

Metlakatla Indian Community Annette Islands Reserve

Management Plan 2022 Salmon Fishery

prepared by:

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Executive Summary

This plan describes the Metlakatla Indian Community’s strategy for management of the Annette Islands Reserve 2022 salmon fisheries. That strategy relies heavily on in-season management, and places great responsibility on the Fisheries Management Board (FMB), a Board established to facilitate in-season management. The Plan outlines the goals of the salmon fishery, as described in 25 CFR, as well as the objectives of the Council, Annette Islands Reserve, and describes the strategy for achieving them.

The Management Plan also includes descriptions of the targeted fish resources, a description of the fishery, and a discussion of the Department’s monitoring plans.

If the 2022 season develops into an average season (using data from the 10 previous seasons), the Annette Islands Reserve salmon fishery will harvest just over 1.58 million salmon of all species. Table 1 lists the average catch by species and gear for the period from 2012 through 2021.

Table 1. Average harvest by gear and species (2012 – 2021).

| Gear Type | King | Sockeye | Coho | Pink | Chum | Totals |
|------------------|--------------|----------------|---------------|------------------|----------------|------------------|
| Gillnet | 978 | 5,712 | 26,491 | 239,730 | 167,248 | 440,159 |
| Purse Seine | 378 | 10,868 | 6,270 | 1,059,918 | 64,706 | 1,142,139 |
| Troll | 256 | 1 | 389 | 339 | 28 | 1,012 |
| Total | 1,612 | 16,581 | 33,150 | 1,299,987 | 231,981 | 1,583,310 |

The troll fishery, which opens prior to the net fisheries, will remain open throughout the season, unless closed by the FMB. The troll harvest typically comprises only a small portion of the Reserve’s annual harvest, although it may deliver a substantial share of the king salmon, which typically comprise the bulk of the Reserve’s troll deliveries.

Following adoption of the plan by the Council, Annette Islands Reserve, and the Bureau of Indian Affairs’ (BIA) authorization (on behalf of the Secretary of Interior) the Fisheries Management Board (FMB) assumes responsibility for enacting the plan. Once the FMB assumes that responsibility, it retains authority to regulate salmon fishing until the 2023 Salmon Management Plan is adopted by Council and authorized by the BIA.

Goals and Objectives

Goal Statement

In 2015, the Council, Annette Islands Reserve, adopted goal statements for the Reserve's various natural resources, which will, eventually, be collectively managed in an Integrated Resource Management Plan (IRMP). The goal for management of the Reserve's fish and wildlife resources is:

Develop and manage the Reserve's fish and wildlife resources to:

- 1) Maximize the economic benefit of fish and wildlife resources to the Metlakatla Community (MIC);***
- 2) Ensure the sustainability of fish and wildlife resources; and,***
- 3) Minimize:***
 - adverse environmental consequences***
 - adverse impacts to fish and wildlife resources***

Objectives

Three general objectives, which are outlined in 25 CFR 241.3 (c) and (e), guide the management of the Annette Islands Reserve Commercial Salmon Fishery:

- 1. Conservation. Achieve spawning escapement needs, imposing any requirements reasonable and necessary for conservation;**
- 2. Sharing. Share the salmon resource fairly and equitably with other user groups fishing in State waters under State law and within the State fisheries management system; and**
- 3. Community Maintenance. Promote the federal purpose in the establishment and maintenance of the Metlakatla Indian Reservation, by providing income to individuals and the Community.**

The 2022 Salmon Management Plan includes consideration of the objectives listed above. These objectives serve as management criteria for the Fisheries Management Board when it makes in-season management decisions.

Resource Description

Located near the entrance to inside waters of southern southeast Alaska, the Annette Islands Reserve is ideally positioned to support a fishing community. All five species of Pacific salmon (king, sockeye, coho, pink and chum) are produced in the wild in this region, and four of them (excluding only kings) are produced in the streams of Annette Island. This section of the plan describes each of the salmon species caught on the Reserve, including a brief description its life history and contribution to the local and regional fisheries.

Chinook (King Salmon)

The largest of the five species of Pacific salmon – averaging about 14 pounds in the fisheries on Annette Island, but with 30-pounders not uncommon – Chinook are produced in large rivers coastwide, from California to Alaska. Relatively few of the chinook caught in southeast originate in southeast Alaska, with most being from Canada or Washington. Columbia River kings are important contributors to the catch in southeast Alaska.

Kings spend from a few months to over a year rearing in freshwater before migrating to sea. They then spend several years feeding in the Gulf of Alaska, returning at ages 3 through 6, with 4- and 5-year-olds most common among the returning adults.

Of the Chinook produced in southeast Alaska, most are of the spring runs, returning early in the season. The fall Chinook heading to their rivers down south also pass through southeast Alaska fisheries fairly early, with the catch peaking in early July.

Because they spawn in larger rivers, no kings are produced in Annette Island streams. Tamgas Creek Hatchery has raised them since the 1990's, though, releasing several hundred thousand smolts per year. Kings from the Tamgas Hatchery contribute to troll, net, sport, and subsistence fisheries throughout southeast Alaska and in British Columbia, with an estimated 40% of the adults returning to Annette Island waters.

Chinook make only a modest contribution to the Annette Islands Reserve salmon fishery, contributing, on average, less than 0.1 percent of the catch, by number, but, with their large size and high price, contributing a much larger percent of the ex-vessel value. In 2022, for example, kings accounted for only 0.06% of the Reserve's total harvest, but made up 1.9% of the season's value.

Sockeye Salmon

The second-least abundant of the five salmon species, sockeye contribute about two percent of the commercial salmon catch in southeast Alaska, while, on the Reserve, an average season (2012—2021) sees less than 1.3% of the catch comprised of sockeye. The high price they fetch makes them more valuable than their relatively small numbers might suggest. In 2021, although sockeye made up only 0.6% of the fish harvested by Reserve fisheries, they accounted for 3.2% of the season's value.

Only two watersheds in the vicinity of Annette Island (Hugh Smith Lake and McDonald Lake, both on the mainland) produce commercially harvestable numbers of sockeye. Tagging data from the 1980's indicates that most of the commercial sockeye catch in southern southeast Alaska is of Canadian origin (Pella, *et al.*, 1993).

Because young sockeye are plankton-feeders, they are limited to lakes for their rearing habitat, and therefore are produced only in watersheds with relatively large open lakes, where sunlight encourages the growth of plankton. Juvenile sockeye spend at least a year – sometimes two years – rearing in lakes before migrating to sea. Once at sea, sockeye migrate thousands of miles in the Gulf of Alaska, where they feed for one to four years, returning at 4 to 8 pounds in size.

Because of the need to spend time in the lakes before spawning, sockeye return early in the season. Historically, their catch rate usually peaks in July, although, in recent seasons, the peak appears to be occurring later in the month, or even in early August.

On Annette Island, Trout Lake is the only viable sockeye-producing watershed. The sockeye enter Trout Lake in July, but remain there for two to three months as their eggs ripen. They spawn in one of the two tributaries of Upper Trout Lake in September and October. Over the previous 10 seasons, spawner numbers in those streams have averaged about 370 per year, although the stream habitat is excellent and could support many times that number of spawners.

Subsistence fishing years ago at the mouth of Tain Creek is believed to have impacted this population's spawner abundance. The area has been closed to fishing since the 1980's, and the Department of Fish and Wildlife has made an effort to rebuild the stock by supplementing it with hatchery-reared sockeye, and fertilizing the lake with nutrients, efforts that have resulted in improved returns.

Coho Salmon

Supporting a thriving troll fishery in southeast Alaska, and making up about two-thirds of the region's troll catch, coho contribute only about 2.9%, by number of fish, of the salmon catch on Annette Island, where the salmon fleet is primarily made up of seiners and gillnetters. In 2021, coho made up only 0.6% of the Reserve's harvest, but contributed three percent of the season's value.

Coho are relatively abundant in southeast Alaska, where the wild runs average about 3.7 million adults per year. Coho are also produced in hatcheries, but in considerably lower abundance because they must be reared and fed for a year before release.

Coho rear for at least a year in streams, and sometimes in lakes, feeding mostly on insect larvae. Most coho in southern southeast Alaska go to sea at one year old, migrate and feed for 18 months, and then return at age 3. They begin showing up in June, at four to five pounds. They feed voraciously on smaller fish and grow rapidly through the summer, sometimes doubling their size in the last three months of their life.

Their numbers peak in the commercial catch in September, by which time they reach eight to nine pounds, or more.

Since 2012, coho have contributed an average of 34,771 fish per year to the Reserve's commercial catch, about 80 percent of which were taken by gillnetters.

Pink Salmon

By far the most numerous salmon species in the region, pinks make up 74% of the catch in southeast Alaska, and, over the previous 10 seasons, about 82% of the catch on Annette Island, where the catch has averaged 1,304,960 pinks per year. Although they have the lowest price per pound, pink salmon typically contribute nearly 46% of the value of the commercial catch on Annette Island. In 2021, pink salmon comprised about 94% of the season's total harvest, and about 65% of the season's value. Most of the pinks caught in the Annette Island fishery, about 78%, are taken by the seine fleet. Their abundance in the catch usually peaks in mid-August.

Their abundance in the region is due to their ability to spawn and incubate in small streams, which are plentiful in southeast Alaska. Because they migrate out to sea immediately after hatching and emerging from the spawning gravel, pinks can even spawn in seasonal streams that dry up in the summer, as long as there is enough water for incubation through the winter and early spring.

Pinks return as adults at age 2, so odd-year pinks are the offspring of the previous odd-year return, and even-year pinks are the offspring of the previous even-year return. There is therefore virtually no interbreeding between the odd-year and even-year pinks, and over many generations odd- and even-year pinks have developed genetically distinct populations.

Averaging just under 4 pounds each, commercially caught pink salmon were formerly processed strictly for canning, and brought the lowest price of all five salmon species. New markets have developed for fresh-frozen pinks recently, which has increased their value to fishermen and processors.

Over 50 streams on Annette Island produce pink salmon, and have a capacity to support about 126,000 spawners. Pinks are also raised in hatcheries in Alaska, but the abundance of wild pink runs makes hatchery production less important for pinks than it is for other species.

Chum Salmon

Chum salmon, like pinks, spend less time in freshwater than the other salmon species, migrating downstream to saltwater shortly after hatching and emerging from the gravel. This characteristic of their life history allows them to use smaller streams that might not be suitable as year-around habitat. Annette Island has 36 streams that support chum production, with enough habitat to accommodate about 6,200 chum spawners.

Chum remain at sea feeding, and return at ages 3, 4 and 5 years, a life history strategy that allows them to overlap brood years and more easily recover from a disaster in the freshwater environment. When they return as adults, they average about 9 pounds in the commercial catch. Summer chum, which are more abundant in the fishery, peak in mid-July, while fall chum show up most abundantly in commercial catches in mid-September.

The catch of chum on the Annette Islands Reserve has grown remarkably over the last 30 years, from an average of barely over 100,000 chum per year in the 1980's to about 231,981 per year in the last decade. Much of that increase is due to hatchery production, both on the Reserve and in the surrounding region. Locally, Tamgas Creek Hatchery has boosted its chum production and expects to see further production increases. Returns of these hatchery chum have been impressive. Summer chum reared in net-pens in Port Chester have supported a productive fishery for both seiners and gillnetters (Port Chester Terminal Harvest Area) early in the season, before pinks become most abundant. With the expansion of chum incubation facilities at the Hatchery, chum are also being released in Tamgas Harbor, to allow for increased broodstock collection at the hatchery.

Local chum escapement, the vast majority of which occurs during the Fall Management Period, has been declining for more than one decade. The Reserve saw record-low fall chum escapement in 2018 season, and the 2019 season saw only slight improvement. The 2019 chum count was more than doubled in 2020, but was still only about one-third of the average since 1984. In 2021, estimated total chum escapement improved to slightly more than one-half of the 37-year average, but distribution was highly variable, with several primary chum-producing streams continuing to see declining numbers. In addition, the Fall Management Period (FMP), during which chum harvests averaged more than 40,000 fish through the 1980s and 1990s, saw only 5,776 chum delivered in 2021, the fourth fewest ever harvested during that period. The FMP's five poorest chum catches have occurred in the last five seasons.

Overall, among the catches of wild and hatchery fish over the previous 10 seasons, chum have made up about 15% of the commercial salmon catch on the Reserve, by number of fish. Because they are large fish, however, with a value that is supported by the demand for their roe, chum have contributed an average of about 41% of the value of the Annette Island salmon fishery over the past decade. In 2021, chum made up less than five percent of the Reserve's salmon catch, but contributed nearly 26% percent of its value.

The Annette Islands Reserve Salmon Fishery

The Fishery

The Annette Islands Reserve is the only federally-recognized Indian reservation in Alaska and is the location of the only tribally-managed fisheries in Alaska. When the Reserve was founded in 1887, the leaders of the Metlakatla Indian Community recognized the importance of fishing to the Tsimshian culture and to the local economy. Now, 134 years later, the economy of the Metlakatla Indian Community is supported in great part by commercial fishing. Until 2019, fish processing was also important in the local economy. When other sources of employment on the Reserve, such as the Coast Guard Air Station and the Louisiana Pacific sawmill, closed or left the island, fishing and fish processing assumed a more important role in the economy of the reservation.

Annette Island has 82 streams, at least 53 of which are salmon-producing. Based on habitat availability, these streams can support 126,000 pink salmon spawners; 6,188 chum spawners, 2,410 coho spawners, and 2,224 sockeye spawners (Biggs, 1982). In addition, the streams and mainland rivers in surrounding areas of state waters produce salmon runs of much larger numbers. For example, in the 10-year period from 2001 through 2010, pink salmon escapement in southern southeast Alaska averaged over 8 million (Piston and Heintz, 2011) with a total run size (catch plus escapement) of over 32 million pinks. Annette Island is located along the migration routes of many of these salmon runs, and over the years, they have supported Metlakatla's fisheries well.

Metlakatla's fishing fleet includes about 90 gillnet vessels, although only 56 made deliveries in 2021, and 15 purse seine boats, all of which fished in 2021. In addition, there are about 16 boats that troll for chinook and coho, although only 13 made deliveries in 2021, and most of those trollers also gillnet or seine once those fisheries open. Together, this fleet provides income and meaningful employment for approximately 250 Community members. Equally important, the fishing fleet maintains the long-standing cultural link between the people of Metlakatla and the sea.

Magnitude of the Catch

The Annette Islands Reserve salmon fishery (within the Annette Islands Reserve) is the largest tribally-managed salmon fishery in the United States (Figure 1). In the last 10 years (2012 through 2021) the salmon catch on the Reserve has averaged 1.59 million fish (Table 2).

To put the Reserve's salmon catch in perspective:

- Metlakatla catches four times as many salmon as are caught by the highest-catching tribe in western Washington.
- Metlakatla catches 8 times as many salmon as are caught by the average of the top five catching western Washington tribes.
- On average, the Annette Islands catch is 1.2 million more salmon per year than that of the largest-catching tribe in western Washington.

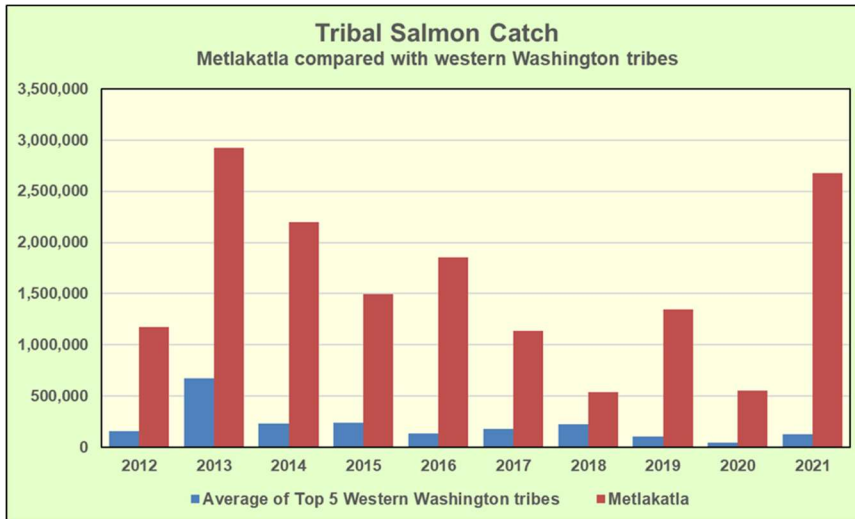


Figure 1. Annual salmon harvest on Annette Islands Reserve, compared with the average catch of the five western Washington tribes with the largest salmon harvest (2012–2021).

Table 2. Annual total harvest and ex-vessel value in the Annette Islands Reserve commercial salmon fishery (2012–2021).

| Year | Number of Fish | Ex-Vessel Value |
|--------------------|------------------|--------------------|
| 2012 | 1,178,463 | \$4,912,164 |
| 2013 | 2,928,962 | \$5,620,992 |
| 2014 | 2,197,852 | \$3,746,976 |
| 2015 | 1,499,495 | \$3,424,847 |
| 2016 | 1,857,082 | \$3,637,181 |
| 2017 | 1,132,805 | \$3,077,008 |
| 2018 | 506,163 | \$2,419,996 |
| 2019 | 1,352,958 | \$2,364,509 |
| 2020 | 551,059 | \$870,154 |
| 2021 | 2,677,989 | \$4,715,019 |
| 10-Yr. Avg. | 1,588,283 | \$3,478,885 |

The ex-vessel value of the salmon caught on the Annette Islands Reserve, over the last 10 seasons, has averaged \$3.48 million per year. Most of this amount goes into the local economy, supporting businesses owned by tribal members, and jobs for tribal members.

With the exception of a few fishermen who have purchased Alaska Limited Entry Permits, most of the Annette

Island fleet is restricted to fishing within Reserve waters. This geographic limitation makes it important that sufficient adult salmon return to Reserve waters. The need for a reliable supply of salmon for the Reserve’s salmon fishery was the primary reason for the construction of the Tamgas Creek Hatchery. Nearly 40 years later, it remains the purpose for the hatchery’s operations.

Fish Processing

In addition to the income from ex-vessel fish sales, through its history, the Community has also benefitted from fish processing. The Community-owned Annette Island Packing Company had operated in Metlakatla for over 100 years, employing up to 450 people during the

peak of the salmon season. The cannery closed in the early 2000’s, but the Metlakatla Cold Storage operated year-around, buying and processing salmon, in addition to herring, halibut, sea cucumbers and geoducks. The cold storage itself employed about 235 people. Profits from the cold storage operations provided revenue to the Community government.

For the 2022 season, as in the previous three seasons, there will be no fish processing in Metlakatla. Instead, fish caught on the Reserve will be taken by fish tender to Ketchikan for processing.

Management Objectives

The objectives to achieve the goals are set forth in the federal regulations for management of fisheries on the Annette Islands Reserve (28 FR 7183, July 12, 1963; 28 FR 12273, November 20, 1963, as amended at 40 FR 24184, June 5, 1975). These fall under the general headings of

- Conservation,
- Sharing of the resource, and
- The federal purpose in establishment and maintenance of the reservation.

Conservation

This objective is spelled out in federal regulations as:

“Number of fish required for spawning escapement and any other requirements reasonable and necessary for conservation”

Implementing this regulation requires information about the number of fish required for spawning escapement. Shortly after the Metlakatla Indian Community took over the duties of managing the Reserve’s fisheries, there was an effort to define how many fish are necessary for spawning escapement.

Evelyn Biggs conducted extensive surveys of stream habitat on Annette Island and presented estimates of habitat capacity for spawning and rearing in her detailed 1982 report, *Annette Islands Stream Inventory: Potential Salmon Production Summary*. To briefly summarize her findings for pinks and chum, the streams on Annette Island could support 74,740 spawning pairs of pink salmon (149,480 total spawners), and 3,094 spawning pairs of chum salmon (6,188 total spawners).

Biggs’s recommended spawner targets are totals for all Annette Island streams, but not all streams are surveyed for spawners. The Department conducts foot surveys of nine index streams, with a goal of surveying each at least once every two weeks. Additional streams are surveyed on a less frequent rotation. The assumption behind surveying the index streams is that if they make their escapement objective, it is likely that the unsurveyed streams will achieve their objective as well. Biggs’s estimate of the habitat capacity for the nine primary index streams is 114,438 pink spawners, or about 77% of the Reserve’s estimated pink salmon spawning capacity. An additional nine streams are surveyed on a three-year rotation, with three streams being added to each season’s index streams. With the addition of those streams, in some seasons, as much as 94% of the Reserve’s estimated pink spawning habitat potential is surveyed by foot. The primary index streams account for about 66% (4,102 fish) of the Reserve’s estimated chum spawning capacity.

At the time of the habitat surveys, Biggs was working with the data that were available. Since then, the Metlakatla Fish and Wildlife Department has conducted annual spawner surveys in those index streams, so there are now 38 years of spawner data available to inform estimates of potential salmon production.

Using this spawner data, along with information from ADFG on catch and escapement in southern southeast Alaska, we now have estimates of how many pink salmon spawners are necessary for maximum sustainable yield (MSY). While Biggs (1982) estimated spawner capacity when all available stream gravel is used for spawning, MSY is an estimate of the optimum number of spawners that a stream can sustain over many generations. Because spawning at full capacity can lead to lower survival of eggs, the MSY estimates tend to be lower than those of full capacity.

For the 18 streams shown in Table 3, the estimate of MSY for pink salmon is 110,500 spawners, which is somewhat lower than the habitat capacity estimates. These spawner objectives are broken out stream-by-stream in Table 3.

Table 3. Recommended spawning escapement for 18 Annette Islands Reserve streams (number of spawners in streams). The names of Index streams are indicated by bold print.

| Stream | Stream Number | Pinks | | Chum Capacity | Coho Capacity |
|---|---------------|----------------|----------------|---------------|---------------|
| | | Capacity | MSY | | |
| Annette Point | 101-24-079 | 5,340 | 4,666 | 350 | 50 |
| Beaver | 101-24-086 | 750 | 655 | 50 | 36 |
| Campbell, east | 101-24-032 | 8,600 | 7,514 | 470 | 300 |
| Campbell, west | 101-24-030 | 4,400 | 3,844 | 290 | 20 |
| Colby | 101-26-007 | 400 | 349 | 12 | 10 |
| Cowboy | 101-28-002 | 120 | 105 | 6 | |
| Crab | 101-24-094 | 25,000 | 21,843 | 1,260 | 50 |
| David's | 101-28-016 | 1,200 | 1,048 | 80 | 20 |
| Gillnet | 101-28-028 | 2,600 | 2,272 | 170 | 20 |
| Graveyard | 101-28-018 | 150 | 131 | 10 | 8 |
| Hemlock | 101-28-009 | 6,000 | 5,242 | 340 | |
| Hospital | 101-26-008 | 1,000 | 874 | 66 | 10 |
| Japan Bay, I | 101-28-006 | 260 | 227 | 16 | |
| Kwain | 101-24-087 | 10,840 | 9,471 | 710 | |
| Melanson | 101-28-014 | 180 | 157 | 12 | |
| Moss Point | 101-26-003 | 5,250 | 4,587 | 200 | 90 |
| Nadzaheen | 101-42-067 | 54,200 | 47,356 | 1,000 | 40 |
| Powerhouse, I | 101-26-015 | 180 | 157 | 12 | 4 |
| Totals (index streams only) | | 126,470 | 110,500 | 5,054 | 658 |
| Habitat capacity estimates are from Biggs (1982). | | | | | |

While pink spawners can be found in some of the larger streams in early August, spawners are generally more abundant beginning in late August. Beginning in week 36, the Fishery Management Board will consider the status of spawning escapement in Annette Island streams in its weekly management recommendations. There are several management tools at the Board's disposal, depending on conservation needs. The Board could impose a mesh size restriction, or targeted area closures in the terminal areas around local spawning streams.

For the 2022 season, there are two conservation concerns that will require the FMB's consideration, in addition to the Tamgas Creek Hatchery's broodstock needs.

- Chum salmon escapement, to Reserve streams, has been declining for more than one decade. In fact, the 2018 season saw record-low chum escapement, and in 2019, escapement was only slightly improved. The 2020 chum count was more than double the 2019 count, but it was still only 33% of the 37-year average, and only 12% of the estimated escapement potential. Overall chum escapement improved slightly in 2021, but chum escapement in the Reserve's three historically most productive streams was well below average, and in two of those streams, chum escapement fell short of record-low levels.
- The effort to restore the productivity of the Reserve's only sockeye system, Trout Lake, continues. The Department will continue lake fertilization operations in 2022. The 2021 season saw a total estimated return of 267 sockeye, all to South Upper Trout Lake Creek. It was an improvement on sockeye escapement in 2020, but was still well below average (373) and the system's estimated, habitat-based escapement potential. Substantial progress has been made in restoring Trout Lake sockeye production, but Trout Lake sockeye are especially vulnerable in the terminal area around Tain Creek. The FMB may need to consider sockeye escapement needs when scheduling openings in the Port Chester Terminal Harvest Area (page 32).

Sharing of the Resource

This objective is specified in the federal regulations as:

(2) Fair and equitable sharing of the fishery resource with other user groups fishing in State waters under State law and within the State fisheries management system.

The Department monitors sharing in three ways:

- comparison of fishing schedules between the Reserve fisheries and those in State-managed fisheries of southeast Alaska, including District 101;
- proportion of the harvest taken in the Reserve fishery;
- and fish per boat on the Reserve compared with fish per boat in State waters.

Fishing Schedule Comparison

Comparing fishing opportunity in the respective fisheries is one approach to monitoring the sharing objective, although there are several factors that complicate a straight-forward comparison. State-permitted vessels have the option to relocate to other open districts when District 101 is closed, while Community fishers have no such option. Furthermore, fish returning to Tamgas Creek Hatchery continue to return, whether District 101 is open, or not.

Gillnetting was open for 65 days on the Reserve in 2021, the same as in the nearby Tree Point gillnet fishery. The Reserve's gillnet fishery opened in SW#25, the same as the Tree Point gillnet fishery, and both fisheries were open through SW#40. Purse seining was open on the Reserve for 33 days in 2021, while the District 101 purse seine fishery was open for 31 days, two days fewer than on the Reserve. One of the Reserve seiners' additional days occurred during the first week of the purse seine

season, SW#27. The State did not open District 101 until SW#28. The Reserve’s early purse seine openings are intended to target hatchery chum. The FMB also scheduled a day of purse seining in SW#38, while no purse seining occurred in District 101 after SW#36. The one-day openings in those weeks were intended to target coho produced by Tamgas Creek Hatchery. However, there was only one delivery during the SW#38 purse seine opening.

It is also important to understand that, unlike State-permitted vessels, which can relocate to other open areas when District 101 is closed, Reserve fishers have no such alternative. Similar to the circumstances described in the following section, it is an over-simplification to base the sharing comparison on a straight-forward comparison of fishing time, or the Reserve’s share of the District 101 harvest. Such comparisons fail to consider the numerous inequities that exist between the State-permitted purse seine fishery and the Reserve’s purse seine fishery.

Comparison of the On-Reserve Catch with the Catch in State Waters

In the 10-year average (for the period 2011 through 2020) 7.3 percent of all salmon caught in southern southeast Alaska were taken in the Annette Islands fishery. There has been a good deal of variation around this share, though, ranging from a low of 5.1 percent in 2012 and 2013 to a high of 10.5 percent in 2010. With a historical range of variability that great, it is not likely that in-season management actions could be taken to target a specific share. There has been no statistically significant trend upward or downward in the share taken on Annette Island in the years since 1984 (Figure 2).

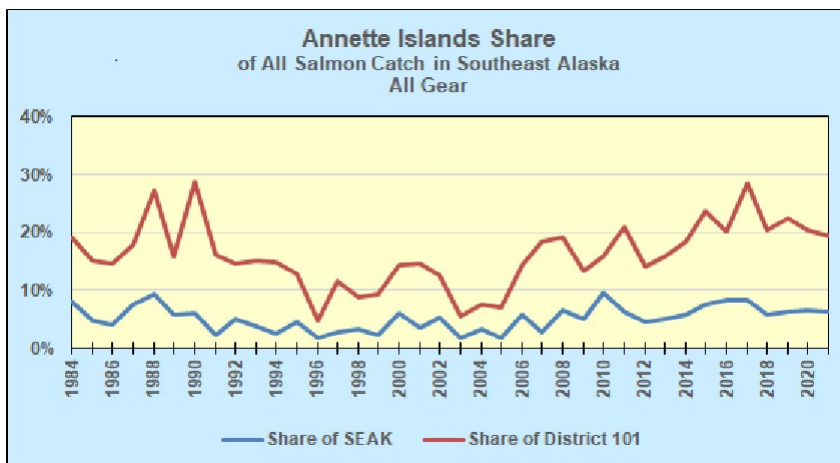


Figure 2. Annette Islands Reserve’s share of the annual harvest (all species) in southeast Alaska and District 101 net fisheries, by year (1984—2021).

Reducing that comparison to the Community’s share of the District 101 harvest introduces a variable that is beyond the Community’s control. Effort in State-managed fisheries, in adjacent areas, or even in the region, may shift to other areas, or regions, in response to closures, or limited fishing time in District 101, or to avail themselves of better

fishing in those areas. Whatever the reason, effort in District 101, especially purse seine effort, is highly variable. Effort is far less variable on the Reserve, because the option to relocate to other areas does not exist for Community fishers. Thus, under circumstances that cause State-managed fishing effort to shift to more northerly districts, the Community’s share of the catch in adjacent areas, primarily District 101, inevitably increases. That was the case in 2017, 2018 and 2020, when the number of

vessels fishing District 101 was substantially reduced from previous seasons. Clearly, it is a variable over which the Community has no control, whether the result of conservation actions, or just the lure of more profitable fishing in other areas. Consequently, it is not a reasonable basis for managing the Reserve’s fisheries. In other words, under current circumstances, it would be unreasonable for the Community to manage its fisheries to achieve some percentage of the District 101 catch.

Over the past 10 seasons, the Reserve’s salmon fisheries have comprised an average of slightly more than 23% of the District 101 harvest (Table 4), with that share ranging from a low of 16.8%, in 2013, to a high of 42.3%, in 2017 and 2018. The Reserve harvested 20% of the total 2021 salmon harvest in District 101 net fisheries.

Table 4. A comparison of the Annette Islands Reserve fisheries’ average share of the District 101 salmon harvest, by gear and species (2012-2021).

| Species | Purse Seine | | Gillnet | | Dist. 101 Total | |
|--------------|--------------|--------------|--------------|--------------|-----------------|--------------|
| | AIR | State | Air | State | Air | State |
| King | 44.3% | 55.7% | 38.9% | 61.1% | 40.2% | 59.8% |
| Sockeye | 16.8% | 83.2% | 14.0% | 86.0% | 16.3% | 83.7% |
| Coho | 16.8% | 83.2% | 31.8% | 68.2% | 27.1% | 72.9% |
| Pink | 19.4% | 80.6% | 42.9% | 57.1% | 21.8% | 78.2% |
| Chum | 28.2% | 71.8% | 41.1% | 58.9% | 23.3% | 76.7% |
| Total | 19.8% | 80.2% | 40.2% | 59.8% | 23.3% | 76.7% |

In 2021, the Reserve’s seiners delivered about 22% of the District 101 purse seine harvest, while in an average season (2012-2021), Reserve seiners would be expected to take about 20% of the District’s seine harvest (Table 4). The Reserve’s gillnet fleet harvested 39% of the 2021

District 101 gillnet harvest. Since 2012, the gillnet fleet has harvested an average of 40% of the District 101 gillnet harvest.

As previously described, this relationship is heavily influenced by the amount of effort in State-managed fisheries in District 101, which accounts for the majority of the variability in the Community’s share of the District 101 harvest. However, for the 2021 season, the Reserve’s share of the District 101 salmon catch was about 22.8%, or slightly less than its average share of that harvest during the period from 2011 through 2020, 23.3%.

Catch per Boat

In this measure, the season’s salmon catch and number of boats fishing (by gear type) provides a basis for comparing the average catch-per-boat on the Reserve with the catch-per-boat in State waters. In this comparison, we find that, for the season as a whole, the State gillnet and seine fleets catch significantly higher fish per boat than the fleets on Annette Island. For this comparison, effort data (number of vessels by area and statistical week) were not available for the 2021 season, so the analysis considers data from the period 2011 through 2020.

Over the period from 2011 through 2020, the average catch per gillnet boat of all salmon species has been 8,200 fish per boat in southeast Alaska, compared with 5,800 in the Annette Islands fishery. Beginning with the year 2011, gillnetters fishing in State waters of southeast Alaska have averaged more fish per boat every year than

the Annette Islands gillnet fleet. Although the difference varies from year to year (Figure 3) the annual difference in catch per boat is statistically significant.

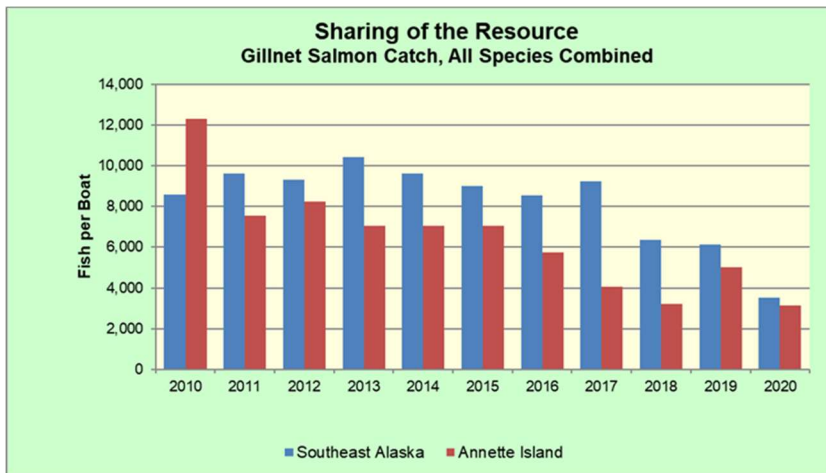


Figure 3. Average fish per gillnet boat in the Annette Island Reserve salmon fishery and in State fisheries of southeast Alaska (2011-2020).

There is also a significant difference in catch per boat for the seine fleet, with the Annette Island seiners averaging about 62,000 fish per boat during the period from 2011 through 2020. Over the same period, southeast Alaska seiners have averaged over double that number, delivering 126,000 fish per boat, (Figure 4). Some of this difference can be attributed to some Annette Island seiners who also

have state permits and fish in state waters, where their catch is not attributed to the fishery on the Reserve. It is likely that this difference is also due to the limited fishing area available to Annette Island seiners, compared with the much larger area open to State-licensed seiners, who have the option to travel to productive fishery openings near hatcheries and other terminal areas.

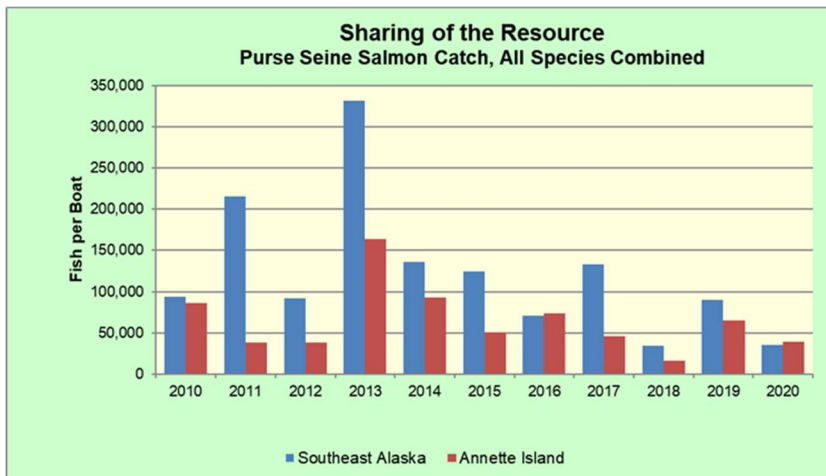


Figure 4. Average fish per purse seine boat in the Annette Island Reserve salmon fishery and in State fisheries of southeast Alaska (2011-2020).

Table 5 compares the average catch-per-vessel, by gear-type and species, during the period from 2016 through 2021, in the Annette Island Reserve's salmon fishery, with the catch-per-vessel in the State-managed gillnet and purse seine fisheries in District 101. This comparison uses preliminary harvest estimates that are included in ADF&G's in-season fishery announcements, as it is the only source of weekly

effort data (number of vessels), by area, that DFW has managed to access, and weekly effort data are required for this comparison.

Table 5. Average annual catch per vessel, by gear and species, in the Alaska District 101 salmon fisheries and the Annette Islands Reserve fisheries (2016 – 2021)

| | Purse Seine | | Gillnet | |
|--------------|---------------|---------------|--------------|---------------|
| | AIR | State | AIR | State |
| King | 48 | 11 | 26 | 47 |
| Sockeye | 972 | 1,409 | 71 | 590 |
| Coho | 957 | 809 | 546 | 1,309 |
| Pink | 81,752 | 89,876 | 4,183 | 6,325 |
| Chum | 4,288 | 4,224 | 2,585 | 5,721 |
| Total | 87,480 | 97,922 | 7,412 | 13,934 |

In 2021, Annette Island gillnetters averaged 6,504 fish per vessel, while, at the District 101 Tree Point Gillnet Fishery, the average vessel harvested approximately 10,956 fish of all species.

Among the seiners, the Metlakatla fleet took an average of 222,953 salmon per boat in 2021, while an average seiner delivered 266,219 salmon during District 101 purse seine openings.

Federal Purpose

The reference to the Federal Purpose, in 25 CFR, Part 241.3, has to do with the Federal government’s purpose in establishing a reserve on Annette Island. In identifying that purpose, the fishing culture and economy of the Tsimshian people figured prominently in the government’s deliberations. Clearly, to sustain themselves, the Metlakatlans needed access to substantial and sustainable fishery resources. With that in mind, the government evaluated Annette Island’s capacity for fulfilling the Federal Purpose, which was to establish the Reserve in a location that would enable the Metlakatlans to sustain themselves. In that regard, fulfillment of the Federal Purpose relied, to a considerable extent, on Metlakatlans’ access to the abundant marine resources available in the area surrounding the Reserve. The marine boundary did not yet exist, and the government’s evaluation did not contemplate a time when Metlakatlans would not have access to the resources beyond 3,000 feet.

The State’s adoption of the Limited Entry system for fishery management in 1973 had the effect of restricting many Metlakatla fishermen to waters of the Annette Islands Reserve. Where once they could fish anywhere in Alaska that was open to fishing, suddenly they were limited to the 3,000-foot band of marine waters around Annette Island. That restriction has, unquestionably, made fulfillment of the Federal Purpose far more challenging and uncertain.

The challenges of balancing the Federal Purpose, which is largely focused on achieving economic success, with the conservation needs of the resource has increased the importance of in-season management and timely access to current harvest and escapement data. When one considers the dynamic, largely unpredictable conditions that exist in all salmon fisheries, combined with the limited fishing area on the Reserve, and the reality that there are few economic alternatives in Metlakatla, the Fishery Management Board’s in-season management of the fishery has taken on increasing importance. Their goal, of course, is to find a balance that achieves the Federal Purpose, while also meeting the conservation needs of fishery resources.

To say that Metlakatla's economy is dependent on commercial fishing would be an understatement. It is the only substantial industry in the Community. Few communities in Alaska are more dependent on commercial fishing. To put the importance of commercial fishing into perspective, it is estimated that more than 200 Community members are directly employed in commercial salmon fishing. Through the 2018 season, another 235 individuals were employed in the Community's fish processing enterprise. In total, during the 2018 season, nearly 450 individuals were directly involved in the Community's commercial salmon fishery, which represents about half of the Community's adult population. In short, fishing is the dominant factor in virtually every aspect of the Community's economy.

In a modern context, success in achieving the Federal Purpose is measured in largely economic terms. Evaluating success can be reduced to a question as simple as whether Metlakatlans were able to make a living, or not. However, a more specific evaluation of the extent to which the Federal Purpose was achieved relies on measuring economic success in three areas: fishing, processing and marketing. That evaluation considers income directly from fishing, income from employment at the Community's fish processing facility, and the profitability of the fish processing enterprise. Unfortunately, after a long struggle to sustain the operation of the Community's fish-processing enterprise, economic reality forced its closure prior to the 2019 salmon season.

Without question, the cessation of fish-processing operations has had an enormous economic impact on the Community, as well as on fulfillment of the Federal Purpose for the Reserve. In evaluating the extent to which the Federal Purpose was achieved in past seasons, consideration included the ex-value of the catch, the average income of participating fishers, the number of individuals employed at the processing facility, and the profitability of the Community's fish processing operations. These components, along with the support services that supported them (engine repair, for example), and the Community government, formed the basic structure of the Community's economy. The elimination of two components of that delicate structure will be a critical blow to the Community's economy, as well as the possibility of achieving the Federal Purpose for the Reserve. With employment alternatives further reduced, the loss of fish-processing jobs will also likely lead to increased fishing pressure, as more members will be compelled to turn to fishing as the only potential source of income.

Other support and service businesses also contribute to the Community's economy, but, while several would not exist without a vibrant fishing industry, they are not included in the Department's evaluation.

The Department's 2022 Annual Salmon Post-Season Report will include an evaluation of the extent to which the Federal Purpose was achieved during the 2021 salmon season. As suggested in the discussion above, it will report the total value of the fishery, including a breakdown of earnings by gear and by species, as well as average vessel earnings. However, even before the season begins, that evaluation can

conclude that the loss of the fish-processing jobs will severely limit fulfillment of the Federal Purpose.

Monitoring

Monitoring is a key component of any fishery management plan. In addition to providing feedback on the effectiveness of the plan, timely and effective monitoring is essential to in-season management, and the adaptive measures it may require. In the case of the Annette Islands Reserve salmon fisheries, this management plan emphasizes in-season management, and it places a great deal of responsibility on the Fisheries Management Board (FMB) to maintain a balance between the economic needs of the Community (the Federal Purpose), and the conservation needs of the fish resources that the local economy depends on. To achieve that objective, the Board needs the most current harvest and escapement data available. The Department of Fish and Wildlife is charged with collecting and delivering those data.

In fulfilling its mission, the Department will monitor:

- The commercial harvest, primarily by summarizing information provided on individual fish tickets.
- Escapement to Reserve streams, by conducting bi-weekly foot surveys of the Reserve's nine most productive salmon spawning streams, or index streams, which, collectively, represent more than 80% of the Reserve's pink and chum salmon spawning capacity. An additional nine streams are also monitored on a three—year rotation, with three streams being added to the list of index streams each season. During the 2021 season, in total, the Department monitored escapement on a total of 94% of the Reserve's estimated, habitat-based pink salmon escapement potential.
- Coded-wire-tag (CWT) recoveries, or deliveries of other marked fish, which provide information about the stock-composition of the harvest, and the origin of marked fish, through an intensive port sampling program.
- The conservation needs of stocks that contribute significantly to the Reserve's harvest through regular communication with other fishery management entities.

Harvest Monitoring

The primary means by which harvest monitoring will be achieved is by collecting, summarizing, and analyzing the information available on individual fish tickets. Timely access to fish tickets is a crucial component of the Community's salmon management strategy

An individual fish ticket is generated for each commercial delivery. Fish tickets identify the vessel and skipper making the delivery, the area fished, and the number of pounds and value of each species delivered. The Department maintains, and updates on a daily basis, a detailed accounting (a master spreadsheet) of all such deliveries, summarized by statistical week, by gear, and by species. This information is consolidated in a report, which is provided at each meeting of the FMB. The report compares the current week's harvest data with the average harvest data for the same statistical week over the preceding 10 seasons.

At each meeting of the FMB, the Department, having summarized and analyzed current harvest and escapement data, recommends an appropriate fishing schedule (either a starting schedule, or adjustments to that schedule), focusing on the needs of the resource. The Department's ability to provide timely and accurate harvest information to the FMB is heavily dependent on timely and complete access to fish tickets.

The FMB will meet each Friday to set the starting schedule for the following week's fisheries. Prior to the 2019 season, at Friday meetings, the Board received either a final harvest report, or a preliminary report, based upon deliveries through Thursday. That sort of timely reporting was not possible to achieve during the 2019, 2020, and 2021 seasons, as the Department was unable to rely on timely access to each week's fish tickets. In some cases, fish tickets weren't available until the following week, or later. Similarly, in past years, since gillnet fishing almost always opens at Noon on Sunday, a limited number of fish tickets were usually available by Monday morning, and by Tuesday morning, most of the gillnet fleet had offloaded at least once. Armed with that information, the Department was able to update the FMB with a midweek harvest report. In addition, fish tickets from purse seine openings were usually available by the following day. A Sunday purse seine opening often yielded the week's first solid indication of fishing success.

However, over the past three seasons (since AIPC's closure), DFW has struggled to secure the timely access to harvest data that the Community's management strategy relies upon. Far worse, however, are the substantial amounts of harvest data that have failed to reach DFW until after the season ended in each of the last three seasons. During the 2021 season, fish tickets for deliveries amounting to substantially more than 100,000 salmon did not reach DFW at all. As in the 2019 and 2020 seasons, DFW discovered that dozens of fish tickets were missing during the detailed end-of-season fish-ticket reconciliation effort. All of the Reserve's salmon deliveries were to fish-packing vessels, which transported the fish to processing facilities in Ketchikan, frequently without providing copies of the fish tickets to DFW. During the 2021 season, DFW often found itself in the position of having to make recommendations to the FMB without the benefit of reasonably current harvest data, including instances in which the fishery had been open for several days without DFW having received fish tickets. In many cases, fish tickets were submitted to directly ADF&G, bypassing DFW altogether.

It is important to understand that the Community's salmon management strategy, which emphasizes in-season management, is heavily dependent on access to current harvest data to guide DFW's recommendations and the FMB's scheduling decisions. However, if access to current harvest data can no longer be assured, the legitimacy of the underlying basis for the strategy may be in doubt.

Statistical Catch Areas

The Reserve is divided into four primary statistical areas: 101-24, 101-26, 101-28, and 101-42. The Tamgas Harbor Terminal Harvest Area, 101-26T, lies within 101-26, and

the Port Chester Terminal Harvest Area, 101-28T, is located in 101-28. The statistical areas of the Reserve are described in Table 6 and illustrated in Figure 5.

Table 6. Statistical areas within the Annette Islands Reserve. More detailed descriptions of the Terminal Harvest Areas are available in Appendix B.

| Stat. Area | Area Description |
|------------|--|
| 101-24 | Includes the area on the Reserve from approximately Camp Cove (located just north of Middy Point), south to Annette Point, and west to Survey Point. |
| 101-26 | Includes the area on the Reserve north of a line from Survey Point to the Point Davison light. |
| 101-26-T | Tamgas Harbor Terminal Harvest Area, which includes the area in Tamgas Harbor north of the Deer Point Line, which is indicated by markers on either side of the bay. |
| 101-28 | Includes the west side of the Reserve, from the Point Davison light to Walden Point. |
| 101-28-T | The Port Chester Terminal Harvest Area, which includes area in Port Chester, inside a line originating from the marker at Pioneer Park, extending northwest to the red tower on Crow Island Reef, continuing along the southern edge of that reef to the Scrub Island light, and east to a “no fishing” marker located between Chester Lake falls and Melanson Creek. This area includes a time-sensitive area closure to accommodate floatplane traffic. A more detailed description of this area closure is available in Appendix B. The Fishery Management Board will enact this area closure, as necessary, in-season, by way of fishery announcement. |
| 101-42 | The area on the Reserve from Walden Point, along the east side of the Reserve, to Camp Cove (located just north of Middy Point). |

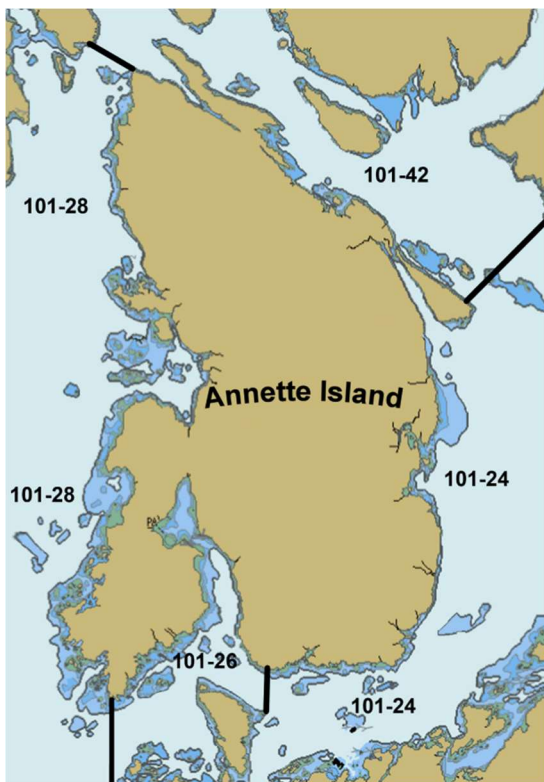


Figure 5. Statistical Catch Areas on the Annette Islands Reserve.

There are instances during the salmon season that the Department needs to be able to identify the portion of the harvest that came from a particular area, or the amount of fishing effort in a particular area. For example, it is important to uniquely identify the catch in Port Chester Terminal Harvest Area openings, which aids in the evaluation of the Hatchery’s production programs. Area-specific harvest data are also important in identifying local streams that need additional protection.

Fish buyers are required to include the correct statistical area on each fish ticket, which, when accurately reported, enables the Department to track the harvest and fishing effort by area.

Escapement Estimation

Annette Island has 82 streams, at least 53 of which produce at least one species of salmon. While fisheries on the Reserve catch salmon from a wider area of southern southeast Alaska, local stocks certainly contribute to the catch, and the fisheries are managed in part to sustain these local salmon runs. Surveys to estimate spawning escapement are necessary to get an indication of whether the fishery management strategy is having the expected effects.

Surveys will be designed to cover streams representing all five regions of the island, the four geographic quadrants plus Tamgas Harbor. In order to make the best use of the survey effort, the surveys will focus on nine “index streams” which account for 87 percent of the pink spawning capacity and 81 percent of the chum on the Reserve, and which are likely to represent the spawner abundance in other streams (Table 7).

Table 7. Representative salmon spawning streams on Annette Islands Reserve and escapement survey design.

| Stream | Stream Number | Pinks | | Chum Capacity | Coho Capacity | Index | |
|---|---------------|-----------------------|------------------|---------------|---------------|---------|---------|
| | | Capacity ¹ | MSY ² | | | Streams | Regions |
| Annette Point | 101-24-079 | 5,340 | 4,666 | 350 | 50 | Yes | SE |
| Beaver | 101-24-086 | 750 | 655 | 50 | 36 | No | SE |
| Campbell, E | 101-24-032 | 8,600 | 7,514 | 470 | 300 | No | SE |
| Campbell, W | 101-24-030 | 4,400 | 3,844 | 290 | 20 | No | SE |
| Colby | 101-26-007 | 400 | 349 | 12 | 10 | No | Tamgas |
| Cowboy | 101-28-002 | 120 | 105 | 6 | | Yes | NW |
| Crab | 101-24-094 | 25,000 | 21,843 | 1,260 | 50 | Yes | SE |
| David's | 101-28-016 | 1,200 | 1,048 | 80 | 20 | No | SW |
| Gillnet | 101-28-028 | 2,600 | 2,272 | 170 | 20 | Yes | SW |
| Graveyard | 101-28-018 | 150 | 131 | 10 | 8 | No | SW |
| Hemlock | 101-28-009 | 6,000 | 5,242 | 340 | | Yes | NW |
| Hospital | 101-26-008 | 1,000 | 874 | 66 | 10 | Yes | Tamgas |
| Japan Bay, I | 101-28-006 | 260 | 227 | 16 | | No | NW |
| Kwain | 101-24-087 | 10,840 | 9,471 | 710 | | Yes | SE |
| Melanson | 101-28-014 | 180 | 157 | 12 | | Yes | NW |
| Moss Point | 101-26-003 | 5,250 | 4,587 | 200 | 90 | Yes | Tamgas |
| Nadzaheen | 101-42-067 | 54,200 | 47,356 | 1,000 | 40 | Yes | NE |
| Powerhouse | 101-26-015 | 180 | 157 | 12 | 4 | No | Tamgas |
| Totals, these streams | | 126,470 | 110,500 | 5,054 | 658 | | |
| Index streams | | 110,530 | 96,573 | 4,114 | | | |
| Index as % of Habitat Capacity | | 87% | | 81% | | | |
| Notes: | | | | | | | |
| 1. Habitat capacity estimates are from Biggs (1982). | | | | | | | |
| 2. MSY refers to escapement level needed for maximum sustained yield. | | | | | | | |

Escapement surveys will be focused on the time when spawners are most abundant in the streams. Pink and chum salmon begin to enter Annette Island streams in early August, with numbers usually peaking in late September. Sockeye enter Trout Lake as early as July, but do not usually migrate into the spawning streams of the upper watershed until September.

Surveys will be conducted every week beginning in mid-August. Weather permitting, streams on the east side of the island will be surveyed in weeks with larger tides, to allow for skiff access into the lower reaches of the stream. Streams on the west side of the island, many of which have road access, will be surveyed during weeks with smaller tides. However, weather, especially wind, is often a factor in the choice of streams to survey on a given day.

Trout Lake sockeye will be surveyed in Upper Trout Lake Creeks at least twice during the season, once in mid-September, and once in early October. Additional surveys will be conducted as time and conditions permit. Spawning escapement will be evaluated in-season by comparing with spawner counts from the last 38 years in Annette Island streams, and with the stream habitat capacity and maximum sustainable yield escapement levels.

Port Sampling Program

The Metlakatla Indian Community has been sampling the catch in its salmon fisheries since the 1980's. The sampling focuses on recovering coded-wire tags, tiny pieces of wire embedded in the snout of the fish just before it was released by the hatchery. These tags identify fish by hatchery-of-origin and brood year. The data produced by the coded-wire tags provides information about which salmon stocks the Community's fisheries are catching.

Typically, the port sampler views the commercial catch as it is delivered, and visually identifies tagged fish by their adipose fin-clip. The heads of tagged fish, along with information that identifies the gear type, landing date, etc., are currently sent to ADFG Mark Tag & Age Lab in Juneau where the tags are read and decoded. Results of the sampling are available online in the coastwide RMIS database.

A sampling rate of at least 20 percent is needed to allow for estimates with a usable level of precision. A sampling rate higher than 20 percent would improve the precision of the estimates.

In addition to sampling coho, chinook and sockeye for coded-wire tags, the sampler will also take heads from a weekly sample of chum, so that the otoliths (ear bones) can be extracted and read. Chum-producing hatcheries now routinely use thermal-marking of otoliths to identify the hatchery of origin, as well as the age of the fish.

Inter-agency Communication

The Reserve's fisheries are heavily dependent on salmon stocks passing through the Reserve, bound for other locations. To a considerable extent, the success of the

Reserve's fisheries in future years depends on sustaining those stocks, ensuring their continued contribution to the Reserve's fisheries. Consequently, when escapement issues exist for stocks that contribute significantly to the Reserve's fisheries, it is in the best interests of the Community, in the long-term, to take appropriate steps to conserve those stocks.

To that end, the Department will attempt to maintain open lines of communication with other fishery management entities that may be involved in management of salmon stocks that contribute significantly to the Reserve's fisheries. In particular, in addition to providing regular harvest reports, the Department will encourage routine exchanges of other relevant fishery management information with the Alaska Department of Fish and Game (ADF&G). Further, the Department will share the results of its port sampling efforts with the ADF&G.

Finally, the Department will prepare an annual postseason report that summarizes the results of the preceding salmon season. That report will be shared with the Bureau of Indian Affairs and will be posted on the Community's website.

In-Season Management Strategies and Fishery Timelines

The Fishery Management Board was formed to facilitate a more locally responsive, abundance-based approach to in-season fishery management, moving away from an approach that attempted to harvest a fixed percentage of the southern southeast Alaska salmon harvest. As described elsewhere in this document, the Board is tasked with balancing the economic needs of the Community, the Federal Purpose, with the conservation needs of the resource.

To achieve that balance, the Board cannot base its fishery management decisions on forecasts of salmon abundance. Effective in-season fishery management relies on decision-makers having access to the most current catch and escapement data available, and a capacity for making mid-week adjustments to fishing schedules. Consequently, in addition to meeting to set the following week's fishing schedule, the FMB will convene mid-week meetings, as needed, to consider adjustments (extensions) to the starting schedule.

Decision Criteria

In setting, or adjusting, weekly fishing schedules, the FMB will evaluate the run strength of the species that are the focus of fishery management efforts at that time (further described below). Run strength will be evaluated by considering total catches by species, catches by gear and species, catch rates by gear and species, and escapement. These gauges of run strength will be summarized weekly, as well as updated throughout the week, and compared to their average values over the preceding 10 years.

In addition to the three objectives described earlier in this Plan, the FMB will consider the following criteria when making in-season management decisions:

1. How the current catch and catch rate compare to the Reserve's average catch and catch rate for the previous 10 seasons.
2. How escapement to Annette Island streams compares to escapement goals.
3. Severely depressed or extremely good fishing in areas surrounding the Reserve.
4. Severely depressed or extremely good returns to non-Reserve systems that contribute significantly to the Reserve's fishery.

Other conditions may arise during the season that require immediate action by the Board. The criteria listed above were developed to facilitate in-season management under only the most likely circumstances, but do not preclude consideration of other criteria.

Management Periods

The Reserve's commercial salmon fishery is divided into four management periods:

- Preseason Troll Management Period (PTMP)—SW#1 through SW#23
- Early Summer Management Period (ESMP)—SW#24 through SW#29
- Summer Management Period (SMP)—SW#30 through SW#35
- Fall Management Period (FMP)—SW#36 through season closure

The PTMP precedes the start of the net fisheries, and most of the deliveries during that period are from vessels that will switch to gillnet, or purse seine, once the net season opens. As a result, and because the fishery is reliant on the availability of a market, effort during the PTMP has varied a great deal. In the 38 seasons the Community has maintained records, king salmon has been the only species delivered during the PTMP, and as result, king salmon is the only species of concern for the FMB during the period. The period's most productive season was in 2019, when 576 kings were delivered, but in 15 of the last 32 seasons, there were no PTMP deliveries. Over the previous 10 seasons, an average of 169 kings have been delivered during the PTMP.

For management purposes, and to account for differences in the run timing of the various salmon species, the commercial net fisheries are informally divided into the latter three management periods listed above. In establishing these periods, the Department determined the periods during which approximately 80% of the average (2012 – 2021) annual all-gear harvest has been taken for king, sockeye, summer chum, pink, fall chum, and coho salmon. The results of that analysis are displayed in Figure 6.

Management priorities for each of the management periods were established based upon the timelines identified in Figure 6, as well as historical escapement data. Table 8 identifies the FMB's management priorities, including the focus of escapement monitoring and the Hatchery's broodstock needs, during the three management periods. However, it should be noted that these management periods are guidelines, rather than rigid divisions. Differences in run-timing, which occur from year to year, make it essential that the FMB have flexibility to adjust as circumstances may dictate. However, timing-related adjustments to the management periods of more than one week will rarely be necessary.

| | | | Species | | | | | |
|--------------|------------|-----------------|---------|-------------|---------|------|-----------|------|
| | Stat. Week | 2022 Date Range | King | Summer Chum | Sockeye | Pink | Fall Chum | Coho |
| Early Summer | 24 | 6/5 - 6/11 | | | | | | |
| | 25 | 6/12 - 6/18 | | | | | | |
| | 26 | 6/19 - 6/25 | | | | | | |
| | 27 | 6/26 - 7/2 | | | | | | |
| | 28 | 7/3 - 7/9 | | | | | | |
| | 29 | 7/10 - 7/16 | | | | | | |
| Summer | 30 | 7/17 - 7/23 | | | | | | |
| | 31 | 7/24 - 7/30 | | | | | | |
| | 32 | 7/31 - 8/6 | | | | | | |
| | 33 | 8/7 - 8/13 | | | | | | |
| | 34 | 8/14 - 8/20 | | | | | | |
| | 35 | 8/21 - 8/27 | | | | | | |
| Fall | 36 | 8/28 - 9/3 | | | | | | |
| | 37 | 9/4 - 9/10 | | | | | | |
| | 38 | 9/11 - 9/17 | | | | | | |
| | 39 | 9/18 - 9/24 | | | | | | |
| | 40 | 9/25 - 10/1 | | | | | | |

Figure 6. Run Timing by Species in Annette Islands Fishery. Statistical week range during which 80% of the season's harvest occurred, by species (based upon the average weekly all-gear catch over the previous 10 seasons, 2012 through 2021).

Prior to the 2018 season, the Department examined the circumstances that have led to a significant decline in the Reserve's sockeye harvest over the past two decades. Because the sockeye catch has been so small, the application of the management criteria to sockeye has not shown any conservation benefit. Even if the Reserve stopped fishing altogether, it's unlikely that the on-Reserve abundance of stocks that make up the majority of the Reserve's sockeye harvest would improve significantly.

Table 8. Salmon Season Management Periods and Management Priorities.

| Management Period | Primary Management Species | Secondary Management Species | Other Species Considered | Local Escapement Priorities | TCH Broodstock Priorities |
|-------------------------------------|----------------------------|------------------------------|--------------------------|-----------------------------|---------------------------|
| Early Summer (6/5 - 7/16) | none | summer chum, King & sockeye | pink | sockeye | King & summer chum (late) |
| Summer (7/17 - 8/27) | pink | sockeye & summer chum | coho | sockeye | summer chum & King |
| Fall (8/28 - closure) | fall chum & coho | pink | none | fall chum & pink | fall chum, coho & pink |

The Department updated that evaluation prior to the 2019 season and, again, in preparation of the 2020, 2021, and 2022 plans. The results of those analyses are contained in Appendix C. In summary, the Department concluded that the Reserve's sockeye harvest is too small, in terms of numbers of fish, or as a percentage of the regional sockeye catch, to warrant primary consideration during any portion of the season. The Council agreed, and as a result, sockeye will be considered a secondary management species during the Early Summer Management Period and the Summer Management Period. If circumstances warrant elevating sockeye to primary management consideration – such as a substantial increase in the sockeye harvest – the FMB has the necessary authority to do so.

In summary, decisions during the Early Summer Management Period may be based upon consideration of summer chum, sockeye, king, or, late in the Period, pink salmon conservation needs. Pink salmon will be the focus during the Summer Management Period, with sockeye and summer chum given secondary consideration. Finally, coho and fall chum, escapement needs of local streams, and Tamgas Creek Hatchery's broodstock needs will be the priority during the Fall Management Period.

Early Summer Management Period

The Early Summer Management Period (ESMP) extends from the start of the net fishery season, typically SW#24 (the week of June 5, 2022) or SW#25 (the week of June 12, 2022), through SW#29 (the week of July 10, 2022). However, because run-timing varies from season to season, and from species to species, the Fishery Management Board (FMB) may find it necessary to make relatively minor adjustments to the period's duration.

Unlike the other two management periods, a priority management species for this period is not identified prior to the season. Although summer chum salmon dominate the harvest during this period, the vast majority are of hatchery origin. Furthermore, while a substantial portion of an average season's sockeye harvest occurs during the ESMP, sockeye catches have comprised only about one percent of the Reserve's salmon harvest over the past 10 years. Consequently, to facilitate the FMB's capacity for responding, in-season, to the highly variable circumstances that occur during this period, including conservation needs, the FMB may elevate summer chum, sockeye, king salmon, or, late in the period, pink salmon, to priority consideration.

Summer chum and, later in the period, pink salmon, have made up the bulk of the harvest during this period in recent years, with king, sockeye, and coho salmon making up substantially smaller portions of the Reserve's harvest. More than 77% of an average season's (2012 – 2021) king salmon harvest occurs during the ESMP. A typical season also sees nearly 52% of the chum salmon, and 32% of the sockeye harvested during this period. Pink and coho salmon catches typically pick up toward the end of the ESMP, with about 15% of the Reserve's pink salmon, and eight percent of the coho harvest occurring during this period (Table 9).

Table 9. Average catch (all gear) during the Early Summer Management Period, by species and statistical week (2012 – 2021).

| Species | Statistical Week | | | | | | Total for Period | % of Total Species Harvest (season) |
|--------------|------------------|--------------|---------------|---------------|---------------|----------------|------------------|-------------------------------------|
| | 24 | 25 | 26 | 27 | 28 | 29 | | |
| King | 52 | 192 | 300 | 284 | 254 | 160 | 1,242 | 77.1% |
| Sockeye | 41 | 339 | 772 | 986 | 1,438 | 1,763 | 5,338 | 32.2% |
| Coho | 9 | 54 | 290 | 444 | 920 | 1,044 | 2,761 | 8.3% |
| Pink | 3 | 133 | 2,235 | 18,137 | 53,637 | 126,598 | 200,742 | 15.4% |
| Chum | 155 | 3,631 | 15,769 | 19,286 | 37,754 | 43,728 | 120,323 | 51.9% |
| Total | 259 | 4,348 | 19,366 | 39,138 | 94,003 | 173,292 | 330,406 | 20.9% |

In 2021, the ESMP accounted for the harvest of 73% of the king salmon, 46% of the chum, 12% of the sockeye, 13% of the pink salmon, and about 10% of the coho salmon caught during the season. In total, about 15% of the 2021 season’s harvest was delivered during this period.

Trout Lake sockeye begin entering Reserve waters during the latter part of the ESMP. Return timing varies, as does the amount of time the sockeye spend in the pool at the outflow of Tain Creek. The latter is probably strongly related to the streamflow in Tain Creek. Appropriate protections should be enacted during any Port Chester Terminal Area openings (discussed below) to minimize the harvest of Trout Lake sockeye, which are the target of an ongoing recovery effort. However, this Plan does not contemplate reductions in fishing time directed at protecting escapement of Trout Lake sockeye

The FMB will also consider information it may receive about escapement concerns for sockeye stocks that contribute significantly to the Reserve’s fishery.

During the ESMP, the primary broodstock needs of Tamgas Creek Hatchery are king salmon, although summer chum returns begin in the latter portion of the Period. The FMB may take actions, particularly in the Tamgas Harbor area, to protect the Hatchery’s ability to achieve broodstock goals.

Summer Management Period

The Summer Management Period (SMP), a period that is typically dominated by pink salmon catches, extends from SW#30 (the week of July 17, 2022) through week 35 (the week of August 21, ending on August 27, 2022). However, as previously mentioned, the FMB may find it necessary to make relatively minor adjustments to the management period’s timing in order to account for differences in run-timing that occur from year to year.

Pink salmon will be the FMB’s priority management species during the SMP, with sockeye and chum receiving secondary consideration. The transition from summer chum to fall chum occurs during this period, generally during the period from Weeks #33 to #34, which may impose different challenges on the FMB, as described below.

The FMB will also continue to consider reports it may receive of sockeye and pink salmon escapement concerns in systems that contribute significantly to the Reserve’s fishery.

Table 10 summarizes the average catch (2012 – 2021) during the SMP. In an average season, nearly 84% of the Reserve’s average pink salmon harvest is taken during this period. More than 66% of the Reserve’s average sockeye harvest also occurs during this period, but as previously mentioned, Reserve fisheries catch very few sockeye salmon. In fact, less than one percent of the average SMP harvest is comprised of sockeye. The SMP also sees, on average, about 42% of the Reserve’s total chum harvest, 26% of the total coho catch, and about 12% of the king salmon deliveries. During the Reserve’s 2021 salmon season, nearly 83% of the Reserve’s pink salmon harvest was delivered during the SMP. In addition, 86% of the Reserve’s sockeye harvest, 49% of the chum catch, 51% of the coho, and 15% of the king salmon deliveries occurred during this period.

Table 10. Average catch during the Summer Management Period, by species and statistical week (2012 – 2021).

| Species | Statistical Week | | | | | | Total for Period | % of Total Species Harvest (season) |
|--------------|------------------|----------------|----------------|----------------|----------------|---------------|------------------|-------------------------------------|
| | 30 | 31 | 32 | 33 | 34 | 35 | | |
| King | 89 | 55 | 26 | 16 | 10 | 3 | 198 | 12.3% |
| Sockeye | 1,983 | 2,353 | 2,689 | 1,996 | 1,488 | 460 | 10,969 | 66.2% |
| Coho | 1,044 | 1,249 | 975 | 1,328 | 1,852 | 2,121 | 8,568 | 25.8% |
| Pink | 181,106 | 175,137 | 189,268 | 239,598 | 223,565 | 76,540 | 1,085,213 | 83.5% |
| Chum | 34,549 | 29,134 | 13,633 | 8,513 | 5,635 | 5,950 | 97,414 | 42.0% |
| Total | 218,771 | 207,927 | 206,591 | 251,451 | 232,550 | 85,074 | 1,202,363 | 75.9% |

The purse seine fleet, in particular, relies very heavily on strong catches, overwhelmingly pink salmon, during the SMP, to make a successful season. Nearly 83% of the average annual purse seine harvest is delivered during this Period, and more than 95% of that harvest is comprised of pink salmon.

As with the ESMP, in recent years, the gillnet fleet has continued to use large-mesh gear through the SMP, continuing to target chum. As previously mentioned, historical chum harvest data suggest that the transition from summer chum to fall chum occurs late in this period, although there is no clear demarcation between the two. In most recent seasons, the gillnet fleet’s summer chum catches have remained reasonably strong during this period, providing sufficient economic incentive to favor chum over the more numerous, but less valuable pink salmon, or the far less numerous sockeye salmon.

Local pink and fall chum escapement become a FMB concern during the latter part of the SMP. The Department will begin surveying local streams in early- to mid-August and will provide regular escapement updates at meetings of the FMB. However, fish

bound for local streams may begin arriving in the area as much as two weeks before they actually enter freshwater. To protect the early component of local pink salmon escapement, if reports of escapement to surrounding areas suggest weak local returns, it may be necessary to restrict fishing time during the latter part of the SMP. Should local pink salmon escapement concerns require stronger conservation measures, the FMB may also impose a larger mesh restriction for the gillnet fishery.

Trout Lake sockeye may remain in the area through much of the SMP. As previously discussed, this 2022 salmon management plan does not prescribe reductions in fishing time to promote Trout Lake sockeye escapement, but appropriate protections should be enacted to protect Trout Lake sockeye during any opening of the Port Chester Terminal Harvest Area.

With respect to Tamgas Creek Hatchery's (TCH) broodstock needs, the majority of the TCH's summer chum broodstock are taken during the SMP. In addition, king salmon spawning operations typically extend into the early portion of the period. Fall chum and coho begin arriving at the TCH during the latter portion of the SMP. However, it is rarely necessary for the FMB to take action to protect the Hatchery's ability to achieve fall chum and coho broodstock goals that early in those species' return.

Fall Management Period

The Fall Management Period (FMP) extends from SW#36 (the week of August 28, 2022) through season closure, typically in SW#40 (the week of September 25, 2022). However, as previously mentioned, the FMB may find it necessary to make relatively minor adjustments to the timing of these management periods in order to account for differences in run-timing that occur from year to year.

The Fall Management Period targets, primarily, fall chum and coho salmon returning to local hatcheries, including fish returning to TCH. The Hatchery's coho returns peak during the FMP and contribute to the Reserve's harvest during that time, although the Hatchery's fall chum production is still being restored from a disruption of several years.

Table 11 summarizes the average FMP harvest during the period from 2012 to 2021. The period has yielded only three percent of the Reserve's average annual harvest over that period. Nearly 66% of the average season's coho harvest has been taken during this period. Since 2012, the chum taken during the FMP have accounted for only six percent of an average season's total chum harvest. From 1984 through 1999, the FMP accounted for an average of 41% of a season's chum harvest. A substantial increase in local hatcheries' summer chum production, including at TCH, accounts for much of the decline in the FMP's share of the annual chum harvest, but there has also been a substantial decline in the number of chum delivered during the FMP, as well. During the years from 1984 through 1999, an average of 46,314 chum were harvested during the FMP. Over the 10 seasons preceding the 2022 season (2012—2021), the Reserve fisheries delivered an average of only 14,245 chum during the FMP. Over the

previous five seasons (2017—2021), an average of only 4,099 chum were delivered during the FMP.

Table 11. Average catch during the Fall Management Period, by species and statistical week (2012 – 2021).

| Species | Statistical Week | | | | | Total for Period | % of Total Species Harvest (season) |
|---------|------------------|--------|-------|-------|-------|------------------|-------------------------------------|
| | 36 | 37 | 38 | 39 | 40 | | |
| King | 1 | 0 | 0 | 0 | 0 | 2 | 0.1% |
| Sockeye | 68 | 172 | 31 | 3 | 0 | 273 | 1.6% |
| Coho | 2,867 | 5,088 | 5,316 | 5,660 | 3,148 | 21,820 | 65.8% |
| Pink | 12,842 | 1,051 | 275 | 41 | 0 | 14,032 | 1.1% |
| Chum | 5,977 | 4,160 | 2,286 | 1,515 | 469 | 14,245 | 6.1% |
| Total | 21,755 | 10,366 | 7,853 | 6,485 | 3,255 | 50,372 | 3.2% |

Pink salmon continue to be caught during the FMP, primarily by the purse seine fleet, although catches are substantially reduced from the SMP and continue to decline through the period. Sockeye and king salmon are caught in very small numbers during the FMP, making up, in combination, less than one percent of the period’s total average harvest.

In 2021, less than 39% percent of the season’s coho harvest was delivered during the FMP, a substantial decline from the 66% of the season’s coho harvest that the period has averaged during the previous 10 seasons (2012—2021). The 9,801 coho delivered during the 2021 FMP was the third fewest coho the Reserve has harvested during the period since 1984. Less than five percent of the 2021 season’s chum harvest was taken during the FMP. Fall chum catches continue to suffer from the loss of the Tamgas Creek Hatchery’s (TCH) fall chum production, but fall chum escapement to local streams was also very poor in 2021, as it has been for most of the last decade. Less than four percent of the 2021 season’s pink salmon harvest was delivered during this period. Considerably less than two percent of the 2021 season’s sockeye harvest was taken during the FMP and only one king salmon was delivered.

In past years, the FMP was especially important to the gillnet fleet, accounting for a substantial share of the fleet’s annual earnings. From 1990 through 2010, nearly 27% of the gillnetters’ average annual earnings was secured during the FMP; from 2011 through 2021, the gillnet fleet has delivered an average of less than nine percent of a season’s value during that period. With the disruption to the TCH fall chum program, coho have taken on far greater importance during the gillnetters’ FMP.

The gillnet fleet may be restricted to the use of large-mesh gear during the FMP, with the FMB making the final determination as to mesh size (most frequently, 5-1/2” or larger), depending on local pink salmon escapement needs.

The majority of Reserve streams' pink and chum escapement occurs during the FMP. As a result, the purse seine fishery is usually closed during SW#36 or, in some seasons, for longer periods, depending on pink salmon abundance and run-timing. Since the FMB does not have the option to impose size-selective mesh restrictions on the purse seine fishery, the FMB may find it necessary to restrict seine fishing time, or area, during the FMP in order to address local pink salmon conservation concerns.

The season has generally closed following SW#40, or SW#41, but in some years, it has extended as far as SW#42, although with limited success.

With respect to escapement, the FMB's primary focus is local pink and chum salmon escapement during the FMP. In addition to time and gear restrictions, the FMB will impose area restrictions to reverse a sustained decline in local streams' chum salmon production. Coho generally do not appear in local streams until late September, or October, by which time the fishery is either closed, or winding down.

The Tamgas Creek Hatchery's fall chum and coho broodstock needs are met mostly during the FMP. The FMB may take actions to ensure that the Hatchery achieves its broodstock goals, which are established by Council.

Fishery Management Board Meetings

Friday Meetings

The Fishery Management Board (FMB) will meet every Friday throughout the salmon season to set the starting schedules for the following week's fisheries. DFW will provide summaries of the most current harvest and escapement data available and will offer a recommendation for an appropriate starting schedule for the following week, based on analyses of those data.

Since conditions in a salmon fishery are exceptionally dynamic, as a general rule, the FMB will avoid making fishery management decisions before they need to be made. Friday's meetings serve only to set the starting schedule for the following week's fisheries. Subsequent FMB meetings will consider more current harvest and escapement data, facilitating the FMB's consideration of mid-week schedule adjustments, which might include extensions to the schedules established during the previous Friday's FMB meeting.

The Department's recommendations at the Friday meetings will be based on an expectation that more current harvest and escapement data should be available by Tuesday of the following week, or, with a Sunday purse seine opening, as early as Monday.

Midweek Meetings

As previously mentioned, the FMB was formed to facilitate in-season management of the Reserve's fisheries. In order to be consistent with the goals of in-season management, the FMB must meet as often as in-season circumstances require, and must base its fishery management decisions on the most current information available.

The FMB will generally set starting schedules based upon an expectation that more current data will be available by Tuesday of the following week. For that reason, Tuesday meetings of the FMB are routine, but additional meetings are scheduled as in-season conditions may dictate.

As a rule, then, with few exceptions, at Friday meetings of the FMB, the Board will set the fishing schedule only as far as Wednesday of the following week. The FMB routinely meets on Tuesdays, at which time DFW staff provide updated catch and escapement reports, enabling the FMB to adjust fishing schedules appropriately.

Terminal Harvest Area Openings

There are two Council-approved Terminal Harvest Areas on the Reserve: an area of Port Chester, and a portion of Tamgas Harbor. Summer chum have been the primary target of terminal harvest area openings in recent years, although TCH's release of king salmon does help support limited trolling in those areas. Terminal area openings have, thus far, been limited to the Port Chester Terminal Harvest Area (PCTHA), which is illustrated in Figure 7. Chum returning to TCH, located in Tamgas Harbor, have been used as broodstock, or sold as cost recovery. The Council's goal of substantially increasing chum production will put a premium on returning chum for broodstock purposes until Council's production goals are met.

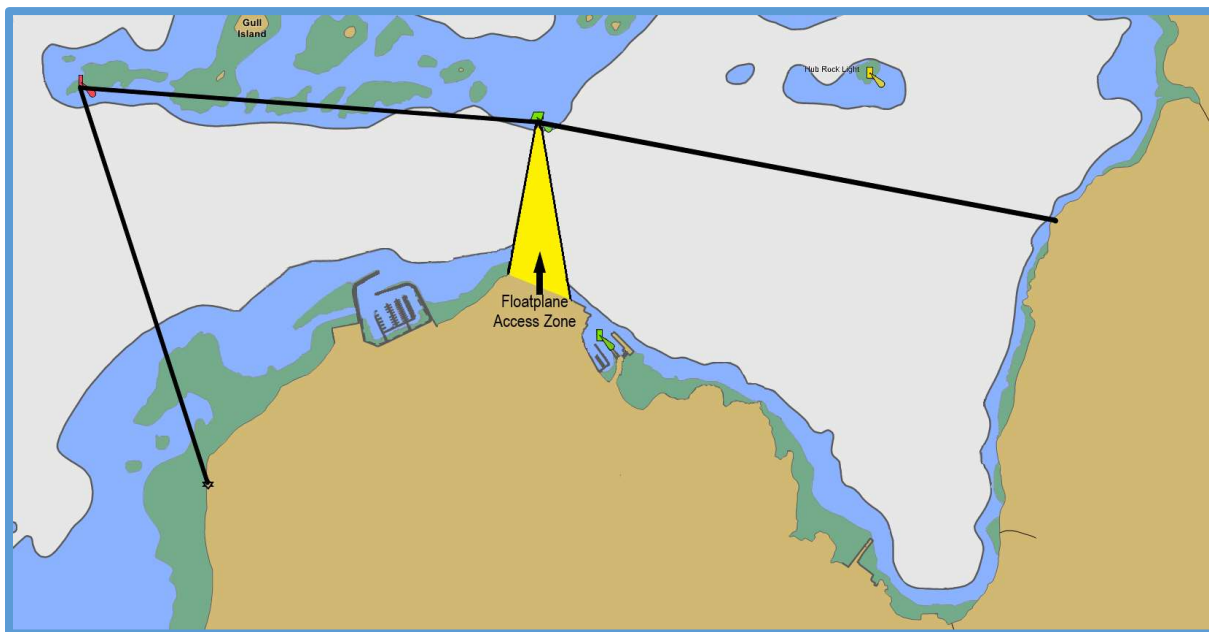


Figure 7. The Port Chester Terminal Harvest Area, illustrating the location of the Floatplane Access Zone.

The decision to conduct a Port Chester Terminal Harvest Area opening is based upon a visual estimation of salmon (currently chum or coho) abundance in the terminal area by DFW personnel. When abundance is sufficient to justify an opening, DFW will recommend that the FMB schedule an opening. With rare exceptions, terminal harvest area openings have alternated between the gillnet and purse seine fleets.

Since 2005 Tamgas Creek Hatchery has pen-reared summer chum in Port Chester, eventually releasing them in the same area. Since 2009, the FMB has authorized fishery openings in the PCTHA, targeting those pen-reared summer chum when they return as adults. However, there were no terminal area openings in 2020, and only a single day of gillnetting in 2021. During the 2021 season, a 12-hour gillnet opening was authorized on August 4, in SW#31. Consistent with the practice of rotating gillnet and purse seine openings, following the gillnet opening, an equivalent purse seine opening would have been scheduled. However, DFW concluded that there were too few chum remaining to justify another opening and the FMB closed the PCTHA.

In total, 11,544 chum were harvested during the 2021 season’s single 12-hour gillnet opening in the PCTHA. Thirty-one vessels made deliveries during the opening, earning a total of \$94,548, or an average of \$3,050 per vessel. The incidental harvest rate during the 2021 opening was 1.38%, with pink salmon making up the vast majority of the incidentally-harvested salmon (Table 12).

Table 12. Harvest summary from the 12-hour gillnet opening of the PCTHA on August 4, 2021 (SW#31).

| | Species | | | | | Totals |
|---------------|---------|---------------------|------------|--------------------|---------------|----------|
| | King | Sockeye | Coho | Pink | Chum | |
| Fish (2021) | 1 | 0 | 16 | 145 | 11,544 | 11,706 |
| CPUE (2021) | 0 | 0 | 1 | 7 | 550 | 557 |
| Pounds (2021) | 8 | 0 | 111 | 573 | 83,034 | 83,726 |
| Value (2021) | \$28 | \$0 | \$122 | \$201 | \$94,197 | \$94,548 |
| | Gear | Incidental Harvest: | of Vessels | Effort (boat-days) | Vessel Earned | |
| | Gillnet | 1.38% | 31 | 21.00 | \$3,050 | |

Incidental harvests of other salmon species have been low in these terminal area openings. Over the period from 2015 to 2021, the gillnet fleet has seen an average incidental rate of 2.3% in PCTHA openings, while seiners have averaged 3.7% (Table 13). Over the

previous 10 seasons (2012—2021), the total all-gear incidental harvest rate has averaged less than 5.6% in the PCTHA. The vast majority of the incidental harvest rate has been made up of pink salmon.

Table 13. Summary of the results of Port Chester Terminal Harvest Area openings during the period from 2015 through 2021 by gear type.

| Year | King | | Sockeye | | Coho | | Pink | | Chum | | Total | | Incidental Harvest (%) | | Value (\$) | |
|---------|------|----|---------|----|------|----|-------|-------|--------|--------|--------|--------|------------------------|------|------------|-----------|
| | GN | PS | GN | PS | GN | PS | GN | PS | GN | PS | GN | PS | GN | PS | GN | PS |
| 2015 | 20 | 6 | 13 | 7 | 16 | 7 | 678 | 38 | 27,690 | 21,876 | 28,417 | 21,937 | 2.6% | 0.3% | \$107,840 | \$91,603 |
| 2016 | 7 | 22 | 46 | 76 | 17 | 73 | 1,024 | 3,112 | 39,534 | 43,374 | 40,628 | 46,657 | 2.7% | 7.0% | \$214,649 | \$248,255 |
| 2017 | 4 | 1 | 5 | 8 | 16 | 6 | 197 | 221 | 18,822 | 19,937 | 19,044 | 20,173 | 1.2% | 1.2% | \$147,361 | \$140,951 |
| 2018 | 0 | 0 | 2 | 8 | 12 | 30 | 202 | 129 | 9,977 | 18,121 | 10,193 | 18,288 | 2.1% | 0.9% | \$80,733 | \$172,144 |
| 2019 | 1 | 0 | 8 | 9 | 3 | 5 | 321 | 535 | 8,386 | 9,267 | 8,719 | 9,816 | 3.8% | 5.6% | \$52,629 | \$51,689 |
| 2020 | | | | | | | | | | | | | | | | |
| 2021 | 1 | | 0 | | 16 | | 145 | | 11,544 | | 11,706 | | 1.4% | | \$94,548 | |
| Average | 6 | 6 | 12 | 22 | 13 | 24 | 428 | 807 | 19,326 | 22,515 | 19,785 | 23,374 | 2.3% | 3.7% | \$116,293 | \$140,928 |

To reduce the incidental harvest of pink salmon that may be returning to nearby streams, the FMB may impose a minimum mesh restriction of 5-1/2". However, there is no such size-selective option for the purse seine fleet. For that reason, if a

conservation concern develops in Port Chester, or, if incidental catches are excessive, the FMB may find it necessary to limit the time available to the purse seine fleet in the PCTHA.

Anticipated Returns in 2022—For the 2022 season, brood year 2019 adult coho, returning from the release of 1.622 million smolts in 2021, are expected to be available to a PCTHA fishery in late August and September. In addition, a portion of the 284,400 Chinook salmon smolts (brood year 2019) that were released from the Port Chester netpens in 2021 will return at age three during the months of June and July. Reliable marine survival data, and other key data, are not available for years prior to 2019. As a result, a forecast of the number of returning adults was not calculated.

Planned Releases in 2022—PCTHA fishery openings target returning adult salmon that were released as juveniles (smolts or fry) by TCH in previous seasons. All of those releases occur in the spring and all involve some period of rearing (or acclimation) in netpens located adjacent to the old ferry terminal in Port Chester. During the spring of 2022, TCH plans to release 10.2 million chum fry, 5.9 million coho smolts, and 299,000 Chinook smolts from the Port Chester netpens. The chum fry will return as adults during the period from 2024 through 2027; the Chinook smolts will return as adults over the period from 2023 through 2026; and the coho will return in the fall of 2023

Cost Recovery

Tamgas Creek Hatchery has two potential sources of cost recovery earnings: truck deliveries of carcasses and roe recovered at the hatchery, and deliveries by a contracted cost recovery fishing vessel fishing in Tamgas Harbor. The FMB does not regulate truck deliveries, but it does regulate fishing by a cost recovery vessel, just as it does other commercial fishing. All fishing by a contracted cost recovery fishing vessel requires the authorization of the FMB, as reflected in a fishery announcement.

Appendix A

Fishery Management Structure and Regulatory Authority

The Secretary of Interior is specifically and uniquely charged with authority and responsibility for the management of all fisheries within the Annette Islands Reserve. In practice, since the Secretary is not able to provide day-to-day management of the Reserve's fisheries, the Northwest Regional Director of the Bureau of Indian Affairs (BIA) exercises the Secretary's authority at the Regional level. At the local, Reserve level, the Superintendent of the BIA's Metlakatla Agency represents the Northwest Regional Director. Authority is delegated to the Superintendent to approve fishery management plans and to authorize fisheries that may be requested by the Community. Once the Superintendent approves a fishery management plan and authorizes a Community fishery, management of the fishery becomes the domain of a Fishery Management Board, a Board through which the Secretary's authority is exercised, in-season, on a day-to-day basis.

Fisheries Management Board

The Fisheries Management Board (FMB), the entity through which the Secretary's authority is exercised, was established by a Memorandum of Agreement between the BIA and the Metlakatla Indian Community that was signed on February 22, 1994. Recognizing that the Secretary could not be directly involved in every fishery management decision, the FMB was established to facilitate the exercise of the Secretary's authority, in-season, under circumstances that often require daily fishery management decisions. The FMB consists of two voting members, supported by technical staff from the Community's Department of Fish and Wildlife. One voting member represents the Community (the Mayor); the other represents the BIA (the Field Representative of the BIA's Metlakatla Field Station).

The FMB is responsible for enacting the provisions of fishery management plans that have been adopted by Council and approved by the Secretary (or, the BIA, on the behalf of the Secretary), while responding to the dynamic in-season conditions that are characteristic of all fisheries.

The FMB is constrained to manage fisheries consistent with the relevant fishery management plan. Aside from that requirement, and applicable Federal law, the FMB exercises complete authority with respect to authorized fisheries. In cases where the two voting members cannot reach agreement, the Northwest Regional Director, exercising the Secretary's authority, is empowered to make the final determination.

The FMB's role during the Reserve's annual salmon season is a crucial one. The FMB was formed, in large part, to facilitate in-season management of the Reserve's salmon fisheries, which are the most valuable of the Reserve's fisheries. In-season management requires frequent review of current catch and escapement data. In order to do that, the FMB may meet several times each week throughout the salmon season.

The starting schedule for the following week's openings (Sunday through Saturday) is set at a regular Friday meeting of the FMB. That schedule is established in light of the federal purpose for the Reserve, and catch and escapement data provided by the Department. But consistent with in-season management principles, the FMB sets salmon schedules with the knowledge that, by Tuesday of the following week, even more current catch and escapement information should be available. Having current information enables the FMB to consider adjustments to the fishing schedule based upon the results of the most recent fishing effort.

The criteria used by the FMB to evaluate the strength of the various salmon runs, as well as the timelines that prescribe varying management priorities, are described in Chapter 7. In general, though, the FMB must balance the economic needs of the Community, or the federal purpose, with the conservation needs of the resource. To facilitate that effort, the salmon management plan prescribes management priorities for the three management periods that, collectively, make up the Reserve's net fisheries' season, each requiring that the FMB give priority consideration to different salmon species, or a different combination of species.

In addition to managing the commercial fisheries, the FMB also provides in-season regulation of terminal area openings, TCH cost recovery fishing, and subsistence openings. All of these activities require the FMB's specific authorization, as evidenced by a fishery announcement.

Other Federal Regulations

In addition to the requirements imposed by 25 CFR 241.3 (c) and (e), the requirements of the Endangered Species Act and the Marine Mammal Protection Act (MMPA) apply to this fishery, as well. In compliance with the MMPA, the Community's salmon net fisheries are listed in the List of Fisheries, which is administered by the National Marine Fisheries Service. Pursuant to that listing, the Community's gillnet fishery is a Category 2 fishery, while the purse seine fishery is classified as a Category 3 fishery. Community fishers are required to comply with the requirements imposed by the category of the gear they fish.

Appendix B

Salmon Fishery Regulations

The Council, Annette Islands Reserve, adopted the following regulations for salmon fisheries during the 2022 season:

1. **Time:** These regulations shall govern all salmon fishing on the Annette Islands Reserve from the date they are authorized by the Bureau of Indian Affairs (BIA) until the BIA authorizes the 2023 Salmon Management Plan.
2. **Approved Openings:** Drift gillnet and purse seine openings will be scheduled in-season by the Fishery Management Board.
3. **Gear Specifications and Operations:**
 - 3.1. **Drift Gillnet:**
 - 3.1.a. Drift gillnets may not exceed 200 fathoms in total length and may not exceed 60 meshes in depth.
 - 3.1.b. Drift gillnets may not be intentionally staked, anchored, or otherwise fixed.
 - 3.1.c. A drift gillnet is considered to have ceased fishing when all gear, including buoy, is completely out of the water.
 - 3.2. **Purse Seine:**
 - 3.2.a. Purse seines may not exceed 250 fathoms in total length and may not exceed 450 meshes in depth.
 - 3.2.b. A purse seiner is considered to have ceased fishing when the bunt end of the seine is attached to the purse seine vessel and the tow end of the seine is attached to the vessel or moving through the power block.
4. **Closed Areas:** The following areas shall be closed to commercial fishing for salmon.
 - 4.1. The Nadzaheen Creek Area Closure:

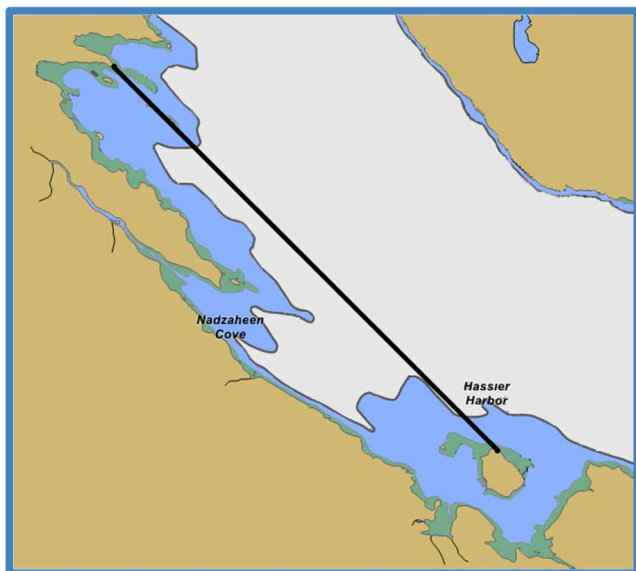


Figure 8. The Nadzaheen Creek Area Closure.

The Nadzaheen Creek Area Closure (Figure 6) is defined as the area west and southwest of a line from the marker located at 55°14.851' North latitude, 131°29.004' West longitude, to the marker on Pow Island, at 55°13.089' North latitude, 131° 25.917' West longitude.

The Nadzaheen Creek Area Closure will be in effect during the period from statistical week #32 to the season closure, or as otherwise prescribed by the FMB.

4.2. The Deer Point Line:



Figure 9. The Deer Point Line, in Tamgas Harbor.

The Deer Point Line Area Closure (Figure 7) is defined as the portion of Tamgas Harbor north of a line between the marker located at 55°02.485' North latitude, 131°32.143' West longitude (Deer Point), to the marker on the opposite (eastern) shore, at 55°02.718' North latitude, 131°30.520' West longitude.

Commercial fishing is not authorized north of the Deer Point Line, except for:

- Hatchery harvest(s) authorized by the FMB.
- Trolling, which is permitted north of the Deer Point Line, except when specifically closed by the FMB.

4.3. The Port Chester Area Closure:

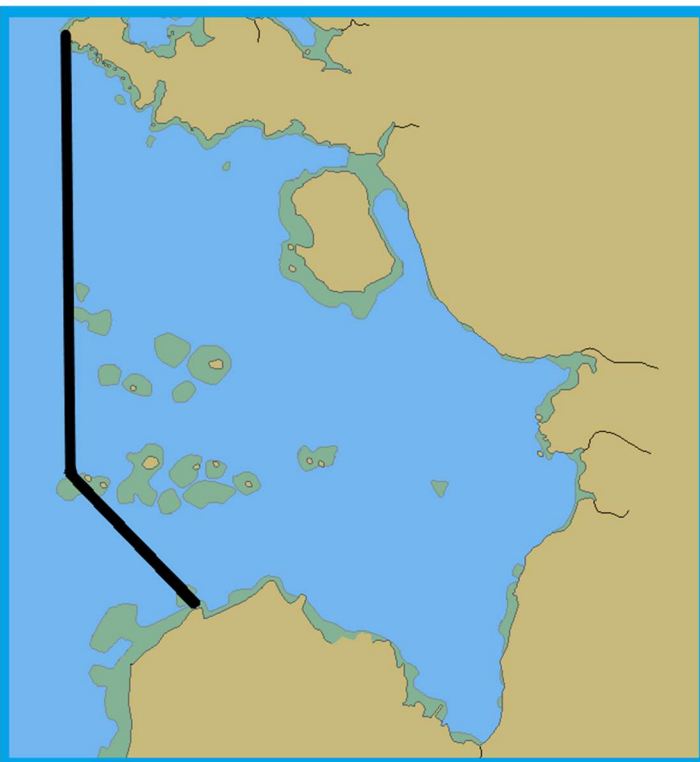
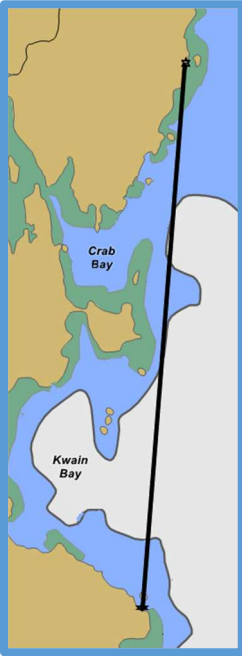


Figure 10. The Port Chester Area Closure.

The Port Chester Area Closure (Figure 8) is defined as the area east of a line that extends from the navigational light at Driest Point, at 55°10.587' North latitude, 131°36.391' West longitude; to the navigational light on Crow Island Reef, at 55°08.312' North latitude, 131°36.489' West longitude; and from marker on Crow Island Reef to the navigational marker at the entrance to the new breakwater, at 55°07.8667' North latitude, 131°35.1433' West longitude.

The Port Chester Area Closure will remain in effect throughout the season, except that the FMB may authorize openings of the Port Chester Terminal Fishery Area, for which there are further area restrictions.

4.4. The Crab/Kwain Bay Area Closure:



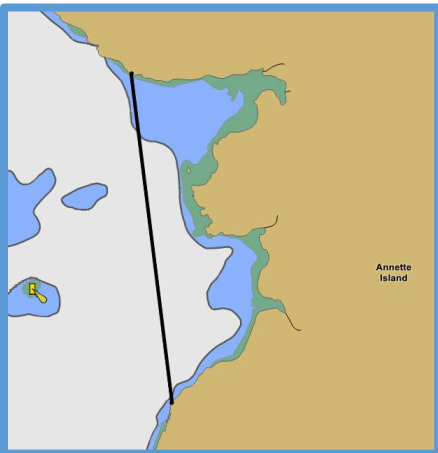
The Crab/Kwain Bay Area Closure (Figure 9) is defined as the area west of a line that extends from the marker at 55°04.93417' North latitude, 131°21.47250' West longitude, located in southeastern Kwain Bay, north to the marker at 55° 07.193' North latitude, 131°21.18467' West Longitude, located on the Crab Bay Flats.

The Crab/Kwain Bay Area Closure will be in effect from statistical week #32 to season's closure, or as otherwise prescribed by the FMB.

Figure 11. The Crab/Kwain Bay Area Closure.

4.5. The Tain Creek Area Closure:

The Tain Creek Area Closure is defined as the area east of a line that extends from the marker west of Tain Creek, at 55°08.990' North latitude, 131°32.602' West longitude, south to the marker located south of Melanson Creek, at 55°07.991' North latitude, 131°32.352' West longitude.



The Tain Creek Area Closure is located entirely within the Port Chester Area Closure, however, while the Port Chester Area Closure applies only to commercial fishing, the Tain Creek Area Closure applies to all fishing and all gear. It is illegal to fish with any type of gear within the area encompassed by the Tain Creek Area Closure. Although the chart makes no attempt to cover the freshwater portion of the drainage, the entire Tain Creek is closed to all methods of fishing.

Figure 12. The Tain Creek Area Closure.

4.6. The Tamgas Harbor Hatchery Broodstock Protection Corridor:

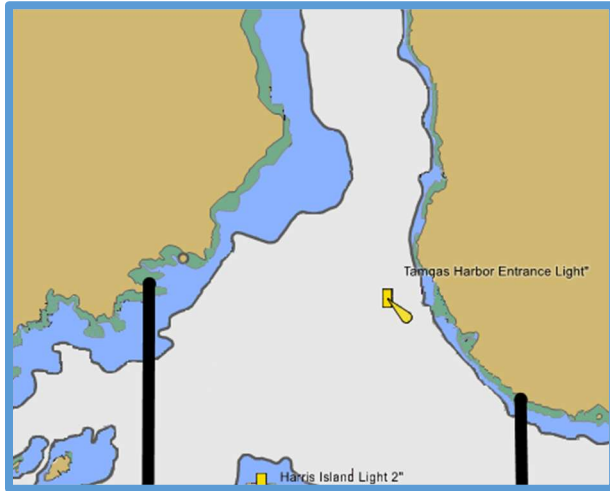


Figure 13. The Tamgas Harbor Hatchery Broodstock Protection Corridor.

The Tamgas Harbor Hatchery Broodstock Protection Corridor (THHBPC) is defined as the area, in Tamgas Harbor, east of a line that extends 180° south from the marker at 55°01.391' North Latitude, 131°33.277' West Longitude (Moss Point), to the Reserve boundary, and west of a line that extends 180° south from the marker at 55°00.741' North Latitude, 131°29.578' west Longitude (Survey Point), to the Reserve boundary.

When the THHBPC is activated by the FMB, the Corridor is closed to all commercial fishing, except FMB-authorized Hatchery cost-recovery openings.

4.7. The area within 500 feet of the mouth of all other salmon producing streams or creek for which a specific area closure has not been identified.

5. Minimum Distance Between Fishing Vessels:

5.1. Gillnetters shall maintain a minimum distance of one net length from other gillnet vessels.

5.2. Purse seiners shall maintain a safe distance from all other purse seine vessels.

5.3. Power gurdy troll vessels operating within an area in which other commercial fishing operations are being conducted shall maintain a safe distance from all other commercial fishing vessels.

6. Sport Fishing:

Sport fishing in Annette Islands Reserve waters shall be conducted in accordance with the seasons, gear, bag restrictions as set forth by the Fishery Management Board and in accordance with Community Ordinance No. 662.

7. Subsistence Fishing:

7.1. Subsistence Fishing in Annette Islands Reserve waters shall be subject to seasons, gear and bag restrictions as set forth by the Fishery Management Board and Community Ordinance No. 662, or as authorized by the Council.

7.2. Tain Creek is closed to subsistence fishing by any type of gear, including dip netting and snagging. This closure will remain in effect until withdrawn by Council.

8. Terminal Area Fisheries:

Council has identified two terminal fishery areas on the Reserve, the Port Chester Terminal Harvest Area (PCTHA) and the Tamgas Harbor Terminal Harvest Area (THTHA).

8.1. The Port Chester Terminal Harvest Area (PCTHA) is defined as the area east of a line that extends from the marker at Pioneer Park, at 55°07.37940' North latitude, 131°35.83440' West longitude, to the navigational marker on Crow

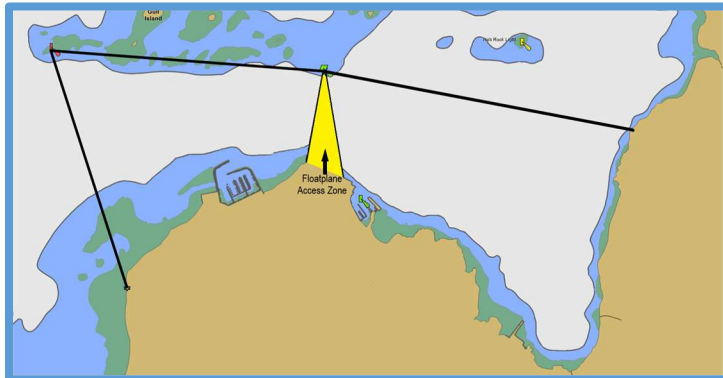


Figure 14. The Port Chester Terminal Harvest Area, illustrating the location of the Floatplane Access Zone.

Island Reef, at 55°08.312' North latitude, 131°36.489' West longitude; south of a line that extends from the navigational marker on Crow Island Reef to the green navigational marker at 55°08.226' North latitude, 131°34.486' West longitude; and southwest of a line that extends from the green navigational marker at 55°08.226' North latitude, 131°34.486' West longitude, to the marker south of Melanson Creek, at 55°07.991' North latitude, 131°32.352' West longitude.

8.1.a. Floatplane Access Zone

The PCTHA also includes a time-based Floatplane Access Zone (FAZ), established to accommodate Port Chester floatplane traffic. When the PCTHA is open, all vessels must vacate the FAZ by 7:30 a.m., after which no fishing is permitted in the zone. The FAZ is defined as the area east of a line from the Village Point, at 55°07.860' North latitude, 131°34.581' West longitude, to the green navigational marker at 55°08.226' North latitude, 131°34.486' West longitude; and west of a line from the green navigational marker at 55°08.226' North latitude, 131°34.486' West longitude, to the northwest corner of the fish processing plant, at 55°07.803' North latitude, 131°34.350' West longitude.

Appendix C Sockeye Management

Sockeye salmon warrant a separate discussion because of recent changes in the Reserve’s fisheries, as well as in the availability of sockeye to Community fishers. The Reserve’s sockeye catch has declined substantially from the numbers of sockeye taken in the 1980’s and 1990’s.

To illustrate further, from 1984 through 2004, the sockeye catch on the Reserve averaged 42,600 sockeye per year and reached over 95,000 in 1993. By contrast, in the years since 2005, the sockeye catch has declined by over 60 percent, averaging only 17,830 sockeye per year (Figure 15, below). In 2018, the sockeye catch on the Reserve reached a record low, at only about 6,400 sockeye, and the recovery in the two years since then has been very modest. In 2021, the gillnet catch sockeye remained well below average while the seine catch of sockeye was slightly above average. For the Reserve as a whole, the sockeye catch in 2021 was slightly below the recent 10-year average, and ranked 28th (from the top) out of the last 38 years.

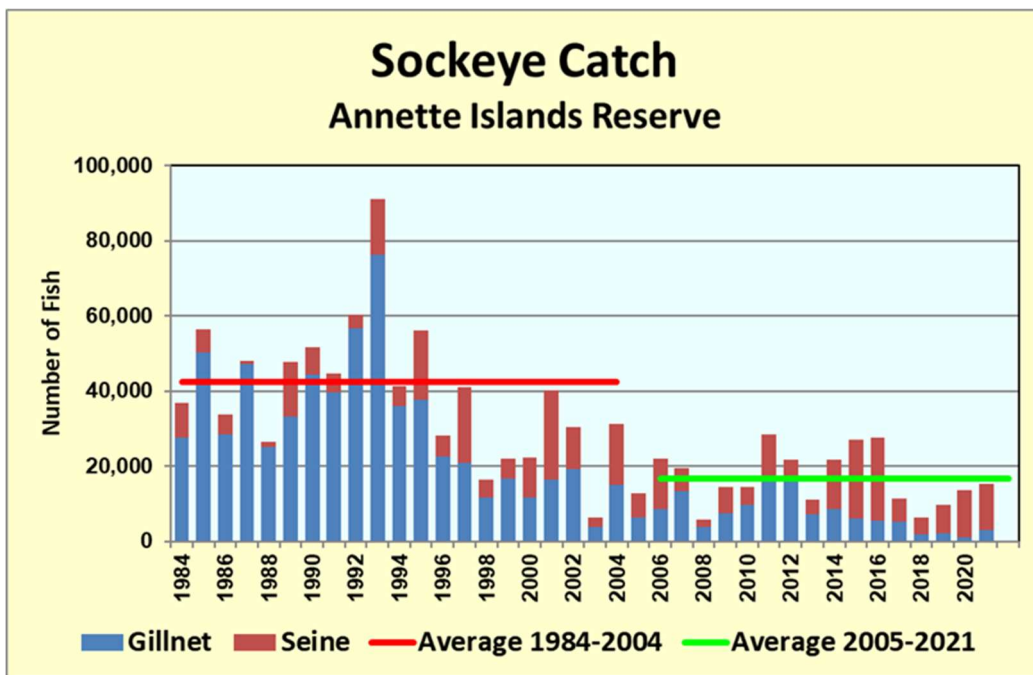


Figure 15. Annette Islands sockeye catch by year (1984–2021).

Net fisheries in nearby areas of State waters have seen similar reductions in sockeye catch since the early 2000’s, including the seine fishery in District 104 (Noyes Island) where sockeye catches declined by 53 percent, and the gillnet fishery in District 101 (Tree Point) where sockeye catches have dropped by 68 percent since the 1984-2004 period, and which, like the gillnet sockeye catch on the Reserve, reached a record low in 2020, and then recovered slightly in 2021.

The decline in sockeye catch could be related to a corresponding decline in the size of the fish, which is illustrated in Figure 16, below. In the early 2000's, sockeye (from the seine catch, which is not size-selective) averaged nearly 6 pounds. In the most recent 10-year period (2012-2021) they averaged about 5.4 pounds, and dropped almost to a 4-pound average in 2016. As the graph below shows, this decline in size has been consistent, and is statistically significant (linear regression analysis, pounds vs. calendar year, $P=0.0127$). A similar decline in sockeye size has been observed in the catch of Fraser River sockeye in the seine fishery in northern Puget Sound, about 700 miles south of Annette Island, suggesting a widespread change in food availability for sockeye in the North Pacific.

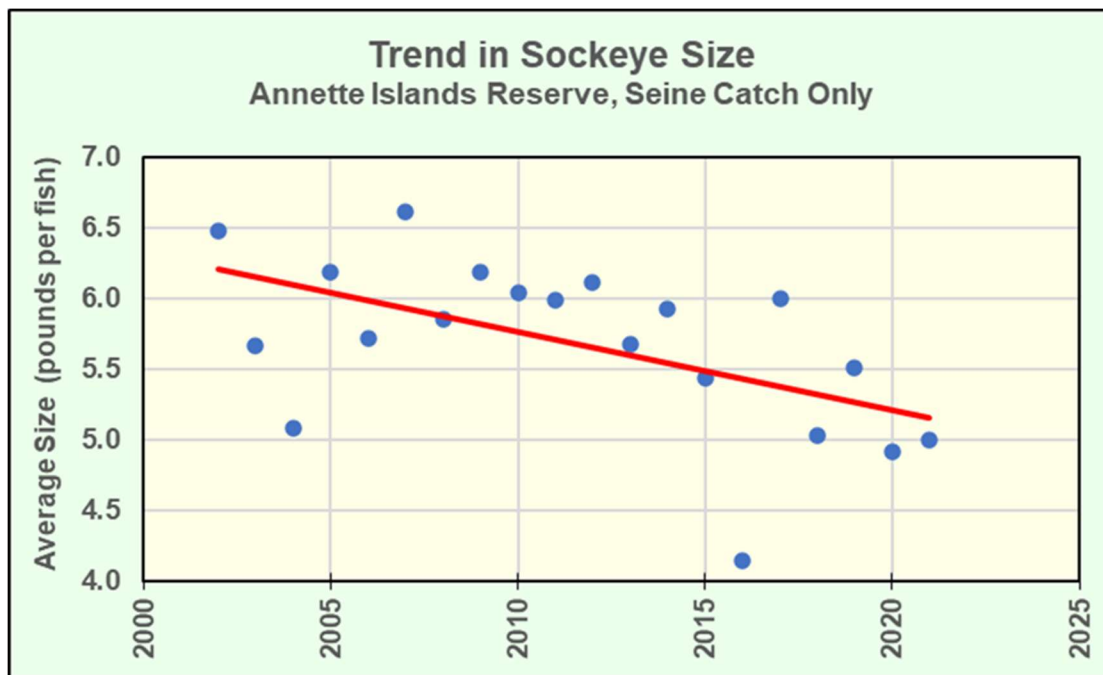


Figure 16. Trend in sockeye size in the Annette Islands Reserve purse seine fishery (2000—2021)

Sockeye returning as smaller adults could lead to a reduction in catches in at least two ways. First, since fish size is linked to swimming speed, which in turn is related to survival rates (faster fish can more easily escape predators and catch prey) smaller fish would likely have lower survival rates, which would then lead to lower abundance and correspondingly lower catches. Second, since nearly half of the Reserve's sockeye catch is taken by gillnets, smaller sockeye might be able to swim through the gillnets and avoid being caught.

Another reason for the decline in sockeye catches on the Reserve could be a shift in target species during the early summer period, from sockeye to chum. While the sockeye catch has declined quite substantially over the last two decades, the chum catch has increased. Hatcheries in southern southeast Alaska, including Tamgas Creek Hatchery on the Reserve, have dramatically increased their production of summer chum salmon over the past decade. As a consequence, summer chum have

replaced sockeye as the focus of management efforts during the early part of the salmon season (Figure 17). In fact, in the last 10 years, sockeye made up less than 1 percent of the Reserve’s total salmon harvest, and 4 percent of the value, while chum salmon, primarily summer chum, comprised 20 percent of the Reserve’s total salmon harvest (by number of fish) and 50 percent of the season’s value.

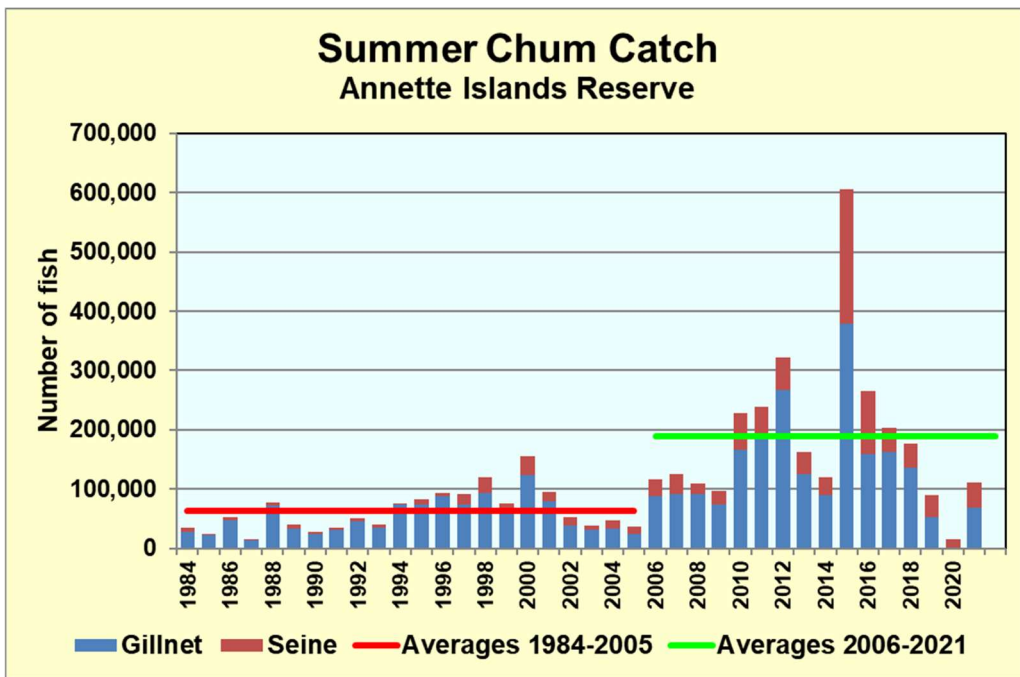


Figure 17. Annette Islands Reserve summer chum harvest by year (1984 – 2021). For this analysis, chum that were caught during the period from the start of the season through Week 34, are considered summer chum.

There is likely a variety of factors that, in combination, have led to the decline in the Reserve's sockeye harvest over the last few decades. Declining sockeye catches are not unique to Reserve fisheries; the sockeye catches in adjacent areas of southeast Alaska have declined, as well. However, it is likely that the gillnet fleet’s targeting of the increased summer chum production has had the unintended effect of reducing that fleet's sockeye catch (Figure 18). In order to increase their chum-catching efficiency, most Metlakatla gillnetters are now using nets with larger mesh size (5 ½ inch or larger) than they used when they were targeting sockeye (5-inch was typical). Sockeye are several pounds smaller than chum, on average, and, according to reports from Community fishers, all but the largest sockeye are able to pass through the larger-mesh gillnets used for targeting chum. If those reports are accurate, the gillnet fleet’s sockeye catch, and sockeye CPUE, may not be a good indicator of sockeye abundance. However, the fact that sockeye catches have declined in the seine fishery outside of Prince of Wales Island, where there are no large chum hatchery programs, suggests that other factors besides chum abundance may also influence the sockeye catches, both on and off the Reserve.

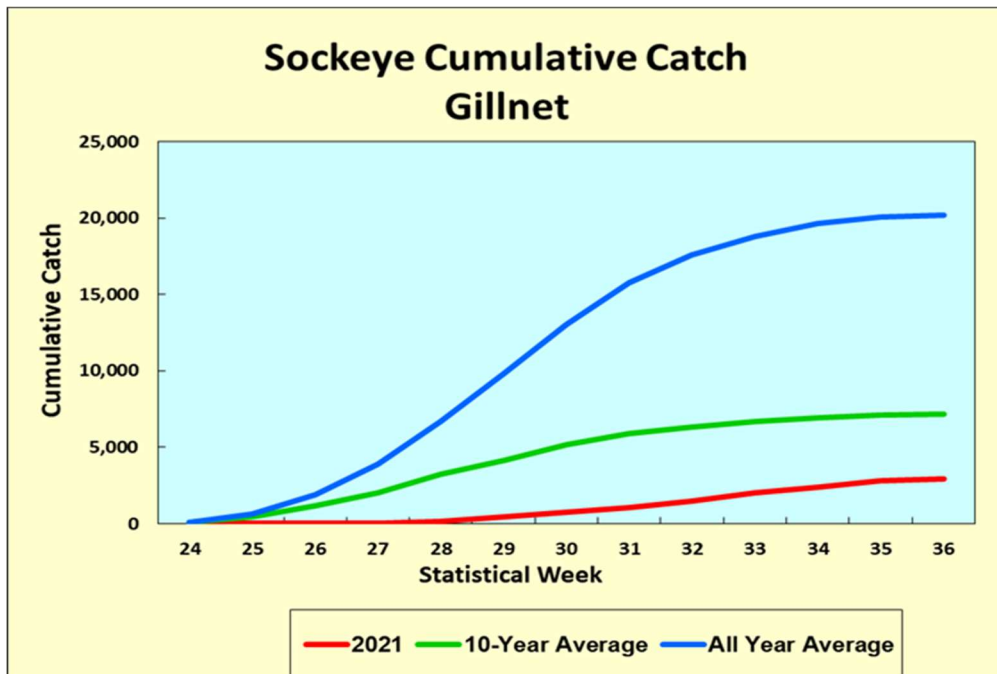


Figure 18. Cumulative sockeye catch by statistical week. Note that nearly all of the sockeye catch is taken by week 34, overlapping the timing of the summer chum catch.

The Department used the three objectives previously described herein and outlined in Federal Regulations (25 CFR 241.3 (c) and (e)) to evaluate the early portion of the salmon season, Statistical weeks #24 through 32 (roughly, early June through mid-August). During much of that period, sockeye have been the FMB’s primary consideration in setting weekly fishing schedules. The results of that evaluation are summarized below.

Management Criteria
Conservation

The Reserve’s annual sockeye harvest has averaged fewer than 18,000 fish annually over the last 10 years and has not exceeded 30,000 fish since 2004. This catch is a very small number, compared with the abundance of the sockeye stocks that likely contribute to the sockeye catch.

Tagging studies in the 1980’s (Pella, et al., 1993) concluded that most of the sockeye caught in southern southeast Alaska originate in Canada. The nearest Canadian sockeye stocks are the Nass and Skeena runs, which have combined run sizes averaging over 2.5 million fish. The highly significant correlation between the sockeye catch on the Reserve and the combined abundance of the Nass and Skeena sockeye runs suggests that they do contribute to some extent to the Annette Island catch. (By contrast, there is no significant correlation between the Annette Island sockeye catch and the escapements of other nearby sockeye stocks, including those from Hugh Smith Lake, McDonald Lake, and the Stikine River.) However, the impact of Annette Island fisheries on the Nass and Skeena stocks is likely minimal; in the unlikely event

that *all* of the sockeye caught on Annette Island were from this stock, the average sockeye harvest on the Reserve would take less than 0.8 percent of the Nass and Skeena runs, and is too small to have a significant impact on those stocks. In a more realistic scenario that other sockeye stocks also contribute to the Annette Island catch, the impact on Nass and Skeena is likely to be even lower than 0.8 percent. This year's forecast for Skeena River sockeye is improved over last year, and exceeds the most recent 20-year average (roughly, the last 5 sockeye brood cycles).

Sharing

The Department looked at the sharing criterion in two ways: the Annette Island sockeye catch compared with the regional sockeye catch; and in terms of sockeye per boat on Annette Island and in State-managed fisheries.

The Annette Islands sockeye catch is now, and historically has been, very modest in comparison with the sockeye catch in State-managed fisheries in southeast Alaska. The average annual sockeye catch in State-managed net fisheries has historically been over 40 times that on the Reserve, as shown in Table 14 below. In the years since 2005, the number of sockeye caught in southeast has increased to 50 times that caught on the Reserve.

Table 14. The average annual sockeye harvest, by gear type, during the period from 1984 through 2004, in the Annette Islands Reserve fisheries and the State-managed fisheries of southeast Alaska, compared to the average annual sockeye harvest in those fisheries during the period from 2005 through 2020.

| Average Sockeye Catch per Year | | | | | | | |
|--------------------------------|-------------------------|---------|--------|------------------|---------|-----------|-----------|
| Period | Annette Islands Reserve | | | Southeast Alaska | | | AIR Share |
| | Seine | Gillnet | Totals | Seine | Gillnet | Totals | |
| 1984-2004 | 9,150 | 30,469 | 39,619 | 886,758 | 695,246 | 1,582,004 | 2.5% |
| 2005-2020 | 9,203 | 7,531 | 16,735 | 476,701 | 371,981 | 848,682 | 2.0% |

Of course, there is a much larger fleet of boats fishing the State-managed fisheries. The State seine fleet (boats actually fishing in southeast) averages in the upper 200's to lower 300's per year, while the gillnet fleet in southeast averages in the 400's. By comparison, the Annette Island seine fleet averages in the low teens of boats, while the gillnet fleet averages 50 to 60 boats. Considering this difference in size of the commercial fishing fleets, a fairer comparison to evaluate sharing might be to compare the number of sockeye caught per boat.

In terms of sockeye per boat fishing, on average the State-managed fisheries of southeast Alaska take two or more times what the Annette Island fleet catches (depending on the gear type and the time period being considered) as shown in Table 15, below.

Table 15. Average sockeye harvest per boat per year, by gear type, in the Annette Islands Reserve fishery and the State-managed southeast Alaska salmon fisheries, comparing the average for the period 1984 through 2004 to the average for the period 2005 through 2020.

| Average Sockeye per Boat per Year by Gear Type | | | | |
|--|-------------------------|---------|------------------|---------|
| Period | Annette Islands Reserve | | Southeast Alaska | |
| | Seine | Gillnet | Seine | Gillnet |
| 1984-2004 | 1,103 | 612 | 2,560 | 1,588 |
| 2010-2020 | 718 | 117 | 1,922 | 950 |

To make a similar comparison on a more local level, as opposed to southeast Alaska as a whole, we can take the weekly sockeye catch, divide by the number of boats fishing that week, and sum the results over the entire year. The result is shown in Table 16, below.

Table 16. Average annual sockeye catch-per-boat, by gear and area (2015-2021)

| Year | Purse Seine | | | | | Gillnet | |
|---|-------------------|----------------|---|------------|--------------|-----------|------------|
| | AIR | 101 | 102 | 103 | 104 | AIR | 101 |
| 2015 | | | 2,177 | 1,313 | 13,151 | | |
| 2016 | 1,436 | 1,331 | 1,063 | 896 | 6,743 | 105 | 882 |
| 2017 | 385 | 824 | 333 | 649 | 4,252 | 106 | 690 |
| 2018 | 554 | 763 | 688 | 690 | 4,227 | 36 | 533 |
| 2019 | 766 | 1,132 | 1,033 | 675 | 5,156 | 51 | 458 |
| 2020 | 1,645 | 1,428 | 511 | 532 | 3,910 | 34 | 357 |
| 2021 | 1,045 | 2,978 | 2,547 | 1,516 | 13,377 | 94 | 622 |
| Averages | 972 | 1,409 | 1,029 | 826 | 6,278 | 71 | 590 |
| Paired t-tests for significant differences in sockeye per boat | | | | | | | |
| Gear Type | Comparison | P-value | Conclusion | | | | |
| Purse seine | AIR vs Dist. 101 | 0.2262 | No significant difference | | | | |
| Purse seine | AIR vs Dist. 102 | 0.8776 | No significant difference | | | | |
| Purse seine | AIR vs Dist. 103 | 0.5701 | No significant difference | | | | |
| Purse seine | AIR vs Dist. 104 | 0.0151 | Significant difference. District 104 fleet takes more sockeye per boat than AIR fleet. | | | | |
| Gillnet | AIR vs Dist. 101 | 0.0005 | Highly significant difference. District 101 fleet takes much more sockeye per boat than AIR fleet. | | | | |

For the seine fleets, while there are year-to-year variations in sockeye per boat, with the Annette Island fleet taking more in some years and the state taking more in other years, over the long-term there is no significant difference between sockeye per boat on Annette Island and that in District 101, 102, or 103. There is a significant difference between sockeye per boat between the seine fleet of Annette Island and that fishing in District 104, with the average boat fishing District 104 taking more than four times the sockeye as the average seine boat fishing on Annette Island.

For the gillnet fleets there is a highly significant difference between the Annette Island sockeye catch per boat and that taken by the gillnet fleet fishing in the state-managed fishery. The state gillnet fleet in District 101 has taken more than 8 times as many sockeye per boat as has the Annette Island gillnet fleet. There is no year-to-year variability in which fleet catches more: for the years examined, the gillnetters fishing District 101 have taken more than the Annette Island gillnetters *in every year*.

Finally, we can examine the percentage share of the regional sockeye catch taken on the Annette Islands Reserve. Two measures of this comparison are shown in Figure 19.

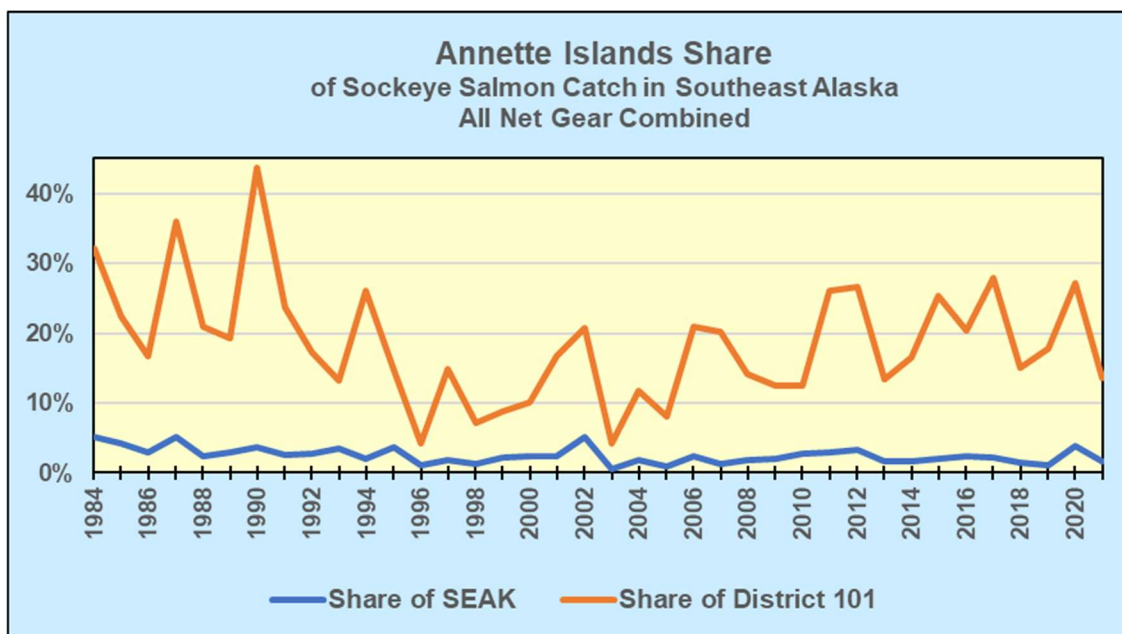


Figure 19. The Annette Islands Reserve’s share of the southeast Alaska and District 101 sockeye harvests for the period 1984 through 2021.

In terms of the share of the entire sockeye catch in southeast Alaska, the Annette Island sockeye catch averaged 2.8 percent of the southeast total sockeye catch during the period 1984 through 2004. The Annette Island share was at a high of 5.2 percent in 1984, and nearly that level (5.1%) in 2002, when an unusually strong run of sockeye passed through Reserve waters in late June. The Reserve’s share has been as low as 0.6 percent in 2003.

Looking at the sockeye catch on a more local scale, from 1984 through 2004, the Reserve's sockeye harvest has averaged about 18.3 percent of the total sockeye harvest in District 101, dropping slightly to an average of 18.0 percent in the years since 2005. On a yearly basis, however, that share depends on the number of State-permitted vessels that fish that district. If, for example, the State-permitted boats move north, to fish in Lynn Canal, and the sockeye catch in District 101 declines, then of course the Annette Island percentage share of that catch will increase, whether or not the actual catch on the Reserve actually increases.

In summary, the sockeye catch on the Reserve is a relatively small proportion of the sockeye catch in the region as a whole – usually less than 3 percent of that in southeast Alaska. While there is considerable year-to-year variation, the Annette Island share of the District 101 sockeye catch has shown no long-term trend, either increasing or decreasing since the mid-1990's.

Federal Purpose

Clearly, in this evaluation, the Federal Purpose is best served by enabling the Community's fleet to maximize its earnings, which, in this case, means to take advantage of the increase in local hatcheries' production of summer chum salmon. As reported in Chapter 3, in the last 10 years about 50 percent of the value of the salmon catch has come from chum deliveries, more than 95 percent of which were summer chum. In contrast, sockeye contributed less than 4 percent of the ex-vessel value.

Conclusion

Based upon this evaluation, the Department concludes that the Reserve is catching too few sockeye to have a significant impact on the stocks that contribute the majority of the Reserve's sockeye harvest. Further, the Community's average share of the regional sockeye harvest has been substantially lower than the Community's share of the overall District 101 harvest of all salmon species combined. Finally, the Federal Purpose is best served by the Community's fleet having access to the summer chum returns to local hatcheries.

For these reasons, the Community will relegate sockeye salmon to a secondary management priority during the Early Summer Management Period (SW#24--#29) and the Summer Management Period (SW#30—#35). By doing so, the Community does not imply that the needs of the sockeye resource will no longer be considered. Rather, if the Department becomes aware of a conservation concern for sockeye stocks that contribute significantly to the Reserve's sockeye harvest, sockeye will be elevated to priority consideration during the Board's deliberations.

Appendix D Recap of the 2021 Season

Catch

The 2021 season was one of the Annette Islands Reserve’s most successful salmon seasons, although that success was not enjoyed equally by all gear-types. In total, the Reserve’s fishery harvested 2,667,992 salmon during the 2021 season (Table 17), nearly 94% of which were pink salmon. It was the Reserve’s third largest salmon harvest since 1984 (Figure 20). The purse seine fleet delivered nearly 92% of the 2021 season’s catch, while the gillnet fleet’s harvest made up only eight percent. The Reserve’s troll fishery accounted for much less than one percent of the 2021 season’s salmon harvest, but more than 19% of the Reserve’s king salmon catch.

Table 17. Summary of the Annette Islands Reserve salmon harvest during the 2021 season.

| Gear | | Species | | | | | Total |
|--------------|--------------------------|----------|-----------|-----------|-------------|-------------|-------------|
| | | King | Sockeye | Coho | Pink | Chum | |
| GN | No. of Fish | 835 | 2,950 | 14,112 | 127,147 | 74,286 | 219,330 |
| | 10-yr. Avg. No. of Fish | 1,019 | 7,149 | 28,762 | 251,424 | 184,269 | 472,623 |
| | All-yr. Avg. No. of Fish | 820 | 20,560 | 32,346 | 313,370 | 125,988 | 493,084 |
| | Pounds | 10,053 | 16,777 | 100,748 | 544,881 | 659,824 | 1,332,283 |
| | Value | \$39,630 | \$32,969 | \$145,054 | \$191,740 | \$783,301 | \$1,192,694 |
| PS | No. of Fish | 412 | 12,685 | 9,734 | 2,384,331 | 47,038 | 2,454,200 |
| | 10-yr. Avg. No. of Fish | 369 | 10,714 | 5,715 | 867,662 | 65,880 | 950,340 |
| | All-yr. Avg. No. of Fish | 251 | 9,207 | 7,167 | 702,984 | 32,169 | 751,777 |
| | Pounds | 5,246 | 63,555 | 55,547 | 7,536,657 | 390,430 | 8,051,435 |
| | Value | \$14,004 | \$116,877 | \$43,400 | \$2,864,273 | \$421,405 | \$3,459,958 |
| Troll | No. of Fish | 299 | 3 | 1,387 | 2,739 | 34 | 4,462 |
| | 10-yr. Avg. No. of Fish | 226 | 0 | 295 | 67 | 27 | 616 |
| | All-yr. Avg. No. of Fish | 191 | 0 | 677 | 78 | 20 | 967 |
| | Pounds | 3,532 | 13 | 7,963 | 8,669 | 227 | 20,404 |
| | Value | \$34,707 | \$29 | \$24,070 | \$3,335 | \$224 | \$62,365 |
| Total | No. of Fish | 1,546 | 15,638 | 25,233 | 2,514,217 | 121,358 | 2,677,992 |
| | 10-yr. Avg. No. of Fish | 1,614 | 18,521 | 34,771 | 1,125,224 | 250,176 | 1,430,307 |
| | All-yr. Avg. No. of Fish | 1,307 | 80,345 | 40,501 | 1,113,047 | 158,586 | 1,393,787 |
| | Pounds | 18,831 | 80,345 | 164,258 | 8,090,207 | 1,050,481 | 9,404,122 |
| | Value | \$88,341 | \$149,874 | \$212,524 | \$3,059,348 | \$1,204,930 | \$4,715,017 |

GN=gillnet

PS=purse seine

The Covid-19 pandemic, which had been so disruptive throughout the Reserve’s commercial salmon fishery of 2020, continued through the 2021 season. However, for the 2021 salmon season, the pandemic’s impacts were greatly reduced by the availability of effective vaccines. The inability to deliver fish to fish buyers, which characterized the 2020 season’s Preseason Troll Management Period, was not a significant impediment during the 2021 season.

The Reserve’s total salmon harvest in 2021 was 188% of the 10-year average harvest (2011—2020), or 199% of the 37-year average (1984—2020). The season’s ex-

vessel value, \$4,715,017, was the third highest value since 1990 and was the Reserve’s most valuable salmon season since 2013 (not adjusted). However, only pink salmon were harvested in above-average numbers. The 2021 season’s all-gear chum, sockeye, coho, and king salmon catches were all below average.

Pink salmon comprised more than 94% of Reserve’s all-gear salmon harvest during the 2021 season, while chum salmon made up less than five percent. Coho accounted for about one percent of the season’s harvest, while sockeye and king salmon made up considerably less than one percent. Over the 10-year period from 2011 through 2020, about 79% of the Reserve’s average annual salmon harvest was comprised of pink salmon, with chum making up less than 18%, coho contributing a bit more than two percent, and sockeye adding a little more than one percent. The total king salmon catch was about 96% of the 10-year average, but it was the thirteenth largest king harvest since 1984. During the Preseason Troll Management Period (PTMP), 181 kings were delivered, 120% of the period’s 10-year average and considerably more than the 29 kings that were delivered during the 2020 season’s PTMP when the Covid-19 pandemic disrupted trollers’ access to fish buyers.

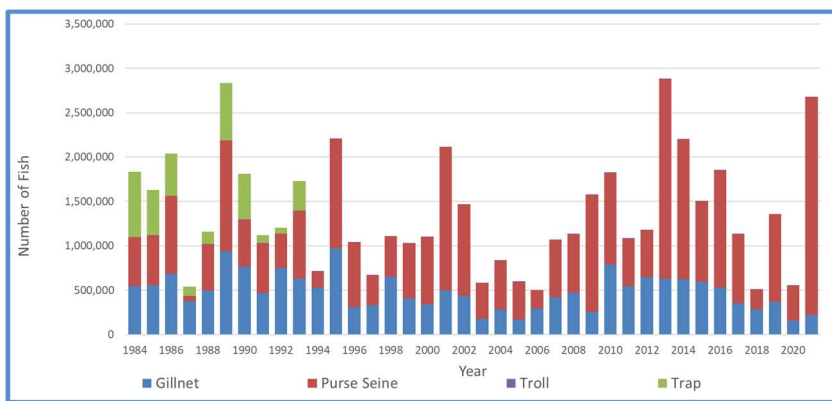


Figure 20. Total harvest, by year and gear, in the Annette Islands Reserve commercial common property fishery (1984 – 2021).

Fifteen purse seine vessels made deliveries during the 2021 season, harvesting 2,454,200 salmon. It was the fleet’s largest salmon harvest since the Community began maintaining salmon harvest data in 1984. The purse seine fleet’s harvest in 2021 was more than 258% of the fleet’s average harvest over the previous 10 seasons

(2011-2020). Purse seine deliveries accounted for nearly 92% of the Reserve’s total harvest in 2021, the fleet’s largest share of the Reserve’s harvest since 1984. During the years since the traps closed following the 1993 season, an average of nearly 62% of the Reserve’s annual harvest has been taken by purse seine. Over the previous 10 seasons, seiners have delivered an average of nearly 66% of the Reserve’s total annual sockeye harvest and 82% of the pink salmon catch.

Fifty-six gillnet vessels made deliveries during the 2021 season, delivering 219,330 salmon of all species. Only three previous seasons have seen the gillnet fleet deliver fewer salmon, exceeding the fleet’s record-low harvest (2020) by only 62,486 salmon. The gillnet fleet’s 2021 harvest was only 46% of the fleet’s average harvest over the previous 10 seasons (472,623), or 44% of the fleet’s average harvest since 1984 (493,084). The gillnet fleet delivered only eight percent of the Reserve’s salmon harvest in 2021, the lowest share of a season’s harvest the fleet has delivered in the 38

years these records have been maintained. Over the period from 1994 (the season following closure of the traps) through 2021, the gillnet fleet harvest has made up an average of 34% of the Reserve's annual salmon harvest. However, in average season (2012—2021) gillnetters have delivered the largest share of the Reserve's harvest of king (61%), coho (80%), and chum salmon (72%).

The troll fleet delivered 4,462 salmon in 2021. Troll deliveries made up much less than one percent of the Reserve's total harvest, although they did make up more than 19% of the king salmon deliveries during the season. The Reserve's 2021 season's troll harvest was the second largest since 1984, was 725% of the average troll harvest over the previous 10 seasons, and was 462% of the average troll harvest since 1984. Trollers delivered more than five percent of the Reserve's coho harvest in 2021, well above the one percent that troll-caught coho have averaged over the previous 10 seasons.

Value

The ex-vessel value of the Reserve's 2021 commercial common property salmon fisheries was \$4,715,017, or more than 138% of the \$3.4 million the fishery's value has averaged over the previous 10 seasons. Gillnet deliveries were valued at \$1,192,694, or about 25% of the value of the Reserve's 2021 commercial common property fisheries. The purse seiners were paid \$3,459,958, or more than 73% of the total value of the 2021 season. Troll deliveries added another \$62,365, accounting for about one percent of the season's value.

Port Chester Terminal Harvest Area

An opening of the Port Chester Terminal Harvest Area (PCTHA) was not anticipated for the 2021 season. However, when a substantial number of chum were observed near the old ferry terminal in Port Chester, and with there being no need for remote egg-takes, the Fishery Management Board authorized a 12-hour opening for the gillnet fleet on August 4, 2021 (SW#32). Thirty-one vessels delivered 11,706 salmon during the opening, nearly 99% of which were chum salmon. The value of this opening of the PCTHA was \$97,548, with an average participating vessel earning about \$3,050.

Escapement

The Reserve's pink salmon escapement was well above average in 2021. The sum of the peak counts of pink salmon returns to the Reserve's 11 pink salmon index streams was 415,021 fish, or about 436% of the sum of peak escapement counts in an average season (95,144) over the previous 10 seasons, and 438% of the average since 1984. Estimated total pink salmon escapement was 425,948, or about 250% of the 10-year average and 303% of the 37-year average. Most of the Reserve's index streams saw well above average pink escapement.

The Reserve's chum returns fell well short of both the 10- and 37-year average escapement. The sum of the peak chum counts on the Reserve's 2021 chum index streams was 383 fish, while the sum of the average peak counts is 1,367 chum

(1984—2020). The estimate of total chum escapement to the chum index systems was 448 fish, or about 23% of average total estimated chum escapement in those systems since 1984. However, unusually difficult weather and instream conditions severely limited escapement surveys during the period from SW#38 through SW#40, the period when, over the previous 37 seasons, chum escapement has normally peaked. It is likely that the 2021 season's chum surveys missed peak chum escapement in most of the Reserve's primary chum-producing systems. Those streams are also among the largest on the Reserve and most apt to see instream conditions that preclude effective surveying. As a result, actual peak chum escapement, as well as total estimated chum escapement, was likely greater than was observed during the 2021 season's chum surveys, all of which were conducted prior to SW#38.

The peak survey of the Upper Trout Lake Creeks found 106 sockeye in 2021, or an estimated total return of 267 fish, a substantial increase from the estimated return of only 23 sockeye in 2020. The average peak count over the previous 10 seasons is 314 sockeye, while the average estimated total return is 373 fish. The Trout Lake system is estimated to have a habitat-based escapement potential of 2,200 sockeye.

Appendix E

Literature Cited

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