 | 367 | 393 | – | – | – | 441,425 |
| 1974 | – | 2,413 | 5,908 | 30,767 | 52,073 | 134,444 | 120,499 | 78,210 | 123,209 | 319 | – | 547,842 |
| 1975 | – | 12,295 | 32,511 | – | – | – | – | – | – | – | – | 44,806 |
| 1976 | – | 4,357 | 25,210 | 103,091 | – | – | – | 87,828 | – | – | – | 220,486 |
| 1977 | – | 37,572 | 161,500 | 90,547 | 171,982 | 119,148 | 50,703 | – | 7,071 | – | – | 638,523 |
| 1978 | 28,048 | 11,166 | 31,931 | 61,415 | 323,925 | 209,418 | 903,653 | 184,768 | 59,373 | 1,383 | – | 1,815,080 |
| 1979 | 30,905 | 183,667 | 316,490 | 119,106 | 82,258 | 2,838 | 16,489 | 350 | – | – | – | 752,615 |
| 1980 | – | 121,543 | 72,502 | 103,213 | 325,085 | 522,310 | 198,383 | 227,635 | 15,436 | 1 | – | 1,586,108 |
| 1981 | – | 133,147 | 38,464 | 74,034 | 335,166 | 611,929 | 318,539 | 40,121 | – | – | – | 1,551,400 |
| 1982 | – | 10,623 | 17,915 | 21,214 | 4,069 | 68,817 | 535,974 | 777,020 | 1,007,944 | 1,102,500 | – | 3,546,076 |
| 1983 | – | 68,721 | 209,930 | 441,972 | 1,754,729 | 2,743,010 | 3,152,592 | 940,873 | 474,941 | – | – | 9,786,768 |
| 1984 | 6,948 | 10,086 | 19,436 | 38,909 | 178,414 | 352,532 | 718,178 | 239,755 | 132,161 | – | – | 1,696,419 |
| 1985 | – | 6,251 | 6,436 | 213,261 | 350,647 | 1,735,938 | 1,071,778 | 522,411 | 194,809 | – | – | 4,101,531 |
| 1986 | – | 6,051 | 67,517 | 190,351 | 570,945 | 1,985,746 | 1,065,927 | 322,729 | 525,945 | 62,492 | – | 4,797,703 |
| 1987 | – | 2,422 | 16,406 | 32,944 | 39,031 | 192,956 | 54,563 | – | – | – | – | 338,322 |
| 1988 | – | 824 | 12,442 | 5,575 | 2,195 | 159,602 | 322,565 | 133,016 | 519,171 | 72,969 | – | 1,228,359 |
| 1989 | 5,427 | 111,034 | 135,896 | 503,876 | 985,528 | 1,282,848 | 1,657,668 | 487,807 | 296,086 | – | – | 5,466,170 |

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Appendix B10.—continued (page 2 of 2)

| Year | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | Total |
|------|--------|---------|---------|---------|-----------|-----------|-----------|-----------|-----------|---------|----|------------|
| 1990 | 7,709 | 43,860 | 96,888 | 79,007 | 777,806 | 795,681 | 2,916,998 | 1,526,257 | 136,360 | — | — | 6,380,566 |
| 1991 | — | 44,392 | 106,487 | — | 3,157,077 | 3,683,793 | 2,433,122 | 2,457,163 | 1,060,702 | 188,149 | — | 13,130,885 |
| 1992 | — | 9,728 | 15,524 | — | 985,006 | 1,581,939 | 861,031 | 148,589 | 77,241 | — | — | 3,679,058 |
| 1993 | — | 28,846 | 23,042 | 90,296 | 457,137 | 395,980 | 1,054,707 | 917,174 | 851,306 | 239,110 | — | 4,057,598 |
| 1994 | — | 3,300 | 30,221 | 160,963 | 242,541 | 1,607,345 | 1,508,388 | 477,692 | 609,128 | 147,110 | — | 4,786,688 |
| 1995 | 7,148 | 17 | 2,377 | 26,486 | 243,901 | 481,577 | 791,776 | 420,252 | 233,385 | 132,610 | — | 2,339,529 |
| 1996 | — | 10,652 | 54,008 | 29,343 | 1,342,120 | 2,590,615 | 896,925 | 670,389 | 752,979 | 15,244 | — | 6,362,275 |
| 1997 | — | 140,145 | 273,494 | 247,128 | 619,760 | 483,265 | 466,963 | 141,230 | — | — | — | 2,371,985 |
| 1998 | — | 338 | 1,884 | 1,708 | 54,816 | 814,684 | 805,735 | 347,408 | 70,605 | — | — | 2,097,178 |
| 1999 | — | 3,531 | 12,831 | 9,251 | 28,800 | 960,162 | 1,814,737 | 1,425,474 | 1,128,478 | 182,022 | — | 5,565,286 |
| 2000 | — | 822 | 5,055 | 8,937 | 24,767 | 209,259 | 145,146 | 67,611 | — | — | — | 461,597 |
| 2001 | 3,139 | 121,636 | 86,097 | 9,554 | 1,698,490 | 1,358,497 | 669,345 | 441,910 | 247,841 | — | — | 4,636,509 |
| 2002 | — | 766 | 14,373 | 62,811 | 75,713 | 161,108 | 144,991 | 15,789 | 22,046 | — | — | 497,597 |
| 2003 | — | 8,231 | 99,148 | 375,232 | 653,706 | 623,937 | 346,684 | 342,558 | 147,393 | — | — | 2,596,889 |
| 2004 | — | 5,224 | 14,803 | 52,440 | 266,843 | 770,589 | 763,030 | 370,622 | 87,899 | — | — | 2,331,450 |
| 2005 | — | 23,897 | 97,533 | 338,377 | 362,718 | 1,064,802 | 486,741 | 633,805 | 50,010 | — | — | 3,057,883 |
| 2006 | 194 | 1,323 | 17,976 | 187,069 | 297,687 | 160,083 | 15,215 | 24,764 | — | — | — | 704,311 |
| 2007 | 11,126 | 38,052 | 44,814 | 235,771 | 1,967,931 | 2,485,389 | 1,790,585 | 392,974 | 153,449 | — | — | 7,120,091 |
| 2008 | — | 234 | 355 | 17,193 | 146,832 | 443,661 | 642,707 | 528,743 | 93,220 | 6,797 | — | 1,879,742 |
| 2009 | — | 403 | 45,160 | 112,758 | 605,733 | 270,168 | 707,030 | 534,139 | 270,862 | — | — | 2,546,253 |
| 2010 | — | 712 | 3,413 | 11,045 | 44,163 | 62,029 | 168,512 | 99,365 | 56,613 | 4,161 | — | 450,013 |
| 2011 | — | 658 | 16,900 | 12,805 | 79,785 | 583,775 | 263,916 | 57,391 | 197,601 | 158,222 | — | 1,371,053 |
| 2012 | 98 | — | 11,768 | 61,408 | 271,904 | 1,520,810 | 982,754 | 278,897 | 20,991 | — | — | 3,148,630 |
| 2013 | — | 76,042 | 42,549 | 240,414 | 896,504 | 565,112 | 741,481 | 644,666 | 390,218 | 72,122 | — | 3,669,108 |
| 2014 | — | 106,727 | 222,420 | 324,223 | 386,969 | 252,182 | 224,549 | 56,230 | 41,754 | — | — | 1,615,054 |
| 2015 | — | 8,470 | 10,124 | 147,043 | 631,300 | 735,335 | 304,233 | 245,161 | 274,766 | — | — | 2,356,432 |
| 2016 | — | 226,803 | 694,548 | 46,430 | 295,913 | 401,047 | 79,322 | 39,071 | — | — | — | 1,783,134 |
| 2017 | — | — | 11,495 | 10,437 | 124,050 | 117,271 | 128,899 | 348,764 | 273,175 | 34,778 | — | 1,048,869 |
| 2018 | — | — | 31,907 | 133,985 | 64,028 | 50,084 | 12,459 | 31,374 | — | — | — | 323,837 |

Appendix B11.–Harvest of pink salmon by statistical week in the Subdistrict 104-50 purse seine fishery, 1960–2018 (– indicates no effort or harvest).

| Year | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | Total |
|------|-------|--------|--------|-------|--------|---------|---------|---------|--------|-------|----|---------|
| 1960 | – | – | – | – | – | – | – | – | – | – | – | 0 |
| 1961 | – | – | – | – | – | – | – | – | – | – | – | 0 |
| 1962 | – | – | – | – | – | – | – | – | – | – | – | 0 |
| 1963 | – | – | – | – | 29,749 | – | 989 | 402 | – | – | – | 31,140 |
| 1964 | – | – | – | – | 6,809 | 1,529 | – | – | – | – | – | 8,338 |
| 1965 | – | – | – | – | – | 4,681 | – | – | – | – | – | 4,681 |
| 1966 | – | – | – | – | – | – | 3,843 | – | – | – | – | 3,843 |
| 1967 | – | – | – | – | 1,070 | 681 | – | – | – | – | – | 1,751 |
| 1968 | – | – | – | – | – | – | 133,481 | 28,117 | 669 | – | – | 162,267 |
| 1969 | – | 5 | – | 865 | 2 | 742 | 4,956 | 928 | – | – | – | 7,498 |
| 1970 | – | – | – | – | – | – | – | – | – | – | – | 0 |
| 1971 | – | – | – | – | – | – | 4,622 | 13,006 | 13,591 | 473 | – | 31,692 |
| 1972 | – | – | 22,720 | 5,792 | – | 59,111 | 3,858 | 110,019 | 14,565 | – | – | 216,065 |
| 1973 | – | – | 922 | 0 | 128 | 41,209 | – | – | – | – | – | 42,259 |
| 1974 | – | – | – | 0 | – | – | – | 12,837 | 49700 | – | – | 62,537 |
| 1975 | – | – | – | – | – | – | – | – | – | – | – | 0 |
| 1976 | – | 531 | 439 | 6,622 | – | – | – | – | – | – | – | 7,592 |
| 1977 | – | 806 | – | 1 | – | – | 8 | – | – | – | – | 815 |
| 1978 | – | – | – | – | – | – | – | – | – | – | – | 0 |
| 1979 | 5,605 | 16,188 | 21,670 | – | – | – | – | – | – | – | – | 43,463 |
| 1980 | – | 19,171 | 2,613 | 1,469 | 6,720 | – | – | – | – | – | – | 29,973 |
| 1981 | – | – | – | – | – | 1,070 | 6,485 | – | – | – | – | 7,555 |
| 1982 | – | 1,146 | 360 | – | 475 | 2,347 | 4,175 | 801 | 5,136 | – | – | 14,440 |
| 1983 | – | 10,914 | – | – | – | 113,053 | – | – | – | – | – | 123,967 |
| 1984 | 45 | 1,530 | – | 53 | – | 6,939 | 5,519 | 19,157 | – | – | – | 33,243 |
| 1985 | – | 213 | – | 1,039 | – | 51,524 | – | – | – | – | – | 52,776 |
| 1986 | – | – | – | 161 | 41,443 | 5,270 | 825 | 31,810 | – | – | – | 79,509 |
| 1988 | – | – | – | – | – | – | – | – | – | 1,240 | – | 1,240 |
| 1989 | – | – | – | – | – | – | – | – | – | – | – | – |

-continued-

Appendix B11.—continued (page 2 of 2)

| Year | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | Total |
|------|----|-------|----|----|---------|--------|--------|--------|--------|----|----|---------|
| 1990 | — | — | — | — | — | — | 5,296 | — | — | — | — | 5,296 |
| 1991 | — | — | — | — | 4,059 | 11,904 | 5,632 | — | — | — | — | 21,595 |
| 1992 | — | — | — | — | — | 706 | — | — | 137 | — | — | 843 |
| 1993 | — | — | — | — | — | — | 21,840 | — | 17,281 | — | — | 39,121 |
| 1994 | — | — | — | — | — | — | — | — | — | — | — | 0 |
| 1995 | — | — | — | — | — | 4,986 | — | 26,250 | 21,016 | — | — | 52,252 |
| 1997 | — | 1,611 | — | — | — | — | 7,905 | — | — | — | — | 9,516 |
| 1998 | — | — | — | — | — | — | — | 37,859 | — | — | — | 37,859 |
| 1999 | — | — | — | — | — | — | — | — | 21,703 | — | — | 21,703 |
| 2001 | — | 288 | — | — | 47,387 | — | — | — | 41,523 | — | — | 89,198 |
| 2002 | — | — | — | — | — | — | 20,894 | — | — | — | — | 20,894 |
| 2003 | — | — | — | — | — | — | — | — | — | — | — | 0 |
| 2004 | — | — | — | — | — | — | — | — | — | — | — | 0 |
| 2005 | — | — | — | — | — | — | — | — | — | — | — | 0 |
| 2006 | — | — | — | — | — | — | — | — | — | — | — | 0 |
| 2007 | — | — | — | — | 117,095 | — | 25,423 | — | — | — | — | 142,518 |
| 2008 | — | — | — | — | — | — | 13,730 | — | — | — | — | 13,730 |
| 2009 | — | — | — | — | — | 4,295 | — | — | — | — | — | 4,295 |
| 2010 | — | — | — | — | — | — | — | — | — | — | — | 0 |
| 2011 | — | — | — | — | — | 9,872 | — | — | — | — | — | 9,872 |
| 2012 | — | — | — | — | — | — | — | 771 | — | — | — | 771 |
| 2013 | — | — | — | — | — | 7,956 | — | — | 72,893 | — | — | 80,849 |
| 2014 | — | — | — | — | — | — | — | — | — | — | — | 0 |
| 2015 | — | — | — | — | — | 19,332 | — | — | — | — | — | 19,332 |
| 2016 | — | — | — | — | — | — | — | — | — | — | — | 0 |
| 2017 | — | — | — | — | — | — | — | — | — | — | — | 0 |
| 2018 | — | — | — | — | 3,095 | — | — | — | — | — | — | 3,095 |

APPENDIX C
DISTRICT 104 PURSE SEINE FISHERY EFFORT

Appendix C1.–Number of hours open in the District 104 purse seine fishery, 1960–2018 (– indicates no opening).

| Year | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 |
|-------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1960 | – | 132 | 132 | 132 | 132 | 132 | 60 | 60 | 60 | 60 | 60 |
| 1961 ^a | – | 132 | 132 | 132 | 132 | 132 | 60 | 60 | 60 | 60 | 60 |
| 1962 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | – |
| 1963 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | – |
| 1964 | 24 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 84 | 84 | – |
| 1965 | – | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 108 | – | – |
| 1966 | – | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 |
| 1967 | 60 | 60 | 84 | 84 | 114 | 84 | 60 | – | – | – | – |
| 1968 | 132 | 132 | 132 | 132 | 132 | 132 | 162 | 114 | – | – | – |
| 1969 | – | 84 | 84 | 84 | 84 | 132 | 84 | 84 | – | – | – |
| 1970 | – | 60 | 108 | 84 | 84 | 84 | 108 | 132 | 132 | 108 | – |
| 1971 | – | – | – | – | – | – | 60 | 84 | 132 | 108 | 108 |
| 1972 | – | 84 | 108 | 108 | 84 | 108 | 84 | 108 | 84 | 60 | 36 |
| 1973 | – | 84 | 84 | 84 | 84 | 84 | 60 | 36 | – | – | – |
| 1974 | – | 84 | 60 | 36 | 60 | 54 | 63 | 63 | 84 | 39 | – |
| 1975 | – | 84 | 60 | – | – | – | – | – | – | – | – |
| 1976 | – | 84 | 84 | 84 | – | – | – | 15 | – | – | – |
| 1977 | – | 84 | 84 | 36 | 51 | 45 | 45 | – | 15 | – | – |
| 1978 | 84 | 84 | 84 | 96 | 78 | 30 | 63 | 102 | 111 | 38 | – |
| 1979 | 84 | 84 | 84 | 39 | 15 | – | 39 | 63 | – | – | – |
| 1980 | – | 84 | 84 | 39 | 39 | 63 | 102 | 111 | 63 | 87 | – |
| 1981 | – | 39 | 39 | 54 | 30 | 78 | 78 | 78 | – | – | – |
| 1982 | – | 39 | 39 | 39 | 12 | 30 | 54 | 78 | 78 | 102 | – |
| 1983 | – | 39 | 39 | 30 | 78 | 54 | 78 | 39 | 63 | – | – |
| 1984 | 15 | 39 | 39 | 39 | 54 | 78 | 78 | 63 | 63 | – | – |
| 1985 | – | 15 | 15 | 54 | 54 | 78 | 39 | 174 | 87 | – | – |
| 1986 | – | 15 | 39 | 54 | 54 | 78 | 78 | 63 | 87 | 63 | – |
| 1987 | – | 15 | 45 | 30 | 15 | 39 | 39 | 15 | – | – | – |
| 1988 | – | 39 | 54 | 15 | 15 | 39 | 54 | 15 | 54 | 30 | – |
| 1989 | 15 | 15 | 15 | 39 | 39 | 126 | 63 | 63 | 87 | – | – |
| 1990 | 15 | 15 | 6 | 6 | 30 | 54 | 78 | 63 | 39 | – | – |
| 1991 | – | 15 | 20 | 6 | 78 | 78 | 57 | 60 | 78 | 39 | – |
| 1992 | – | 15 | 8 | 6 | 78 | 78 | 57 | 60 | 78 | – | – |

-continued-

Appendix C1.–continued (page 2 of 2)

| Year | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 |
|------|----|----|----|----|----|----|-----|-----|-----|-----|-----|
| 1993 | | 10 | 10 | 25 | 54 | 78 | 78 | 39 | 77 | 53 | |
| 1994 | – | 10 | 22 | 23 | 30 | 54 | 78 | 57 | 60 | 39 | – |
| 1995 | 10 | 10 | 15 | 23 | 30 | 78 | 78 | 57 | 60 | 39 | – |
| 1996 | – | 10 | 14 | 7 | 78 | 78 | 39 | 78 | 78 | 39 | – |
| 1997 | – | 30 | 14 | 12 | 30 | 39 | 78 | 54 | – | – | – |
| 1998 | – | 8 | 12 | 12 | 54 | 54 | 78 | 78 | 39 | – | – |
| 1999 | – | 10 | 10 | 10 | 78 | 78 | 39 | 78 | 78 | 150 | 150 |
| 2000 | – | 24 | 27 | 30 | 30 | 30 | 78 | 78 | 54 | – | – |
| 2001 | 12 | 22 | 10 | 6 | 78 | 78 | 39 | 78 | 105 | – | – |
| 2002 | – | 12 | 30 | 30 | 78 | 82 | 131 | 129 | 105 | – | – |
| 2003 | – | 10 | 22 | 20 | 52 | 72 | 60 | 87 | 126 | – | – |
| 2004 | – | 20 | 24 | 63 | 69 | 90 | 60 | 78 | 174 | – | – |
| 2005 | – | 22 | 22 | 24 | 54 | 90 | 75 | 90 | 69 | – | – |
| 2006 | 12 | 23 | 30 | 30 | 30 | 23 | 15 | 15 | – | – | – |
| 2007 | 12 | 12 | 8 | 18 | 54 | 90 | 90 | 60 | 78 | – | – |
| 2008 | – | 8 | 10 | 15 | 30 | 30 | 78 | 78 | 39 | 39 | – |
| 2009 | – | 12 | 30 | 30 | 78 | 78 | 39 | 78 | 78 | – | – |
| 2010 | – | 10 | 30 | 15 | 30 | 54 | 78 | 39 | 78 | 39 | – |
| 2011 | – | 24 | 30 | 30 | 39 | 78 | 54 | 39 | 78 | 78 | 39 |
| 2012 | 12 | 15 | 30 | 30 | 54 | 78 | 39 | 78 | 15 | – | – |
| 2013 | – | 12 | 12 | 22 | 78 | 78 | 39 | 78 | 78 | 78 | – |
| 2014 | – | 15 | 15 | 30 | 78 | 78 | 39 | 78 | 54 | – | – |
| 2015 | – | 30 | 15 | 25 | 54 | 78 | 39 | 78 | 78 | – | – |
| 2016 | – | 27 | 27 | 6 | 30 | 78 | 54 | 30 | – | – | – |
| 2017 | – | – | 10 | 10 | 30 | 30 | 39 | 78 | 78 | 15 | – |
| 2018 | – | – | 18 | 30 | 30 | 30 | 30 | 30 | – | – | – |

^aEstimated from unpublished reports; no hours in ADF&G database for 1961.

Appendix C2.–Number of boats fishing by statistical week in the District 104 purse seine fishery, 1969–2018 (– indicates no opening).

| Year | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 |
|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----------------|----|
| 1969 | – | 19 | 10 | 20 | 40 | 53 | 40 | 42 | – | – | – |
| 1970 | – | 11 | 8 | 13 | 30 | 35 | 22 | 26 | 5 | 0 | – |
| 1971 | – | – | – | – | – | – | 32 | 33 | 20 | 22 | 0 |
| 1972 | – | 6 | 23 | 31 | 9 | 58 | 66 | 85 | 67 | 18 ^a | – |
| 1973 | – | 24 | 70 | 49 | 67 | 59 | 9 | 5 | – | – | – |
| 1974 | – | 33 | 29 | 32 | 82 | 69 | 56 | 41 | 59 | 4 | – |
| 1975 | – | 86 | 89 | – | – | – | – | – | – | – | – |
| 1976 | – | 72 | 95 | 105 | – | – | – | 29 | – | – | – |
| 1977 | – | 90 | 112 | 64 | 31 | 36 | 22 | – | 37 | – | – |
| 1978 | 166 | 43 | 83 | 41 | 60 | 45 | 73 | 41 | 24 | 14 | – |
| 1979 | 109 | 166 | 161 | 102 | 59 | – | 40 | 9 | – | – | – |
| 1980 | – | 207 | 232 | 161 | 132 | 128 | 50 | 44 | 12 | 2 | – |
| 1981 | – | 156 | 169 | 73 | 136 | 135 | 98 | 52 | – | – | – |
| 1982 | – | 206 | 177 | 169 | 105 | 91 | 100 | 100 | 90 | 94 | – |
| 1983 | – | 184 | 165 | 152 | 171 | 231 | 219 | 102 | 72 | – | – |
| 1984 | 119 | 109 | 47 | 110 | 148 | 153 | 139 | 111 | 39 | – | – |
| 1985 | – | 94 | 55 | 98 | 119 | 138 | 93 | 105 | 46 | – | – |
| 1986 | – | 54 | 105 | 178 | 184 | 235 | 195 | 95 | 92 | 57 | – |
| 1987 | – | 64 | 67 | 96 | 62 | 151 | 141 | 114 | – | – | – |
| 1988 | – | 81 | 167 | 182 | 116 | 214 | 198 | 217 | 195 | 125 | – |
| 1989 | 35 | 85 | 81 | 91 | 121 | 137 | 126 | 93 | 40 | – | – |
| 1990 | 68 | 143 | 76 | 87 | 204 | 196 | 214 | 180 | 111 | – | – |
| 1991 | – | 101 | 96 | 35 | 223 | 213 | 199 | 178 | 72 | 23 | – |
| 1992 | – | 91 | 52 | 58 | 193 | 193 | 189 | 139 | 93 | – | – |
| 1993 | – | 88 | 89 | 135 | 156 | 127 | 127 | 96 | 99 | 80 | – |
| 1994 | – | 35 | 51 | 68 | 165 | 160 | 155 | 114 | 130 | 81 | – |
| 1995 | 36 | 17 | 20 | 106 | 130 | 132 | 101 | 123 | 111 | 49 | – |
| 1996 | – | 32 | 88 | 52 | 159 | 145 | 126 | 56 | 66 | 9 | – |
| 1997 | – | 92 | 118 | 143 | 179 | 87 | 115 | 104 | – | – | – |
| 1998 | – | 57 | 35 | 38 | 66 | 113 | 121 | 65 | 25 | – | – |

-continued-

Appendix C2.—continued (page 2 of 2)

| Year | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 |
|------|----|----|----|----|-----|-----|-----|----|----|-----------------|----|
| 1999 | — | 29 | 19 | 18 | 14 | 70 | 113 | 91 | 62 | 35 ^a | — |
| 2000 | — | 19 | 42 | 43 | 58 | 90 | 72 | 34 | 2 | — | — |
| 2001 | 26 | 68 | 78 | 24 | 126 | 104 | 78 | 57 | 19 | — | — |
| 2002 | — | 32 | 27 | 22 | 19 | 13 | 18 | 5 | 4 | — | — |
| 2003 | — | 12 | 26 | 38 | 59 | 59 | 30 | 23 | 18 | — | — |
| 2004 | — | 18 | 12 | 14 | 31 | 44 | 37 | 39 | 21 | — | — |
| 2005 | — | 16 | 16 | 29 | 40 | 50 | 37 | 66 | 13 | — | — |
| 2006 | 6 | 8 | 14 | 36 | 57 | 55 | 19 | 20 | — | — | — |
| 2007 | 23 | 35 | 49 | 53 | 95 | 85 | 78 | 43 | 24 | — | — |
| 2008 | — | 3 | 7 | 16 | 51 | 65 | 40 | 45 | 15 | 4 | — |
| 2009 | — | 6 | 17 | 28 | 58 | 33 | 61 | 56 | 38 | — | — |
| 2010 | — | 2 | 13 | 12 | 15 | 13 | 24 | 17 | 17 | 6 | — |
| 2011 | — | 8 | 9 | 23 | 16 | 58 | 50 | 11 | 18 | 11 ^a | — |
| 2012 | 3 | 9 | 21 | 20 | 45 | 56 | 104 | 71 | 13 | — | — |
| 2013 | — | 18 | 17 | 21 | 31 | 38 | 57 | 53 | 33 | 13 | — |
| 2014 | — | 31 | 75 | 77 | 87 | 98 | 91 | 55 | 62 | — | — |
| 2015 | — | 17 | 11 | 33 | 65 | 70 | 51 | 40 | 36 | — | — |
| 2016 | — | 82 | 94 | 37 | 64 | 75 | 62 | 46 | — | — | — |
| 2017 | — | — | 20 | 10 | 29 | 24 | 16 | 40 | 31 | 11 | — |
| 2018 | — | — | 33 | 41 | 37 | 34 | 14 | 48 | — | — | — |

^aWeeks 36 and 37 combined due to confidential information.

APPENDIX D
DISTRICT 104 PURSE SEINE FISHERY SOCKEYE
SALMON HARVEST

Appendix D1.– Harvest of sockeye salmon by statistical week in the Subdistrict 104-10 purse seine fishery, 1960–2018 (– indicates no effort or harvest).

| Year | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 3637 | Total |
|------|-------|-------|--------|--------|--------|--------|--------|-------|-------|------|--------|
| 1960 | – | – | 109 | – | 86 | 683 | 4 | – | – | – | 882 |
| 1961 | – | – | – | – | – | – | – | – | – | – | 0 |
| 1962 | – | – | – | – | – | – | – | – | – | – | 0 |
| 1963 | – | – | – | – | – | 248 | 784 | 216 | – | – | 1,248 |
| 1964 | – | – | – | 24 | – | – | – | – | – | – | 24 |
| 1965 | – | – | – | – | 5 | – | 1,384 | 66 | – | – | 1,455 |
| 1966 | – | – | – | – | 18 | – | 273 | 46 | 4 | – | 341 |
| 1967 | – | – | – | – | – | – | – | – | – | – | 0 |
| 1968 | – | – | – | – | – | – | 16 | – | – | – | 16 |
| 1969 | – | – | – | – | – | 61 | – | – | – | – | 61 |
| 1970 | – | – | – | – | 222 | – | – | – | – | – | 222 |
| 1971 | – | – | – | – | – | – | – | – | – | – | 0 |
| 1972 | – | – | – | – | – | 50 | 24 | 20 | 3 | – | 97 |
| 1973 | – | – | – | 1,435 | 1,178 | – | – | – | – | – | 2,613 |
| 1974 | – | – | 1,236 | – | 1,376 | 1,516 | 49 | 16 | – | – | 4,193 |
| 1975 | – | – | – | – | – | – | – | – | – | – | 0 |
| 1976 | – | 32 | 59 | 4,045 | – | – | – | – | – | – | 4,136 |
| 1977 | – | 1,544 | 3,889 | 3,364 | 1,080 | 2,830 | 526 | – | 54 | – | 13,287 |
| 1978 | 2,951 | 90 | – | – | 301 | 52 | – | – | 3 | – | 3,397 |
| 1979 | 161 | 641 | 2,043 | 6,056 | 1,547 | – | 6 | – | – | – | 10,454 |
| 1980 | – | 3,962 | 8,351 | 1,607 | 3,501 | 3,767 | 381 | 83 | – | – | 21,652 |
| 1981 | – | 4,856 | 9,244 | 13,920 | 9,572 | 13,151 | 4,795 | 2,173 | 65 | – | 57,776 |
| 1982 | – | 6,410 | 39,926 | 22,602 | 1,403 | 1,463 | 318 | 137 | 431 | 118 | 72,808 |
| 1983 | – | 6,112 | 4,917 | 7,896 | 15,782 | 16,112 | 12,849 | – | – | – | 63,668 |
| 1984 | 660 | 839 | 9,952 | 15,293 | 14,975 | 5,203 | 2,247 | 1,093 | 4 | – | 50,266 |
| 1985 | – | 3,768 | 8,342 | 15,026 | 24,706 | 6,034 | 37 | 1,867 | – | – | 59,780 |
| 1986 | – | 1,857 | 7,147 | 11,174 | 16,256 | 17,898 | 3,633 | 4,126 | 1,333 | 494 | 63,918 |
| 1987 | – | 1,030 | 5,524 | 3,856 | 3,451 | 6,064 | 1,858 | 750 | – | – | 22,533 |
| 1988 | – | 3,931 | 19,849 | 17,155 | 6,411 | 8,661 | 3,321 | 1,528 | 956 | 200 | 62,012 |
| 1989 | 606 | 5,888 | 6,744 | 10,608 | 28,664 | 12,794 | 18,450 | 3,287 | 1,568 | – | 88,609 |

Appendix D1.–continued (page 2 of 2)

| Year | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 3637 | Total |
|------|-------|--------|--------|--------|--------|--------|--------|--------|--------|-------|---------|
| 1990 | 6,689 | 8,493 | 12,959 | – | 22,898 | 24,211 | 10,541 | 7,817 | 2,298 | – | 95,906 |
| 1991 | – | 5,296 | 18,935 | 12,894 | 58,622 | 32,981 | 15,307 | 9,434 | 2,123 | 677 | 156,269 |
| 1992 | – | 10,545 | 9,228 | 6,824 | 63,536 | 55,705 | 26,693 | 12,370 | 7,547 | – | 192,448 |
| 1993 | – | 20,663 | 13,192 | 23,582 | 49,666 | 23,565 | 15,235 | 9,626 | 9,638 | 2,085 | 167,252 |
| 1994 | – | 3,942 | 6,478 | 19,968 | 28,904 | 29,078 | 19,986 | 14,470 | 15,836 | 6,938 | 145,600 |
| 1995 | 392 | 856 | 9,653 | 13,055 | 28,972 | 12,437 | 13,316 | 8,320 | 4,415 | 3,864 | 95,280 |
| 1996 | – | 11,456 | 24,713 | – | 29,907 | 38,487 | 5,376 | 1,978 | 3,235 | 912 | 116,064 |
| 1997 | – | 38,958 | 34,191 | 23,737 | 39,843 | 18,025 | 24,057 | 16,183 | – | – | 194,994 |
| 1998 | – | 910 | 882 | 772 | 12,453 | 13,620 | 16,967 | 7,525 | 1,637 | – | 54,766 |
| 1999 | – | 634 | 209 | 2,099 | 3,061 | 11,447 | 4,804 | 3,289 | 3,555 | 871 | 29,969 |
| 2000 | – | 2,327 | 3,753 | 4,878 | 12,155 | 16,777 | 9,900 | 896 | – | – | 50,686 |
| 2001 | 8,016 | 18,225 | 12,169 | 6,632 | 17,615 | 5,212 | 1,716 | 1,210 | – | – | 70,795 |
| 2002 | – | 3,107 | 1,635 | 1,467 | 858 | – | – | – | – | – | 7,067 |
| 2003 | – | 45 | 2,579 | 4,327 | 18,972 | 10,906 | 2,695 | 2,666 | 437 | – | 42,627 |
| 2004 | – | 955 | 1,067 | 6,026 | 8,473 | 3,129 | 3,138 | 4,575 | 1,016 | – | 28,379 |
| 2005 | – | 337 | 752 | 1,286 | 5,018 | 7,528 | 6,164 | 8,673 | 3,087 | – | 32,845 |
| 2006 | 605 | – | 4,818 | 1,068 | 278 | 1,208 | 128 | 1,675 | – | – | 9,780 |
| 2007 | 663 | 1,472 | 1,314 | 6,519 | 23,381 | 16,709 | 780 | – | 3,931 | – | 54,769 |
| 2008 | – | – | 3 | 32 | 1 | – | 532 | 49 | 6 | 2 | 625 |
| 2009 | – | 753 | 1,391 | 3,331 | 3,419 | 2,300 | 197 | 185 | 15 | – | 11,591 |
| 2010 | – | – | 309 | – | 10 | – | 76 | – | 41 | – | 436 |
| 2011 | – | 382 | 4,927 | 9,416 | 9,373 | 10,040 | 5,464 | 7 | 305 | 438 | 40,352 |
| 2012 | – | 734 | 3,109 | 1,760 | 453 | 1,436 | 1,412 | 429 | 23 | – | 9,356 |
| 2013 | – | 1,086 | 68 | 189 | 1,138 | 1,371 | 2,665 | 667 | 596 | 95 | 7,875 |
| 2014 | – | 148 | 2,876 | 5,441 | 16,632 | 46,937 | 19,665 | 10,252 | 8,925 | – | 110,876 |
| 2015 | – | 2,288 | 886 | 2,958 | 7,442 | 28,086 | 9,720 | 3,500 | 6,241 | – | 61,121 |
| 2016 | – | 3,217 | 13,565 | 1,794 | 9,504 | 28,770 | 8,173 | 1,154 | – | – | 66,177 |
| 2017 | – | – | 1,356 | 628 | 964 | 1,673 | 436 | 2,335 | 6,203 | 112 | 13,707 |
| 2018 | – | – | 1,778 | 2,263 | 907 | 1,368 | 1,011 | 7,564 | – | – | 14,891 |

Appendix D2.– Harvest of sockeye salmon by statistical week in the Subdistrict 104-20 purse seine fishery, 1960–2018 (– indicates no effort or harvest).

| Year | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | Total |
|------|-------|-------|--------|--------|--------|--------|--------|-------|-------|-------|---------|
| 1960 | – | – | 27 | – | 21 | 319 | 1 | 1 | 1 | – | 370 |
| 1961 | – | – | – | – | – | 20 | 10 | 4 | – | – | 0 |
| 1962 | – | – | – | – | – | – | – | – | 2 | – | 2 |
| 1963 | – | – | – | – | – | 8,672 | 1,560 | 14 | 1 | – | 10,247 |
| 1964 | – | – | – | 18 | – | – | 6 | – | – | – | 24 |
| 1965 | – | – | – | – | 66 | 847 | 259 | – | – | – | 1,172 |
| 1966 | – | – | – | – | – | – | 203 | 21 | – | – | 224 |
| 1967 | – | – | – | – | – | 79 | 18 | – | – | – | 97 |
| 1968 | – | – | – | – | 2,122 | 145 | 3 | – | 110 | – | 2,380 |
| 1969 | – | – | – | – | – | – | 8 | – | – | – | 8 |
| 1970 | – | – | – | – | 415 | 219 | – | – | – | – | 634 |
| 1971 | – | – | – | – | – | – | – | – | – | – | 0 |
| 1972 | – | – | 250 | – | – | – | – | – | 34 | – | 284 |
| 1973 | – | – | – | 1,948 | 1,820 | 241 | – | – | – | – | 4,009 |
| 1974 | – | 214 | 635 | – | 856 | 1,183 | 19 | 23 | – | – | 2,930 |
| 1975 | – | – | – | – | – | – | – | – | – | – | 0 |
| 1976 | – | 15 | 185 | – | – | – | – | – | – | – | 200 |
| 1977 | – | 181 | – | 2,305 | – | 1,118 | 314 | – | 11 | – | 3,929 |
| 1978 | 141 | – | 9 | 16 | 241 | 20 | 219 | – | – | – | 646 |
| 1979 | – | 328 | 1,150 | 454 | – | – | 16 | – | – | – | 1,948 |
| 1980 | – | – | 871 | 9 | 187 | 1,659 | – | 1 | – | – | 2,727 |
| 1981 | – | 818 | 1,108 | – | 37 | 3,829 | 811 | 781 | – | – | 7,384 |
| 1982 | – | 2,493 | 5,414 | 3,137 | 181 | 2,192 | 4,695 | 191 | 196 | 156 | 18,655 |
| 1983 | – | 4,141 | 6,682 | 4,306 | 37,001 | 11,431 | 12,346 | 515 | 660 | – | 77,082 |
| 1984 | 226 | 5,525 | 3,042 | 7,395 | 27,072 | 26,280 | 9,822 | 3,987 | 13 | – | 83,362 |
| 1985 | – | 2,307 | 1,303 | 17,395 | 26,672 | 20,608 | 4,552 | 5,483 | 1,213 | – | 79,533 |
| 1986 | – | 2,000 | 7,384 | 16,723 | 32,515 | 55,830 | 24,328 | 3,544 | 3,112 | 780 | 146,216 |
| 1987 | – | 1,050 | 12,348 | 8,382 | 6,147 | 25,481 | 1,518 | 1,063 | – | – | 55,989 |
| 1988 | – | 5,368 | 35,575 | 38,347 | 11,458 | 26,248 | 13,437 | 4,817 | 4,959 | 1,567 | 141,776 |
| 1989 | 1,996 | 9,168 | 10,095 | 16,787 | 28,341 | 17,262 | 16,481 | 2,243 | 643 | – | 103,016 |

Appendix D2.–continued (page 2 of 2)

| Year | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | Total |
|------|--------|--------|---------|--------|---------|---------|--------|--------|--------|-------|---------|
| 1990 | 11,150 | 15,584 | 11,684 | | 51,404 | 79,510 | 41,085 | 13,668 | 2,746 | – | 226,831 |
| 1991 | – | 3,665 | 9,010 | 5,070 | 92,669 | 83,886 | 18,759 | 10,440 | 1,340 | 472 | 225,311 |
| 1992 | – | 7,618 | 3,691 | 3,794 | 86,110 | 69,615 | 46,722 | 32,910 | 15,464 | – | 265,924 |
| 1993 | – | 7,719 | 10,140 | 34,549 | 116,341 | 79,761 | 34,353 | 19,506 | 12,108 | 4,548 | 319,025 |
| 1994 | – | 4,369 | 10,054 | 8,276 | 47,564 | 47,450 | 44,797 | 36,289 | 18,183 | 8,463 | 225,445 |
| 1995 | 584 | 674 | 3,400 | 9,868 | 53,956 | 23,520 | 32,448 | 24,571 | 9,517 | 1,882 | 160,420 |
| 1996 | – | 4,210 | 108,248 | – | 104,152 | 50,464 | 17,089 | 3,628 | 6,623 | 144 | 294,558 |
| 1997 | – | 56,253 | 42,698 | 44,041 | 85,893 | 9,001 | 10,349 | 34,121 | – | – | 282,356 |
| 1998 | – | 918 | 2,735 | 6,223 | 11,464 | 27,425 | 13,459 | 4,592 | 822 | – | 67,638 |
| 1999 | – | 345 | 120 | – | 321 | 14,794 | 9,441 | 4,297 | 2,076 | 847 | 32,241 |
| 2000 | – | 710 | 1,193 | 3,003 | 32,719 | 16,247 | 12,398 | 1,120 | 2 | – | 67,392 |
| 2001 | 1,814 | 7,378 | 9,705 | 378 | 34,555 | 15,065 | 6,179 | 916 | – | – | 75,990 |
| 2002 | – | 2,135 | 2,305 | 272 | 211 | 17 | 28 | – | – | – | 4,968 |
| 2003 | – | 159 | 9,449 | 5,070 | 32,729 | 14,092 | 933 | 1,028 | – | – | 63,460 |
| 2004 | – | 654 | – | – | 3,770 | 268 | 7,962 | 3,212 | – | – | 15,866 |
| 2005 | – | 1,976 | – | 1,175 | 5,103 | 3,248 | 1,508 | 6,329 | – | – | 19,339 |
| 2006 | 65 | – | 2,967 | 2,180 | 1,732 | – | – | – | – | – | 6,944 |
| 2007 | 3,154 | 2,953 | 2,539 | 13,065 | 35,973 | 13,710 | 4,882 | 4,042 | 378 | – | 80,696 |
| 2008 | – | – | – | – | 197 | 848 | 159 | – | – | – | 1,204 |
| 2009 | – | 83 | 69 | 2,783 | 7,217 | 199 | 2,521 | 2,058 | 109 | – | 15,039 |
| 2010 | – | 179 | 242 | 38 | 72 | – | – | 110 | 50 | – | 691 |
| 2011 | – | 103 | 434 | 1,460 | – | 2,218 | 2,360 | 1,257 | – | – | 7,832 |
| 2012 | – | 85 | 78 | 456 | 587 | 2,302 | 1,853 | 476 | 54 | – | 5,891 |
| 2013 | – | 1,296 | 107 | 817 | 132 | 3,580 | 6,231 | 1,199 | 101 | – | 13,463 |
| 2014 | – | 1,614 | 6,081 | 8,828 | 54,861 | 132,161 | 36,866 | 23,271 | 2,118 | – | 265,800 |
| 2015 | – | 70 | – | 67 | 13,681 | 10,937 | 5,799 | 3,512 | 1,555 | – | 35,621 |
| 2016 | – | 1,671 | 15,457 | 1,040 | 8,079 | 24,562 | 6,594 | 3,268 | – | – | 60,671 |
| 2017 | – | – | 424 | – | – | 2,884 | – | 408 | 9 | – | 3,725 |
| 2018 | – | – | 639 | 232 | 677 | 1,546 | 66 | 1,761 | – | – | 4,921 |

Appendix D3.– Harvest of sockeye salmon by statistical week in the Subdistrict 104-30 purse seine fishery, 1960–2018 (– indicates no effort or harvest).

| Year | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | Total |
|------|-------|-------|-------|-------|-------|--------|-------|-------|-----|-----|--------|
| 1960 | – | – | – | – | – | – | – | – | – | – | 0 |
| 1961 | – | – | – | – | – | – | 6 | 19 | – | – | 0 |
| 1962 | – | – | – | – | 68 | – | – | 28 | 3 | – | 99 |
| 1963 | – | – | – | – | – | – | 1 | – | – | – | 1 |
| 1964 | – | – | – | – | – | – | – | – | – | – | 0 |
| 1965 | – | – | – | – | – | – | – | – | 52 | – | 52 |
| 1966 | – | – | – | 392 | 61 | 350 | 123 | 2 | – | – | 928 |
| 1967 | – | – | – | – | – | – | – | – | – | – | 0 |
| 1968 | – | – | – | – | – | – | – | – | – | – | 0 |
| 1969 | – | – | – | – | – | – | – | – | – | – | 0 |
| 1970 | – | – | – | – | – | – | – | 120 | – | – | 120 |
| 1971 | – | – | – | – | – | – | – | – | – | – | 0 |
| 1972 | – | – | – | 793 | – | – | – | – | 1 | – | 794 |
| 1973 | – | – | – | – | – | – | – | – | – | – | 0 |
| 1974 | – | – | – | – | – | – | – | – | – | – | 0 |
| 1975 | – | – | – | – | – | – | – | – | – | – | 0 |
| 1976 | – | 322 | 879 | 1,487 | – | – | – | – | – | – | 2,688 |
| 1977 | – | 2,294 | 11 | 1,991 | 420 | 1,238 | 335 | – | – | – | 6,289 |
| 1978 | 4,168 | 1,207 | 1,237 | 2,595 | 452 | 68 | 308 | 2 | – | – | 10,037 |
| 1979 | 1,665 | 1,820 | 246 | 1,621 | 659 | – | 2 | 2 | – | – | 6,015 |
| 1980 | – | 408 | 555 | – | 105 | 1,586 | 1,247 | 493 | – | – | 4,394 |
| 1981 | – | 2,538 | 993 | 1,704 | 3,415 | 6,601 | 1,842 | 174 | – | – | 17,267 |
| 1982 | – | 1,774 | 1,920 | 2,969 | 655 | 806 | 817 | – | 1 | – | 8,942 |
| 1983 | – | 1,226 | 319 | 741 | 2,899 | 1,890 | 762 | – | – | – | 7,837 |
| 1984 | 124 | 178 | – | 413 | 539 | 4,001 | 2,576 | 401 | 6 | – | 8,238 |
| 1985 | – | 12 | 731 | 3,888 | 3,789 | 12,688 | 2,648 | 4,359 | 952 | – | 29,067 |
| 1986 | – | – | 346 | 933 | 3,416 | 5,339 | 3,281 | 1,026 | 468 | 66 | 14,875 |
| 1987 | – | 94 | 1,276 | 2,352 | 4,332 | 3,633 | 1,316 | – | – | – | 13,003 |
| 1988 | – | 1,791 | 5,469 | 2,917 | 328 | 3,911 | 1,199 | 1,111 | 860 | 148 | 17,734 |
| 1989 | 2,861 | 619 | – | 910 | 577 | 1,711 | 787 | 77 | – | – | 7,542 |

Appendix D3.–continued (page 2 of 2)

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| Year | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | Total |
|------|----|-------|-------|-------|--------|-------|-------|-------|-------|-----|--------|
| 1990 | 57 | 994 | 1,723 | 100 | 1,452 | 1,512 | 2,600 | 1,056 | 225 | – | 9,719 |
| 1991 | – | 110 | 646 | – | 2,520 | 1,265 | 6,305 | 307 | 33 | – | 11,186 |
| 1992 | – | 447 | 276 | – | 5,586 | 1,856 | 1,269 | 766 | 1,087 | – | 11,287 |
| 1993 | – | – | – | 4,192 | 13,591 | 4,262 | 991 | 2,468 | 678 | 131 | 26,313 |
| 1994 | – | – | 118 | 521 | 5,811 | 4,697 | 5,634 | 1,312 | 350 | 246 | 18,689 |
| 1995 | – | – | – | 1,499 | 1,040 | 4,243 | 923 | 1,784 | 949 | – | 10,438 |
| 1996 | – | – | – | – | 6,858 | 4,671 | 471 | 371 | 179 | – | 12,550 |
| 1997 | – | 1,336 | 5,243 | 3,509 | 577 | 1,457 | 3,157 | 2,175 | – | – | 17,454 |
| 1998 | – | 18 | 6 | – | 934 | 102 | 366 | 39 | 18 | – | 1,483 |
| 1999 | – | – | – | 287 | – | 165 | 710 | 167 | 270 | 122 | 1,721 |
| 2000 | – | – | – | – | – | 2,641 | 960 | – | – | – | 3,601 |
| 2001 | – | 1,566 | 2,570 | – | 2,360 | 2,154 | 205 | 106 | 3 | – | 8,964 |
| 2002 | – | – | – | – | 85 | 72 | 72 | 63 | 3 | – | 295 |
| 2003 | – | – | 415 | – | 796 | 225 | 24 | 18 | – | – | 1,478 |
| 2004 | – | – | – | – | – | 1,052 | – | – | – | – | 1,052 |
| 2005 | – | – | – | 39 | 110 | 1,117 | 655 | – | 10 | – | 1,931 |
| 2006 | – | – | – | 376 | – | 74 | – | – | – | – | 450 |
| 2007 | – | – | 380 | 1,687 | 2,490 | 17 | – | – | 583 | – | 5,157 |
| 2008 | – | – | – | – | 14 | – | 97 | – | – | – | 111 |
| 2009 | – | – | 111 | 768 | 2,887 | 524 | 324 | 87 | 13 | – | 4,714 |
| 2010 | – | – | – | – | 148 | 1,073 | 1,455 | 363 | 269 | – | 3,308 |
| 2011 | – | – | – | 522 | 466 | 2,612 | 671 | – | – | – | 4,271 |
| 2012 | – | – | – | 177 | 1,185 | 608 | 106 | 67 | – | – | 2,143 |
| 2013 | – | – | 56 | – | 267 | 329 | 798 | 15 | 34 | – | 1,499 |
| 2014 | – | 335 | – | 446 | 8,669 | 2,562 | 1,847 | – | 24 | – | 13,883 |
| 2015 | – | 92 | 97 | – | 1,533 | 414 | 3,045 | 639 | 131 | – | 5,951 |
| 2016 | – | – | – | – | 798 | 202 | 231 | 185 | – | – | 1,416 |
| 2017 | – | – | – | – | 118 | – | 149 | 192 | 8 | 3 | 470 |
| 2018 | – | – | – | 217 | 314 | 1,135 | 275 | 965 | – | – | 2,906 |

Appendix D4.– Harvest of sockeye salmon by statistical week in the Subdistrict 104-35 purse seine fishery, 1960–2018 (– indicates no effort or harvest).

| Year | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | Total |
|------|-------|--------|--------|--------|--------|--------|--------|-------|-------|-----|---------|
| 1960 | – | – | – | – | – | – | – | – | – | – | 0 |
| 1961 | – | – | – | – | – | – | – | – | – | – | 0 |
| 1962 | 12 | – | – | – | – | – | – | – | – | – | 12 |
| 1963 | 3,205 | – | – | 14,470 | 19,268 | 4,451 | 1,506 | 629 | 298 | – | 43,827 |
| 1964 | 1,698 | 8,672 | 16,294 | 26,779 | 16,907 | 7,799 | 1,897 | 671 | – | – | 80,717 |
| 1965 | 4 | 6,899 | 12,518 | 31,584 | 19,731 | 8,404 | 804 | 44 | – | – | 79,988 |
| 1966 | – | 551 | 272 | 1,443 | 1,316 | 4,292 | 1,814 | 513 | 165 | 4 | 10,370 |
| 1967 | 1,084 | 11,764 | 24,749 | 38,243 | 45,524 | 4,035 | 1,278 | – | – | – | 126,677 |
| 1968 | 2,004 | 3,564 | 8,327 | 3,770 | 2,725 | 493 | 1,103 | 1,898 | 123 | 1 | 24,008 |
| 1969 | – | 869 | 2,164 | 2,739 | 5,818 | 6,182 | 813 | 231 | – | – | 18,816 |
| 1970 | – | 296 | 35 | 1,173 | 1,898 | 542 | 324 | 36 | 1 | – | 4,305 |
| 1971 | – | – | – | – | – | – | 854 | 1,493 | 135 | 64 | 2,546 |
| 1972 | – | – | 4,892 | 2,655 | 1,732 | 6,942 | 7,136 | 1,935 | 211 | 5 | 25,508 |
| 1973 | – | 6,573 | 7,378 | 7,186 | 10,494 | 3,133 | 231 | – | – | – | 34,995 |
| 1974 | – | 882 | 4,820 | 13,998 | 9,216 | 6,637 | 1,447 | 283 | 265 | – | 37,548 |
| 1975 | – | 2,107 | 8,195 | – | – | – | – | – | – | – | 10,302 |
| 1976 | – | 3,479 | 8,879 | 16,242 | – | – | – | 152 | – | – | 28,752 |
| 1977 | – | 603 | – | 9 | 2,623 | 3,119 | 202 | – | – | – | 6,556 |
| 1978 | – | 46 | 303 | – | 522 | 208 | 257 | 77 | 91 | – | 1,504 |
| 1979 | 470 | 3,926 | 1,140 | 1,711 | 1,421 | – | 55 | – | – | – | 8,723 |
| 1980 | – | 54 | 1,825 | 3,632 | 10,389 | 3,730 | 3,044 | 153 | – | – | 22,827 |
| 1981 | – | 5,719 | 1,832 | 3,876 | 1,957 | 2,133 | 2,638 | 1,082 | – | – | 19,237 |
| 1982 | – | 2,880 | 6,830 | 3,114 | 108 | 2,369 | 5,470 | 871 | 171 | 57 | 21,870 |
| 1983 | – | 979 | 5,592 | 8,754 | 24,209 | 1,976 | 6,389 | 488 | – | – | 48,387 |
| 1984 | 870 | 1,439 | 1,011 | 5,045 | 11,874 | 11,344 | 7,823 | 472 | 8 | – | 39,886 |
| 1985 | – | 480 | 137 | 231 | 6,485 | 12,209 | 2,399 | 2,346 | 1,065 | – | 25,352 |
| 1986 | – | 1,468 | 5,586 | 7,469 | 12,282 | 20,116 | 7,246 | 3,333 | 1,336 | 370 | 59,206 |
| 1987 | – | 439 | 10,065 | 3,601 | 2,053 | 11,701 | 232 | – | – | – | 28,091 |
| 1988 | – | 1,503 | 17,268 | 14,427 | 2,118 | 39,730 | 12,102 | 2,418 | 1,737 | 340 | 91,643 |
| 1989 | 2,095 | 8,108 | 3,115 | 6,921 | 790 | 6,298 | 4,796 | 335 | 365 | – | 32,823 |

Appendix D4.–continued (page 2 of 2)

| Year | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | Total |
|------|-------|--------|--------|--------|--------|--------|--------|--------|--------|-------|---------|
| 1990 | 567 | 973 | 16,636 | 10,386 | 7,441 | 6,731 | 9,758 | 4,353 | 2,701 | – | 59,546 |
| 1991 | – | 8,779 | 15,622 | – | 12,359 | 12,324 | 11,532 | 5,413 | 220 | 16 | 66,265 |
| 1992 | – | 3,233 | 9,630 | – | 15,345 | 7,664 | 4,422 | 889 | 2,113 | – | 43,296 |
| 1993 | – | 3,168 | 2,168 | 8,581 | 19,194 | 27,977 | 16,440 | 15,916 | 8,130 | 2,556 | 104,130 |
| 1994 | – | 1,273 | 1,606 | – | 19,771 | 26,100 | 18,451 | 18,898 | 7,732 | 1,330 | 95,161 |
| 1995 | 172 | 106 | 1,279 | 5,110 | 18,420 | 12,052 | 7,097 | 2,756 | 1,959 | 458 | 49,409 |
| 1996 | – | 447 | 12,595 | 6,161 | 48,804 | 12,145 | 3,080 | 304 | 2,627 | – | 86,163 |
| 1997 | – | 38,388 | 19,844 | 25,864 | 28,357 | 6,887 | 12,496 | 25,444 | – | – | 157,280 |
| 1998 | – | 223 | 186 | 689 | 1,756 | 20,839 | 10,364 | 11,720 | 154 | – | 45,931 |
| 1999 | – | 62 | 523 | 207 | – | 4,027 | 4,659 | 2,228 | 508 | 212 | 12,426 |
| 2000 | – | 1,834 | 3,904 | 2,117 | 2,696 | 11,540 | 303 | 213 | – | – | 22,607 |
| 2001 | 301 | 6,428 | 17,216 | 3,533 | 43,144 | 14,480 | 3,958 | 1,827 | – | – | 90,887 |
| 2002 | – | 94 | 2,283 | 1,059 | 567 | 163 | 2 | – | – | – | 4,168 |
| 2003 | – | – | 6,496 | 20,406 | 15,191 | 12,478 | 5,437 | 1,130 | – | – | 61,138 |
| 2004 | – | 624 | 1,525 | 9,121 | 8,948 | 20,541 | 14,587 | 13,447 | 1,688 | – | 70,481 |
| 2005 | – | 283 | 2,994 | 5,979 | 5,957 | 13,794 | 20,123 | 51,315 | 4,809 | – | 105,254 |
| 2006 | 71 | 3,454 | 2,911 | 910 | 1,720 | 4,388 | 4,811 | 2,884 | – | – | 21,149 |
| 2007 | 1,660 | 6,559 | 6,693 | 28,939 | 39,219 | 12,870 | 14,090 | 2,078 | 3,361 | – | 115,469 |
| 2008 | – | 293 | 2,276 | 1,715 | 895 | 3,378 | 3,342 | 913 | – | – | 12,812 |
| 2009 | – | 7 | 385 | 1,070 | 17,852 | 1,378 | 4,331 | 1,184 | 148 | – | 26,355 |
| 2010 | – | – | 1,205 | – | – | 196 | – | 192 | 878 | 244 | 2,715 |
| 2011 | – | 787 | 1,394 | 1,182 | 9,096 | 22,260 | 1,293 | – | 64 | – | 36,076 |
| 2012 | 320 | 685 | 2,317 | 2,575 | 1,890 | 1,334 | 3,507 | 938 | 4 | – | 13,570 |
| 2013 | – | 1,022 | 2,058 | 1,176 | 3,709 | 2,501 | 3,853 | 2,368 | 1,309 | 21 | 18,017 |
| 2014 | – | 825 | 8,940 | 22,125 | 38,798 | 15,432 | 34,063 | 40,222 | 21,765 | – | 182,170 |
| 2015 | – | 762 | 3,145 | 6,955 | 21,933 | 16,428 | 7,432 | 7,653 | 2,641 | – | 66,949 |
| 2016 | – | 2,965 | 6,848 | 2,722 | 14,480 | 54,772 | 6,770 | 4,299 | – | – | 92,856 |
| 2017 | – | – | 3,163 | 707 | 1,999 | 5,009 | 1,506 | 4,452 | 1,161 | 1 | 17,998 |
| 2018 | – | – | 638 | 907 | 101 | 866 | 5,416 | 13,861 | – | – | 21,789 |

Appendix D5.– Harvest of sockeye salmon by statistical week in the Subdistrict 104-40 purse seine fishery, 1960–2018 (– indicates no effort or harvest).

| Year | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 3637 | Total |
|------|--------|--------|---------|--------|--------|---------|--------|--------|--------|-------|---------|
| 1960 | – | 12,026 | 27,726 | 34,227 | 31,925 | 12,309 | 2,166 | 3,238 | 3,107 | 882 | 127,606 |
| 1961 | – | – | 4,604 | 2,123 | 8,267 | 19,235 | 8,228 | 34 | 4 | – | 0 |
| 1962 | 15,896 | 15,101 | 32,746 | 53,017 | 10,069 | 6,425 | 4,117 | 1,415 | 458 | – | 139,244 |
| 1963 | 5,952 | – | – | 26,872 | 35,783 | 8,265 | 2,796 | 1,169 | 553 | – | 81,390 |
| 1964 | 3,154 | 16,104 | 30,260 | 49,732 | 31,400 | 14,484 | 3,524 | 1,246 | 1 | – | 149,905 |
| 1965 | 7 | 12,813 | 23,247 | 58,657 | 36,643 | 15,607 | 1,494 | 81 | 1 | – | 148,550 |
| 1966 | – | 1,024 | 506 | 2,679 | 2,443 | 7,970 | 3,369 | 954 | 307 | 7 | 19,259 |
| 1967 | 2,012 | 21,847 | 45,962 | 71,023 | 84,544 | 7,493 | 2,373 | – | – | – | 235,254 |
| 1968 | 3,721 | 6,620 | 15,464 | 7,001 | 5,062 | 916 | 2,049 | 3,525 | 228 | 1 | 44,587 |
| 1969 | – | 1,205 | 2,600 | 4,435 | 10,914 | 16,236 | 1,757 | 605 | – | – | 37,752 |
| 1970 | – | 519 | 169 | 958 | 6,667 | 617 | 240 | 142 | 2 | – | 9,314 |
| 1971 | – | – | – | – | – | – | 3,849 | 4,435 | 142 | 158 | 8,584 |
| 1972 | – | 2,374 | 7,267 | 3,832 | 3,157 | 12,986 | 11,546 | 3,591 | 718 | 291 | 45,762 |
| 1973 | – | 21,355 | 16,094 | 11,275 | 16,906 | 6,622 | 35 | 3 | – | – | 72,290 |
| 1974 | – | 1,811 | 11,905 | 31,136 | 14,235 | 12,130 | 1,954 | 983 | 113 | – | 74,267 |
| 1975 | – | 4,178 | 12,698 | – | – | – | – | – | – | – | 16,876 |
| 1976 | – | 6,372 | 18,190 | 40,071 | – | – | – | 274 | – | – | 64,907 |
| 1977 | – | 25,885 | 65,260 | 30,456 | 37,929 | 16,085 | 3,308 | – | 100 | – | 179,023 |
| 1978 | 29,498 | 4,688 | 17,056 | 8,420 | 18,106 | 3,657 | 6,156 | 646 | 233 | 188 | 88,648 |
| 1979 | 24,470 | 78,460 | 108,089 | 39,230 | 12,872 | – | 1,272 | 575 | – | – | 264,968 |
| 1980 | – | 92,029 | 92,324 | 44,462 | 65,280 | 37,396 | 5,910 | 906 | 12 | 1 | 338,320 |
| 1981 | – | 88,966 | 27,080 | 22,534 | 14,296 | 16,553 | 15,982 | 1,232 | – | – | 186,643 |
| 1982 | – | 24,042 | 65,563 | 20,775 | 3,515 | 6,423 | 14,848 | 11,835 | 6,450 | 3,103 | 156,554 |
| 1983 | – | 28,396 | 43,473 | 44,047 | 97,993 | 99,742 | 79,993 | 32,125 | 16,801 | – | 442,570 |
| 1984 | 2,767 | 8,785 | 15,910 | 23,279 | 35,173 | 11,891 | 11,145 | 2,257 | 281 | – | 111,488 |
| 1985 | – | 5,120 | 5,519 | 36,062 | 52,404 | 88,247 | 24,828 | 14,109 | 9,548 | – | 235,837 |
| 1986 | – | 1,867 | 9,844 | 17,503 | 39,700 | 55,643 | 24,611 | 3,843 | 5,768 | 1,332 | 160,111 |
| 1987 | – | 1,645 | 9,001 | 11,722 | 6,832 | 20,049 | 2,114 | – | – | – | 51,363 |
| 1988 | – | 3,687 | 52,765 | 28,734 | 9,929 | 132,533 | 37,944 | 4,788 | 6,548 | 1,151 | 278,079 |
| 1989 | 1,705 | 24,469 | 11,392 | 33,479 | 58,866 | 47,266 | 74,434 | 20,741 | 12,259 | – | 284,611 |

Appendix D5.–continued (page 2 of 2)

| Year | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 3637 | Total |
|------|-------|--------|--------|--------|---------|---------|---------|---------|--------|--------|---------|
| 1990 | 6,022 | 15,073 | 21,793 | 29,060 | 82,806 | 56,148 | 121,759 | 65,827 | 6,251 | – | 404,739 |
| 1991 | – | 5,158 | 13,398 | – | 131,148 | 128,310 | 41,177 | 52,136 | 16,933 | 2,372 | 390,632 |
| 1992 | – | 8,390 | 15,967 | – | 256,508 | 175,394 | 83,401 | 11,629 | 7,600 | – | 558,889 |
| 1993 | – | 10,224 | 1,901 | 23,110 | 77,686 | 53,130 | 45,877 | 52,695 | 48,320 | 15,249 | 328,192 |
| 1994 | – | 2,284 | 23,549 | 76,086 | 78,241 | 195,806 | 138,265 | 64,791 | 56,083 | 16,085 | 651,190 |
| 1995 | 749 | 46 | 6,348 | 17,585 | 44,376 | 50,380 | 36,289 | 15,508 | 7,516 | 2,437 | 181,234 |
| 1996 | – | 4,912 | 26,365 | 16,037 | 139,392 | 120,867 | 23,163 | 12,321 | 7,847 | 200 | 351,104 |
| 1997 | – | 67,258 | 94,187 | 77,247 | 98,348 | 69,981 | 96,880 | 88,197 | – | – | 592,098 |
| 1998 | – | 505 | 1,524 | 1,803 | 15,034 | 188,903 | 75,810 | 29,040 | 4,559 | – | 317,178 |
| 1999 | – | 619 | 1,731 | 828 | 2,491 | 27,001 | 26,065 | 18,009 | 10,692 | 1,043 | 88,479 |
| 2000 | – | 922 | 13,735 | 10,593 | 18,475 | 28,013 | 9,428 | 1,587 | – | – | 82,753 |
| 2001 | 1,671 | 51,864 | 49,087 | 4,283 | 130,377 | 36,371 | 6,446 | 6,288 | 2,466 | – | 288,853 |
| 2002 | – | 351 | 4,193 | 7,653 | 2,953 | 1,577 | 531 | 75 | 328 | – | 17,661 |
| 2003 | – | 819 | 7,572 | 27,405 | 22,555 | 37,139 | 14,893 | 40,969 | 9,664 | – | 161,016 |
| 2004 | – | 1,268 | 2,264 | 7,254 | 47,287 | 59,032 | 58,853 | 41,225 | 16,178 | – | 233,361 |
| 2005 | – | 3,809 | 4,753 | 12,307 | 20,013 | 67,897 | 38,014 | 208,138 | 7,554 | – | 362,485 |
| 2006 | 259 | 444 | 7,868 | 61,619 | 79,040 | 38,208 | 8,089 | 8,184 | – | – | 203,711 |
| 2007 | 1,929 | 6,563 | 10,693 | 15,353 | 105,079 | 161,748 | 150,128 | 41,308 | 20,885 | – | 513,686 |
| 2008 | – | 83 | 252 | 1,608 | 7,145 | 6,097 | 5,564 | 4,526 | 1,053 | 47 | 26,375 |
| 2009 | – | 71 | 1,141 | 4,008 | 18,802 | 2,863 | 11,574 | 6,896 | 6,293 | – | 51,648 |
| 2010 | – | 147 | 1,044 | 1,453 | 2,780 | 1,906 | 1,886 | 770 | 506 | 209 | 10,701 |
| 2011 | – | 858 | 2,532 | 1,283 | 18,982 | 72,109 | 13,303 | 1,139 | 2,111 | 1,520 | 113,837 |
| 2012 | 52 | – | 2,984 | 2,968 | 4,069 | 21,048 | 7,068 | 2,724 | 518 | – | 41,431 |
| 2013 | – | 1,748 | 961 | 2,518 | 6,162 | 8,192 | 11,907 | 6,624 | 3,137 | 732 | 41,981 |
| 2014 | – | 18,488 | 13,963 | 24,265 | 18,774 | 11,180 | 13,984 | 13,788 | 14,670 | – | 129,112 |
| 2015 | – | 3,175 | 1,716 | 21,662 | 89,861 | 87,485 | 51,734 | 48,152 | 19,348 | – | 323,133 |
| 2016 | – | 20,098 | 35,811 | 5,158 | 38,226 | 68,837 | 10,919 | 5,820 | – | – | 184,869 |
| 2017 | – | – | 2,549 | 3,209 | 16,268 | 6,703 | 7,571 | 12,638 | 11,801 | 1,385 | 62,124 |
| 2018 | – | – | 4,503 | 8,566 | 1,715 | 5,855 | 3,789 | 52,386 | – | – | 76,814 |

Appendix D6.– Harvest of sockeye salmon by statistical week in the Subdistrict 104-50 purse seine fishery, 1960–2018 (– indicates no effort or harvest).

| Year | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | Total |
|------|-------|--------|--------|-------|-------|-------|-----|-------|-----|----|--------|
| 1960 | – | – | – | – | – | – | – | – | – | – | 0 |
| 1961 | – | – | – | – | – | – | – | – | – | – | 0 |
| 1962 | – | – | – | – | – | – | – | – | – | – | 0 |
| 1963 | – | – | – | – | 1,657 | – | – | – | – | – | 1,657 |
| 1964 | – | – | – | – | 546 | 29 | – | – | – | – | 575 |
| 1965 | – | – | – | – | – | 204 | – | – | – | – | 204 |
| 1966 | – | – | – | – | – | – | 28 | – | – | – | 28 |
| 1967 | – | – | – | – | 460 | 119 | – | – | – | – | 579 |
| 1968 | – | – | – | – | – | – | 84 | 24 | – | – | 108 |
| 1969 | – | 13 | – | 320 | 227 | 200 | 237 | 25 | – | – | 1,022 |
| 1970 | – | – | – | – | – | – | – | – | – | – | 0 |
| 1971 | – | – | – | – | – | – | 135 | 177 | 144 | 2 | 458 |
| 1972 | – | – | 3,970 | 2,151 | – | 4,702 | 188 | 1,647 | 50 | – | 12,708 |
| 1973 | – | – | 55 | – | 4 | 1,545 | – | – | – | – | 1,604 |
| 1974 | – | – | – | – | – | – | – | 138 | 48 | – | 186 |
| 1975 | – | – | – | – | – | – | – | – | – | – | 0 |
| 1976 | – | 943 | 338 | 2,611 | – | – | – | – | – | – | 3,892 |
| 1977 | – | 774 | – | 6 | – | – | 41 | – | 5 | – | 826 |
| 1978 | – | – | – | – | – | – | – | – | – | – | 0 |
| 1979 | 5,165 | 7,892 | 11,565 | – | – | – | – | – | – | – | 24,622 |
| 1980 | – | 12,318 | 2,741 | 1,125 | 1,507 | – | – | – | – | – | 17,691 |
| 1981 | – | – | – | – | – | 241 | – | – | – | – | 241 |
| 1982 | – | 2,206 | 1,092 | 3 | 450 | 401 | 313 | 5 | 59 | – | 4,529 |
| 1983 | – | 2,725 | – | – | – | 2,283 | 216 | – | – | – | 5,224 |
| 1984 | 13 | 350 | – | 203 | – | 304 | 22 | 30 | – | – | 922 |
| 1985 | – | 56 | – | 213 | – | 1,815 | – | – | – | – | 2,084 |
| 1986 | – | – | – | 19 | 326 | – | – | – | – | – | 345 |
| 1987 | – | – | – | – | – | – | – | – | – | – | 0 |
| 1988 | – | – | – | 3 | – | – | – | – | – | 38 | 41 |
| 1989 | – | – | – | – | – | – | – | – | – | – | 0 |

Appendix D6.—continued (page 2 of 2)

| Year | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | Total |
|------|----|-----|----|----|-----|-------|-----|-----|-----|----|-------|
| 1990 | — | — | — | — | — | — | 57 | — | — | — | 57 |
| 1991 | — | — | — | — | — | — | 168 | — | — | — | 168 |
| 1992 | — | — | — | — | — | — | — | — | 195 | — | 195 |
| 1993 | — | — | — | — | — | — | 251 | — | 122 | — | 373 |
| 1994 | — | — | — | — | — | — | — | — | 53 | — | 53 |
| 1995 | — | — | — | — | — | 126 | — | 153 | 85 | — | 364 |
| 1996 | — | — | — | — | — | — | — | — | — | — | 0 |
| 1997 | — | 188 | — | — | — | — | 310 | — | — | — | 498 |
| 1998 | — | — | — | — | — | — | — | 234 | — | — | 234 |
| 1999 | — | — | — | — | — | — | — | — | 21 | — | 21 |
| 2000 | — | — | — | — | — | — | — | — | — | — | 0 |
| 2001 | — | 254 | — | — | 873 | — | — | — | 18 | — | 1,145 |
| 2002 | — | — | — | — | — | — | 28 | — | — | — | 28 |
| 2003 | — | — | — | — | — | — | — | — | — | — | 0 |
| 2004 | — | — | — | — | — | — | — | — | — | — | 0 |
| 2005 | — | — | — | — | — | — | — | — | — | — | 0 |
| 2006 | — | — | — | — | — | — | — | — | — | — | 0 |
| 2007 | — | — | — | — | 718 | — | 171 | — | — | — | 889 |
| 2008 | — | — | — | — | — | — | 27 | — | — | — | 27 |
| 2009 | — | — | — | — | — | 24 | — | — | — | — | 24 |
| 2010 | — | — | — | — | — | — | — | — | — | — | 0 |
| 2011 | — | — | — | — | — | 136 | — | — | — | — | 136 |
| 2012 | — | — | — | — | — | — | — | 2 | — | — | 2 |
| 2013 | — | — | — | — | — | 22 | — | — | 25 | — | 47 |
| 2014 | — | — | — | — | — | — | — | — | — | — | 0 |
| 2015 | — | — | — | — | — | 1,511 | — | — | — | — | 1,511 |
| 2016 | — | — | — | — | — | — | — | — | — | — | 0 |
| 2017 | — | — | — | — | — | — | — | — | — | — | 0 |
| 2018 | — | — | — | — | 44 | — | — | — | — | — | 44 |