Metlakatla Indian Community
Annette Islands Reserve

Annual Report
2021 Commercial Salmon Fishery

prepared by:

Department of Fish and Wildlife
Metlakatla Indian Community

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Catch

The Annette Islands Reserve's 2021 season saw a near-record pink salmon catch and, as a result, the purse seine fleet had a very good season. However, for the gillnet fleet, 2021 saw a near-record-low total harvest. The Covid-19 pandemic that raged during the 2020 salmon season continued through the 2021 salmon season, although, with the development of effective vaccines, the pandemic's impacts were greatly reduced from those experienced during the 2020 season. There were no pandemic-related restrictions to commercial fishing schedules, nor were fishers denied access to fish-buying markets during the 2021 season. Overall, Reserve fishers harvested 2,677,992 salmon during the 2021 season's commercial common property fisheries. An additional 11,706 salmon were harvested by gillnetters in the Reserve's single opening of the Port Chester Terminal Harvest Area (PCTHA) during the 2021 season. This report summarizes the Reserve's 2021 salmon season, including the commercial harvest and escapement to Reserve streams. The results of the 2021 season's single opening of the PCTHA are reported on page 63 of this report.

The 2,677,992 salmon harvested by the Reserve's 2021 common property fisheries (excluding harvests in the PCTHA) ranked third out of the 38 seasons the Community has maintained harvest data (Figure 1 and Table 1). The only seasons to see more salmon harvested were 2013 (2,882,974) and 1989 (2,834,337). The 2021 harvest was 188% of the average harvest over the previous 10 seasons. The season's ex-vessel value, $4,715,017, was the third highest value since 1990. However, because the harvest was dominated by pink salmon, the least valuable species, the value of the 2021 season also ranked third over the period since 2011. The value of the 2021 season was nearly 138% of the average value of the previous 10 seasons (2011-2020). While the 2021 season's total harvest was impressive, only pink salmon were harvested in above average numbers. King, sockeye, coho, and chum salmon were all harvested in below-average numbers (2011-2020).

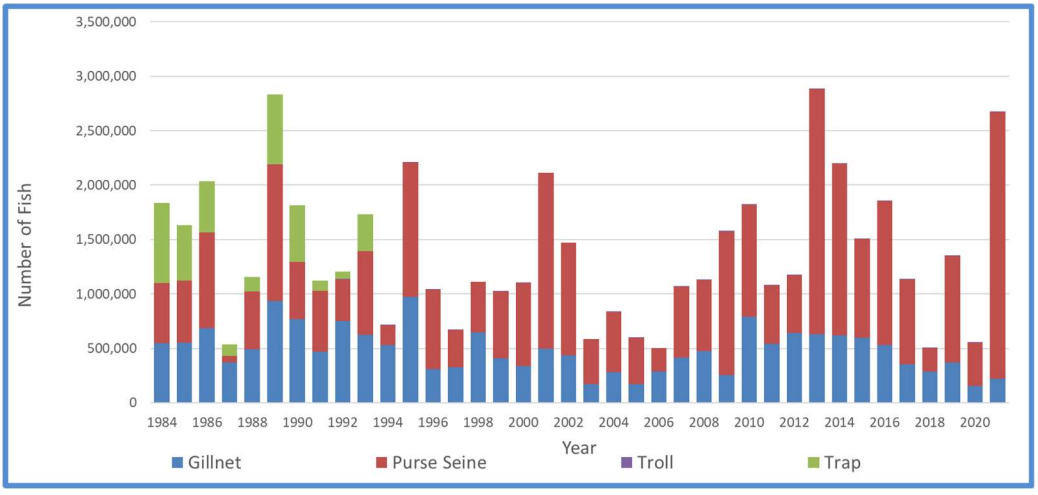

Figure 1. Total harvest, by year and gear, in the Annette Islands Reserve commercial common property fishery (1984–2021).

Table 1. Summary of the Annette Islands Reserve commercial salmon harvest during the 2021 season.

		Species					
Gear		**King**	**Sockeye**	**Coho**	**Pink**	**Chum**	**Total**
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

Pink salmon made up nearly 94% of the Reserve's salmon harvest in 2021. Chum salmon accounted for less than five percent of the harvest, and in combination, coho, sockeye, and king salmon comprised less than two percent of the season's harvest. Over the previous 10 seasons (2011–2020), about 79% of the Reserve's average annual salmon harvest has been comprised of pink salmon, with chum making up nearly 18%, coho contributing more than two percent, and sockeye adding a little more than one percent. King salmon typically account for about 0.1% of a season's total harvest.

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. That record-high harvest came on the heels of one of the purse seine fleet's poorest seasons, the 2020 season, when the fleet delivered only 393,899 salmon. 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.

Fifty-six gillnet vessels made deliveries during the 2021 season, delivering 216,330 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. Since 1994 (following closure of the traps), the gillnet fleet harvest has made up an average of 35% of the Reserve's annual salmon harvest.

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. Unlike the 2020 season when the pandemic disrupted trollers' access to fish-buyers during the Preseason Troll Management Period (PTMP), there were no constraints on trollers' access to fish-buyers during the 2021 season. In total, 181 king salmon were harvested during the 2021 preseason troll fishery. In an average season (2011—2020), the preseason troll fishery has seen 151 king salmon (the only species harvested at that early point in the season) delivered prior to statistical week 24 (SW#24).

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.

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.

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 at the head of 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.

2021 Commercial Salmon Fishery: Common Property Fishery

Fishery Overview

The 2021 Annette Islands Reserve commercial salmon fishery harvested 2,677,992 fish of all species, ranking third out of the 38 years the Community has maintained harvest data. The 2021 salmon harvest was 188% of the Community's average harvest over the previous 10 seasons. (Figure 2). The Covid-19 pandemic, which had raged through the entire 2020 salmon season, continued through the 2021 salmon season. However, unlike the 2020 season, effective vaccines were available prior to the 2021 season, and the pandemic's impacts were not nearly as significant as they had been during the previous season.

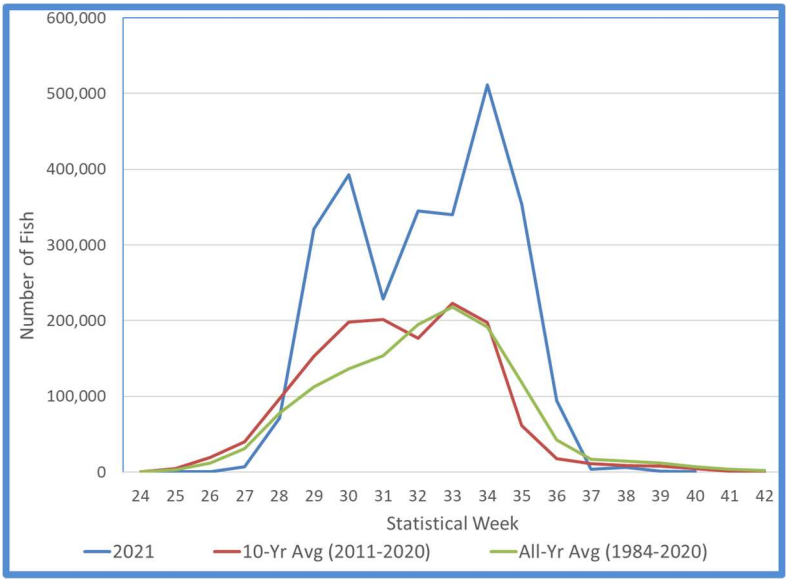

Figure 2. The Annette Islands Reserve's total, all-species, all-gear catch, by statistical week, comparing the 2021 weekly harvest to the 10-year average (2011—2020) and the all-year average (1984—2020) harvest.

Pink salmon dominated the 2021 season's harvest, comprising nearly 94% of the fish delivered during the season. The 2021 season's pink harvest was 225% of the average over the previous 10 seasons (2011—2020). However, the other four species harvested in the Reserve's salmon fisheries were caught in below-average numbers in 2021, although the king salmon harvest came close to average.

As in the previous three seasons, the 2021 season started slowly, with early summer chum and sockeye catches well below average. However, in SW#29, the purse seine fleet delivered the largest pink salmon catch the fleet had ever recorded in that week. The purse seine fleet's pink salmon catches remained well above average through SW#36. However, with few exceptions, the Reserve's harvest of the other four salmon species was below average throughout the 2021 season. Coho catches were above average during a six-week period during the early part of the season, but dropped to well-below average at a point in the season when they would ordinarily expect to be peaking. Sockeye catches were below average for the first seven weeks of the 2021 season, before rising above average from SW#32 through SW#36. Trollers delivered an above-average number of king salmon during the Preseason Troll Management Period, but dropped well below average for the first five weeks of the net season (SW#25—SW#29), after which few kings are normally harvested by the Reserve's trollers.

The pink harvest, in 2021, was 225% of the 10-year average harvest. Since 1984, only two seasons have seen more pink salmon harvested (1989 and 2013). The 2019 brood year for the adult pink salmon returning in 2021 had seen estimated local pink escapement reach nearly 110% of the 37-year average (1984—2018), or 95% of average pink escapement over the preceding 10 seasons (2009—2018).

The 2021 chum harvest, 121,358 salmon, was less than 49% of the average chum harvest over the previous 10 seasons (2011—2020). Over the 38 seasons these records have been maintained, the 2021 chum harvest ranked 22nd. Still, it was a substantial increase over the chum harvests of 2019 and 2020.

The 2021 season's coho harvest was only 73% of the Reserve's average coho harvest (2011—2020). In an average season, about 68% of the season's coho harvest is delivered during the Fall Management Period (SW#36—season closure), when Tamgas Creek Hatchery coho returns peak. However, in 2021, only 39% of the season's coho harvest was delivered after SW#35. Four of the Reserve's seven poorest coho catches have occurred in the last four seasons (2018—2021).

Sockeye catches were also well below average in 2021, although an improvement over the previous four seasons. For the season, the sockeye harvest was less than 88% of the 10-year average, but only 50% of the average sockeye harvest since 1984. The 2021 season's sockeye harvest ranked 28th among the 38 seasons these records have been maintained by the Community.

The king salmon harvest in 2021 was nearly 96% of the Reserve's average king salmon harvest over the previous 10 seasons. Unlike the 2020 season, the preseason troll fishery was not significantly impacted by the Covid-19 pandemic. Despite the below-average harvest, the 2021 king salmon deliveries ranked 13th out of the 38 years the Community has maintained harvest data. Preseason troll deliveries were 120% of the average over the previous 10 seasons (2011—2020).

Ex-Vessel Value

The ex-vessel value (amount paid to the fishermen) of the 2021 salmon season was $4,715,017, or nearly 138% of the fisheries' average value over the previous 10 seasons (2011—2020), and the third most valuable salmon season since 1990 (with no adjustment for the value of the dollar). Pink salmon deliveries made up 65% of the season's value while chum salmon deliveries added nearly 26% of the value of the 2021 season. Coho accounted for less than five percent of the season's value, while sockeye contributed about three percent. King salmon made up much less than two percent of the season's value.

Gillnet deliveries accounted for about $1,192,694, or about 25% of the value of the Reserve's common property fisheries in 2021, although those deliveries accounted for only eight percent of the Reserve's total catch. The value of the gillnet fleet's 2021 season was only 64% of the value of an average gillnet season over the previous 10 seasons. It was the 22nd most valuable gillnet season since 1984.

Chum salmon made up nearly 66% of the value of the gillnet fleet's 2021 season despite representing only 34% of the fleet's total catch. Pink salmon catches added about 16% of the 2021 gillnet season's value, while making up about 58% of the gillnet harvest. Only six percent of the gillnet fleet's 2021 harvest was made up of coho, but those deliveries made up more than 12% of the value of the gillnet season. King salmon deliveries comprised much less than one percent of the gillnet fleet's 2021 harvest, but contributed more than three percent of the value of the fleet's season. The gillnet fleet's sockeye catch, the fleet's fourth lowest in the 38 seasons the Community has maintained harvest records, made up less than three percent of the value of the gillnetters' 2021 season.

Purse seine deliveries made up more than 73% ($3,459,958) of the ex-vessel value of the Reserve's 2021 salmon season while delivering nearly 92% of the season's total harvest. As usual, pink salmon dominated the purse seine fleet's 2021 deliveries, making up more than 97% of the fleet's harvest and nearly 83% of the value of the fleet's season. Chum salmon made up less than two percent of the purse seine catch in 2021, but more than 12% of the fleet's season value. Sockeye deliveries accounted for more than three percent of the value of the purse seine season, despite comprising much less than one percent of the fleet's 2021 harvest. Coho made up much less than one percent of the purse seiners' 2021 catch and only a little more than one percent of the fleet's total value for the season. The purse seine fleet doesn't typically harvest very many king salmon, averaging about 369 per season. That was the case in 2021, as well, when king salmon made up considerably less than one percent of the purse seine harvest, and added much less than one percent to the value of the purse seiners' 2021 season.

King salmon typically dominate the catch of the Reserve's troll fishery, most of which are harvested during the Preseason Troll Management Period (PTMP), which precedes the beginning of the net fisheries. In most seasons, the vessels that troll during the Preseason Troll Management Period switch to gillnetting when that season opens. Catches during the preseason troll fishery, which include troll deliveries prior to SW#24, have been comprised entirely of king salmon, by far the most valuable salmon species. In 2020, the Covid-19 pandemic disrupted fish markets, and as a result, there were very few deliveries during that season's preseason troll fishery. For the 2021 season, the value of troll deliveries was $62,365, which was 217% of the value of troll deliveries in an average season (2011—2020). Troll catches made up a little more than one percent of the value of the Reserve's 2021 salmon season, with 56% of that value coming from king salmon deliveries. Coho catches contributed about 39% of the trollers' 2021 value, with pink salmon deliveries adding about five percent.

Catch by Management Period

As reflected in Table 2, the 2021 Salmon Management Plan established four management periods for the Reserve's salmon fisheries: Preseason Troll, Early Summer (ESMP), Summer (SMP), and Fall Period (FMP). The following discussion summarizes the commercial harvest during the four management periods, comparing

those results to the average over the previous 10 seasons (2011—2020) as well as with average over the previous 37 seasons (1984—2020).

Table 2. Total Reserve harvest, in 2021, by management period and species. The management periods are Preseason Troll, Early Summer, Summer, and Fall.

Management Period	Statisical Week Range	Species					
		King	Sockeye	Coho	Pink	Chum	TOTAL
Preseason Troll	SW#1 - SW#23	181	0	0	0	0	181
Early Summer (ESMP)	SW#24 - SW#29	1,132	1,912	2,450	338,992	56,247	400,733
Summer (SMP)	SW#30 - SW#35	232	13,489	12,982	2,085,697	59,335	2,171,735
Fall (FMP)	SW#36 - Closure	1	237	9,801	89,528	5,776	105,343
Total for Season		1,546	15,638	25,233	2,514,217	121,358	2,677,992

Preseason Troll Management Period

The Preseason Troll Management Period (PTMP) refers to the period from the beginning of the calendar year to the start of the net fisheries (SW#1—SW#23). During the PTMP, only trollers may fish, many of which use vessels that participate in the gillnet fishery when that fishery opens, usually in SW#24, or SW#25. The earliest troll deliveries may occur as early as January. The Covid-19 pandemic disrupted the PTMP in 2020, but there were no reports of disruptions during the 2021 season's PTMP. In a typical PTMP, only king salmon are delivered. In 2021, 181 king salmon were delivered during the PTMP, or about 61% of the trollers' total king salmon harvest for the season (299). In total, the PTMP accounted for much less than one percent of the Reserve's total 2021 harvest, but nearly 12% of the season's total king salmon catch. The value of the 2021 PTMP, $22,308, accounted for about 0.5% of the total value of the Reserve's salmon fishery but made up 36% of the value of the 2021 troll season, and more than 25% of the value of the Reserve's total king salmon deliveries for the season. The value of the 2021 PTMP was about 124% of the Period's average value over the previous 10 seasons.

Early Summer Management Period

The Early Summer Management Period (ESMP) begins in SW#24, although, in some seasons, gillnetting may not open until SW#25, as in 2021, when the first opening began on June 13. The ESMP extends through SW#29, which, in 2021, ended on July 17. During the ESMP, the Fishery Management Board (FMB, or Board) may base fishery management decisions on the strength of sockeye, summer chum, or king salmon catches; the conservation needs of those species; and the broodstock needs of the Tamgas Creek Hatchery (TCH). Depending on run-timing, pink salmon may also figure into the Board's decisions during the latter part of the ESMP.

The 2021 season started slowly, as early summer chum and sockeye catches were well below the 10-year average throughout the ESMP (Table 3). In fact, with the exception of the king salmon harvest in SW#28, all five of the harvested salmon species were delivered in below-average numbers through the first four weeks of the net fisheries' season. However, in SW#29, the final week of the period, pink salmon catches

improved considerably, particularly for the purse seine fleet. The 2021 season's SW#29 pink salmon harvest was the third largest ever recorded in the week, and it came just three weeks after seeing the SW#26 pink harvest exceed the week's record-low pink harvest by only two fish. In combination with the other four species, SW#29's all-species, all-gear catch was the largest ever observed during the week (1984—2021). However, the four weeks that preceded SW#29 saw deliveries fall well short of average (2011—2020). In fact, the all-species, all-gear deliveries in SW#26 were the poorest on record for the week (1984--2021). Similarly, the SW#26 all-gear chum catch was the smallest ever recorded during the week. The SW#27 all-gear sockeye harvest was only two fish greater than the fewest ever delivered during the week (2020). The all-gear, all species catch was less than four percent of the 10-year average in SW#25; slightly more than one percent of the SW#26 average; less than 19% of the SW#27 average; and 74% of the SW#28 average. However, in SW#29, the all-gear, all-species deliveries were 211% of the week's 10-year average (2011—2020). Despite the slow start to the season, the 2021 season's ESMP saw all-gear, all-species deliveries rank sixth among the 38 seasons these records have been maintained, with the harvest more than 122% of the 10-year average for the period. This was due, in large part, to the SW#29 pink harvest,

Table 3. Total Reserve harvest, in number of fish and value, during the 2021 season's Early Summer Management Period, by species, compared to average harvest (10- and 37-year average).

	Species					
	King	Sockeye	Coho	Pink	Chum	Total
Fish (2021)	1,132	1,912	2,450	338,992	56,247	400,733
10-yr. Avg.	1,254	6,374	2,834	179,120	124,055	313,637
All-yr. Avg.	1,054	12,761	2,440	158,651	61,680	236,586
Value (2021)	$56,251	$18,337	$6,148	$497,710	$576,719	$1,155,165

The 2021 ESMP yielded a chum harvest that was only 45% of the average ESMP chum harvest over the previous 10 seasons (2011—2020). Only 56,247 chum salmon were delivered during the 2021 ESMP, the fifth fewest since the 2006 season's ESMP. No week during the ESMP saw chum deliveries come close to the reaching the average chum harvest for the week. The SW#26 all-gear chum harvest was the smallest on record for that statistical week, and less than one percent of the 10-year average for the week. Over the previous 10 seasons, the peak of the summer chum harvest has occurred in SW#29, the final week of the ESMP, and that was the case in 2021, as well, although the week's chum deliveries were only 77% of the 10-year average for the week. Forty-six percent of the 2021 season's total chum harvest was delivered during the ESMP, while in an average year (2011—2020), the ESMP would be expected to yield about 50% of the total chum catch. Chum accounted for less than 14% of ESMP deliveries, but 50% of ESMP value.

Like the chum salmon harvest, sockeye deliveries were below average in every week of the 2021 ESMP. ESMP all-gear sockeye deliveries were only 30% of the 10-year average (2011—2020), and less than 15% of the period's 37-year average. The 1,912

sockeye delivered during the 2021 ESMP made up considerably less than one percent of the ESMP's total harvest. Since 1984, only two seasons (2018 and 2020) have seen fewer sockeye delivered during the ESMP in the fishery's 38-year history. Only 12% of the 2021 season's total sockeye harvest was delivered during the ESMP. In an average season (2011—2020), about 36% of the sockeye harvest has been taken during the ESMP. Sockeye accounted for less than two percent of the value of the 2021 season's ESMP.

The majority of the Reserve's king salmon harvests have typically been delivered during the ESMP, and that was the case in 2021, as well. More than 73% of the 2021 season's king salmon harvest was taken during the ESMP. Over the previous 10 seasons, an average of nearly 78% of the season's king salmon harvest has been delivered during the ESMP. King salmon deliveries were well below average during the first three weeks of the ESMP, before increasing to more than 251% of the 10-year average in SW#28, and to 178% of average in SW#29. The 1,132 king salmon harvested during the 2021 season's ESMP was 90% of the average ESMP harvest over the previous 10 seasons (2011—2020). Although king salmon accounted for considerably less than one percent of the total ESMP harvest, they made up nearly five percent of the value of ESMP deliveries in 2021.

Pink salmon dominated the 2021 season's ESMP deliveries, making up nearly 85% of the all-gear, all-species deliveries during the period. Over the previous 10 seasons, pink salmon have comprised an average of about 57% of the ESMP harvest, and over the previous 37 seasons, pink salmon have accounted for an average of 67% of the ESMP catch. The ESMP's pink deliveries, 338,902 fish, accounted for about 13% of the season's total all-gear pink harvest, while in an average year (2011–2020), the ESMP has yielded about 16% of a season's pink salmon catch. The pink harvest during the 2021 season's ESMP was 189% of the 10-year average for the period (2011-2020), or 214% of the 37-year average (1984—2020). The pink salmon harvest was well below average (2011—2020) during the first three weeks of the 2021 season, before increasing to 93% of average in SW#28, and to 270% of average in SW#29. During the 2019 brood year for the 2021 pink return, 260,941 pink salmon were delivered during the ESMP. Nearly 84% of the pink salmon delivered during the 2021 season's ESMP were harvested in SW#29, the final week of the period. Pink salmon accounted for about 43% of the value of the 2021 season's ESMP deliveries, and about 16% of the value of the season's total all-gear pink catch.

Coho are not typically caught in large numbers during the ESMP; that was certainly the case, again, in 2021. However, while the ESMP's coho deliveries, 2,450 fish, were less than 87% of the 10-year average for the period, nearly 10% of the season's coho deliveries occurred during the ESMP. In an average season (2011—2020), only about eight percent of the season's total coho catch is taken during the ESMP, a reflection of the below average coho harvest during the Fall Management Period (FMP). Over the previous 37 seasons (1984—2020), only six percent of the average season's coho catch occurred during the ESMP, and 75% was delivered during the FMP. Coho deliveries were well below average during the first four weeks of the ESMP, before

increasing to 179% of the 10-year average (2011—2020) in SW#29. Coho made up much less than one percent of both the 2021 season's total ESMP harvest and the value of the management period.

Overall, the 2021 season's ESMP saw 387,135 salmon of all species delivered, or more than 123% of the period's 10-year average harvest. It was the most salmon harvested during the ESMP since 2016. ESMP catches peaked in SW#29, largely the result of pink catches that were well above average. The ESMP was responsible for the harvest of about 15% of the season's total catch, while over the previous 10 seasons, the period has accounted for an average of about 22%.

ESMP deliveries were valued at $1,155,167 in 2021, or nearly 25% of the 2021 season's total value. Despite the above average catch, the value of the ESMP was only 97% of the average value of the ESMP over the previous 10 seasons (2011—2020). Through the 1990s, sockeye accounted for the largest share of the ESMP's value. However, with the vast increase in local hatcheries' production of summer chum, chum have dominated the value of the ESMP in most recent seasons. The 2019 and 2021 seasons were exceptions, a reflection of each season's weak chum returns, and the strong pink catches recorded in the latter part of those seasons' ESMPs. In both seasons, pink salmon made up the largest share of the value during the ESMP. The 2021 season's ESMP saw chum salmon contribute 50% of the period's value, while pink salmon made up about 43%. This is indicative of the diminishing contribution that sockeye have made to the value of the ESMP in the last two decades. In 2021, king salmon ranked third in terms of the ESMP's value, making up nearly five percent of the period's value. The value of the ESMP's sockeye deliveries made up less than two percent of the period's total value in 2021.

Summer Management Period

The Summer Management Period (SMP) extends from SW#30 (the week of July 18. 2021) through SW#35 (the week of August 22, 2021). During the SMP, pink salmon are given priority consideration when setting fishing schedules, with secondary consideration given to sockeye and chum salmon. In an average season (2011—2020), the SMP accounts for more than 74% of the season's total harvest and nearly 55% of its value.

The transition from summer chum to fall chum occurs during the latter half of the SMP, although there is no clear distinction between the two components. Local pink salmon and chum salmon escapement become a FMB concern in the last few weeks of the SMP. The FMB also considers the Tamgas Creek Hatchery's king, chum and pink salmon broodstock needs during the SMP.

The strong pink salmon catches that were observed during the last week of the 2021 season's ESMP continued into the SMP (Table 4). However, the 2021 season's SMP saw chum catches fall well below the period's 10-year average (2011—2020) in all six weeks. Sockeye catches were below the 10-year average during the first two weeks of the period, but increased to above average in SW#32 through SW#35. Coho catches

were above average during all six weeks of the SMP, while king salmon catches were above average in four of those weeks. The SMP accounted for about 81% of the 2021 season's total catch, and that catch was 205% of the period's average harvest over the previous 10 seasons, during which the SMP averaged about 74% of the season all-gear, all-species harvest.

Table 4. Total Reserve harvest, in number of fish and value, during the 2021 Summer Management Period, by species, compared to average harvest (10-year and 37-year average).

	Species					
	King	Sockeye	Coho	Pink	Chum	Total
Fish (2021)	232	13,489	12,982	2,085,697	59,335	2,171,735
10-yr. Avg.	207	11,234	8,151	931,747	107,925	1,059,263
All-yr. Avg.	159	18,380	7,774	923,930	62,849	1,013,093
Value (2021)	$9,726	$128,909	$88,963	$2,458,660	$575,172	$3,261,430

The total pink salmon harvest during the 2021 season's SMP, 2,085,697 fish, was the third most pink salmon delivered during the SMP since 1984, or nearly 224% of the 10-year average for the period. Pink salmon catches were well above average during each week of the six-week SMP. The peak of the 2021 pink salmon harvest occurred in SW#34, which is about one week later than the 10- and 37-year averages. The pink harvest in that week was 267% of the week's 10-year average. More than 96% of the salmon delivered during the 2021 SMP were pink salmon, and nearly 83% of the 2021 season's total pink salmon harvest was delivered during the SMP. During the period from 2011 through 2020, the SMP yielded an average of more than 83% of seasons' pink salmon catch, nearly identical to the 37-year average, which was also 83%. Pink salmon deliveries accounted for more than 75% of the value of SMP deliveries in 2021

Chum salmon catches had been well below average through the 2021 season's ESMP, and that continued through the SMP. The 56,247 chum salmon harvested during the 2021 season's SMP was only 55% of the period's average chum harvest over the previous 10 seasons (2011—2020). Chum catches were well below average in all six weeks of the SMP. Chum catches peaked in SW#29, the last week of the ESMP, and from there the harvest declined in each successive week for the remainder of the 2021 season. Despite the below average chum deliveries during the 2021 season's SMP, those deliveries represented more than 49% of the season's total chum harvest. In an average season (2011–2020), only 43% of the chum deliveries have occurred during the SMP. Chum salmon accounted for less than three percent of the total 2021 SMP salmon harvest, well below the 10% that have been averaged over the previous 10 seasons (2011—2020). Chum salmon deliveries accounted for less than 18% of the economic value of the 2021 season's SMP.

Over the previous 10 seasons, the SMP has yielded an average of nearly 63% of a season's sockeye harvest. For the 2021 season, however, more than 86% of the season's sockeye harvest was delivered during the SMP, with more than 53% of the period's 13,489 sockeye coming from SW#32 and SW#33. The 2021 season's SMP

was more than 120% of the period's 10-year average (2011—2020), but was only 73% of the 37-year average (1984—2020). Only SW#31 saw substantially below-average sockeye catches. Peak sockeye catches occurred in SW#32 when Reserve fisheries delivered 4,037 sockeye about one week later than in an average season. In total, sockeye made up less than one percent of the total salmon harvest during the 2021 SMP, while over the previous 10 seasons, sockeye deliveries have averaged about one percent of the SMP harvest. Sockeye deliveries made up about 4% of the economic value of the 2021 season's SMP.

In a typical season, coho catches increase during the SMP, particularly during the latter part of the period. During an average SMP, coho catches increase each week, building toward peak coho catches, which typically occur in the Fall Management Period (FMP) when Tamgas Creek Hatchery coho should be most abundant. For the 2021 season, coho catches did improve during the SMP, but the period's peak coho catches, which occurred in SW#34, came one week earlier than in an average season. The 2021 season's SMP yielded a harvest of 12,982 coho, or about 159% of the 10-year average (2011—2020). It was the largest coho harvest in the SMP since 2013. However, after the period's peak coho catches in SW#34, they declined as the fishery moved into the FMP. Still, coho catches were above average in all six weeks of the SMP. More than 51% of the 2021 season's coho harvest was delivered during the SMP, the largest share of a season's coho harvest ever delivered during the period. In an average season (2011–2020), only 23% of a season's coho have been delivered during the SMP, with more than 68% being delivered during the FMP. Coho made up substantially less than one percent of the harvest in the 2021 season's SMP, and less than three percent of the management period's value.

In most seasons, king salmon catches decline substantially by the first week of the SMP. They continue to decline through the SMP and all but disappear from the harvest by the end of the period. For the 2021 season, 232 king salmon were taken during the SMP, which was 112% of the average SMP king salmon harvest over the preceding 10 seasons (2011—2020). About 15% of the 2021 season's king salmon harvest was taken during the SMP, while in an average season, the SMP sees less than 13% of seasons' king salmon harvests. As in all previous seasons, king salmon deliveries comprised far less than one percent of both the 2021 season's SMP catch, as well as its economic value.

Thanks, in large part, to very strong pink catches throughout the 2021 season's SMP, the total salmon catch during the period was well above average in all six weeks. The peak of the SMP's all-species harvest came in SW#34, about one week later than has been averaged over the previous 10 seasons (2011—2020). The 2021 season's SW#34 harvest, 510,964 salmon, was the week's second largest salmon harvest since 1984, surpassed by only the 583,443 salmon delivered in SW#34 of 2013. Similarly, the 2021 SW#35 all-species, all-gear salmon harvest, 353,801 fish, was the third largest ever recorded during the week. In total, catches during the SMP amounted to more than 205% of the period's 10-year average. The 2,171,735 salmon delivered during the

2021 SMP was the period's third largest harvest since the Community began maintaining these records (1984).

The economic value of the 2021 season's SMP was $3,261,430, the most valuable SMP since the 2013 season, and the second most valuable SMP on record (no adjustment for the value of the dollar). SMP deliveries represented about 69% of the 2021 season's total value. In an average season (2011—2020), less than 55% of a season's value has come from the SMP. The value of the 2021 season's SMP was about 174% of the SMP's average value over the previous 10 seasons.

Fall Management Period

The Fall Management Period (FMP) extends from SW#36 (the week of August 29, 2021) through the closure of the season's commercial net fisheries, which, in 2021, occurred in SW#40 (the week of September 26, 2021). During the FMP, fall chum and coho salmon are given priority consideration in setting fishing schedules. The FMB's concern for local pink salmon and chum salmon escapement continues through the FMP. The FMP usually extends through SW#40, but in seasons when Tamgas Creek Hatchery's coho and chum catches are especially strong, the fishery has been opened as late as SW#43. That was not the case in 2021.

In past seasons, especially through the 1990s, the FMP was an economically important part of the gillnet fleet's season. In recent years, however, with the Tamgas Creek Hatchery's fall chum production severely reduced, fall chum catches have declined significantly. In addition, local fall chum escapement has been especially poor in recent years. The FMB must also consider the broodstock needs of the Tamgas Creek Hatchery during the FMP, when the Hatchery's fall chum and coho returns typically occur.

The 2021 season's FMP continued a season during which chum catches were routinely below average. In fact, pink salmon made up the majority of the 2021 season's FMP deliveries, comprising about 85% of the period's harvest. This was largely the result of an unusually large pink catch in SW#36. The purse seine fishery is usually closed in SW#36, a measure intended to protect local pink salmon escapement. Similarly, beginning with SW#36, the gillnet fleet is normally required to use larger mesh nets for the same reason. However, with escapement surveys having confirmed very strong pink salmon escapement, the FMB concluded that the purse seine fishery could be opened in SW#36 without endangering local pink escapement. As a result, SW#36 yielded the week's largest pink salmon harvest since 1988. In fact, nearly 99% of the pink catch during the 2021 season's FMP was delivered in SW#36.

Only 9,801 coho were delivered during the 2021 season's FMP, which was only 41% of the 10-year average (2011—2020) and only 32% of the 37-year average (1984—2020) for the period. It was the FMP's third smallest coho harvest in the 38 seasons the Community has maintained these records (Table 5). Coho catches were well below average during each of the five weeks of the 2021 FMP. A record-low coho harvest was established in SW#39, and the SW#40 coho catch was the second smallest on

record for the week, realities that were key factors in the FMB's decision to close the season following SW#40. The season's peak coho catches occurred in SW#38, but the week's coho deliveries were less than 70% of the 10-year average for the week. Overall, less than 39% of the coho harvested during the 2021 season were harvested during the FMP, the lowest share of a season's coho harvest the FMP has comprised since 1985. Over the previous 10 seasons, an average of more than 68% of a season's coho have been delivered during the FMP, and, over the previous 37 seasons, the FMP has yielded an average of nearly 75% of seasons' coho harvest. Coho made up about 43% of the value of the 2021 FMP, and about 55% of the total value of the season's coho deliveries.

Table 5. Total Reserve harvest, in number of fish and value, during the 2021 Fall Management Period, by species, compared to average harvest (10-year and 37-year average).

	Species					
	King	Sockeye	Coho	Pink	Chum	Total
Fish (2021)	1	237	9,801	89,528	5,776	105,343
10-yr. Avg.	0	255	23,787	8,287	18,197	50,525
All-yr. Avg.	4	271	30,447	28,118	34,056	92,896
Value (2021)	$56	$2,628	$117,412	$102,979	$53,039	$276,114

Although the 2021 season's FMP delivered a poor coho catch, the chum harvest was even worse. The 2021 season saw the FMP yield the period's fourth smallest chum harvest since 1984. In fact, the FMP's five poorest chum harvests have occurred in the last five seasons. Only 5,776 chum were harvested during the 2021 FMP, a harvest that was only 32% of the period's average chum harvest over the previous 10 seasons (2011—2020), and only 17% of the 37-year average (1984—2020). The FMP's peak chum deliveries occurred in SW#36, but they were less than 37% of the week's 10-year average chum harvest and only 28% of the 37-year average. Less than five percent of the 2021 season's chum harvest was delivered during the FMP, while over the previous 10 seasons, more than seven percent of a season's chum have been delivered during that period. Over the previous 37 seasons FMP chum deliveries have averaged more than 21% of a season's chum harvest. The decline in the FMP's share of the Reserve's chum catch is a reflection of the increase in local hatcheries' production of summer chum, a decline in the abundance of local natural fall chum, and the substantial interruption in TCH's fall chum production. Chum deliveries accounted for five percent of the salmon harvested in the 2021 FMP, and chum deliveries accounted for only 19% of the economic value of the period.

Pink salmon do not normally comprise a substantial part of the FMP harvest, largely as a result of the management measures previously described, which are intended to protect local pink escapement. However, as described above, the 2021 season's FMP was an exception, particularly in SW#36. However, after the particularly strong pink catches in SW#36, pink salmon deliveries declined rapidly. Only 942 pink salmon were delivered during the last four weeks of the period. Still, the SW#36 pink harvest was large enough to make the period's pink catch 1,080% of the period's average pink

harvest over the previous 10 seasons (2011—2020). Less than four percent of the 2021 season's pink salmon harvest was taken during the FMP, although pinks made up 85% of the FMP harvest, a reflection of the poor coho and chum catches during the period. In an average season (2011–2020), pink salmon account for a little more than 16% of the FMP harvest.

Sockeye usually make up only a minor part of the FMB catch, averaging much less than one percent of the period's total harvest. Only 237 sockeye were delivered during the 2021 FMP, or about 93% of the 10-year average for the period. Sockeye made up less than one percent of both the FMP's total harvest and the period's economic value. Less than two percent of the season's total sockeye harvest was taken during the 2021 FMP. Similarly, in most seasons, few king salmon are harvested in the FMP. Only one king salmon was delivered during the 2021 FMP, which is slightly below the 2 kings the period has averaged over the previous 10 seasons.

Overall, the 2021 FMP yielded 209% of the average FMP harvest over the previous 10 seasons (2011—2020), although the SW#36 pink salmon catch accounted for the majority of the period's harvest. Bolstered by an unusually large pink harvest, the FMP's peak catches occurred in SW#36, the first week of the FMP. However, after SW#36, catches dropped below average and remained there for the remainder of the season. The FMP harvest made up less than four percent of the 2021 season's total harvest. During the period from 1984 through 1999, the FMP harvest comprised 11% of the average annual harvest. Since then, however, the FMP harvest has comprised less than six percent of the average annual harvest, and over the most recent 10 seasons, that average has declined to less than four percent.

The FMP once played a key role in the economic success of the Reserve's gillnet fishery. More recently, however, the value of the FMP has decreased, as fall chum and coho catches have declined substantially. For the 2021 season, the value of the FMP was $276,114, which was a little more than six percent of the season's total value and only 83% of management period's 10-year average value.

Catch by Species

Pink Salmon Catch

The Reserve's 2021 commercial salmon fishery (common property) harvested 2,514,217 pink salmon, or about 225% of the fishery's average pink harvest (2011—2020). Since 1984, only two seasons (1989 and 2013) have seen Reserve fisheries harvest more pink salmon than in 2021 (Figure 3). In the 2019 brood year for the 2021 pink salmon return, Reserve fisheries delivered 1,229,099 pink salmon. Pink salmon made up nearly 94% of the 2021 season's total salmon harvest, considerably more than the 78% that pinks have comprised over the previous 10 seasons (2011—2020). The purse seine fleet delivered nearly 95% of the Reserve's 2021 pink salmon catch, with only five percent having been harvested by the gillnet fleet.

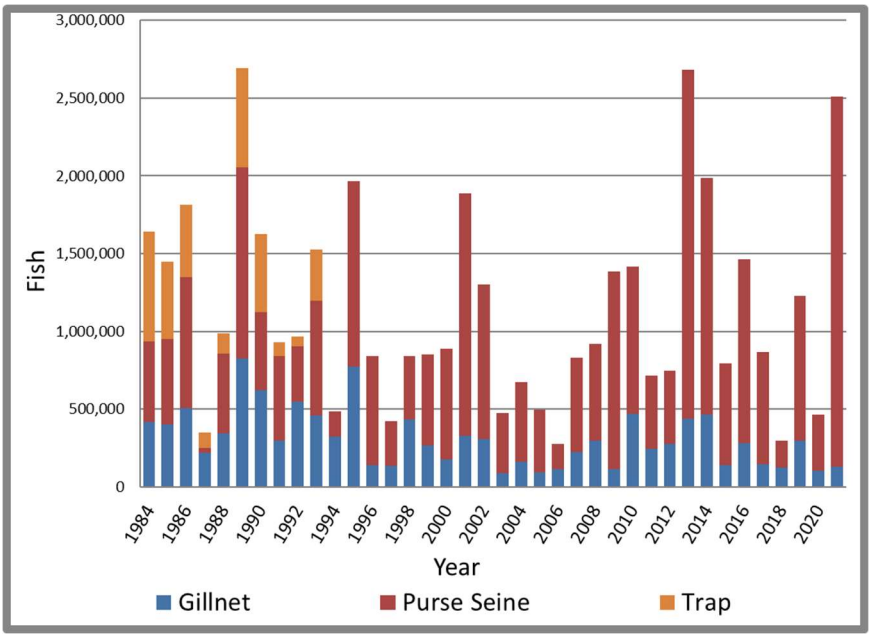

Figure 3. The Annette Islands Reserve's total annual pink salmon harvest (1984 – 2021), illustrating the distribution of the catch between gillnet, purse seine, and trap gear-types (the traps ceased operation following the 1993 season.

Pink catches were below average (10- and 37-year) for the first four weeks of the season (Figure 4 and Table 6). However, beginning with SW#29, the final week of the ESMP, pink catches were well above average for the next eight weeks (SW#29—SW#36). Pink salmon catches peaked in SW#34, about one week later than the average peak (10- and 37-year average). The 500,855 pink salmon delivered in SW#34 was 267% of the 10-year average (2011—2020). The SW#35 pink harvest, 316,543 fish, was nearly 677% of the week's 10-year average. By nearly any standard, 2021 saw impressive pink catches through most of the season.

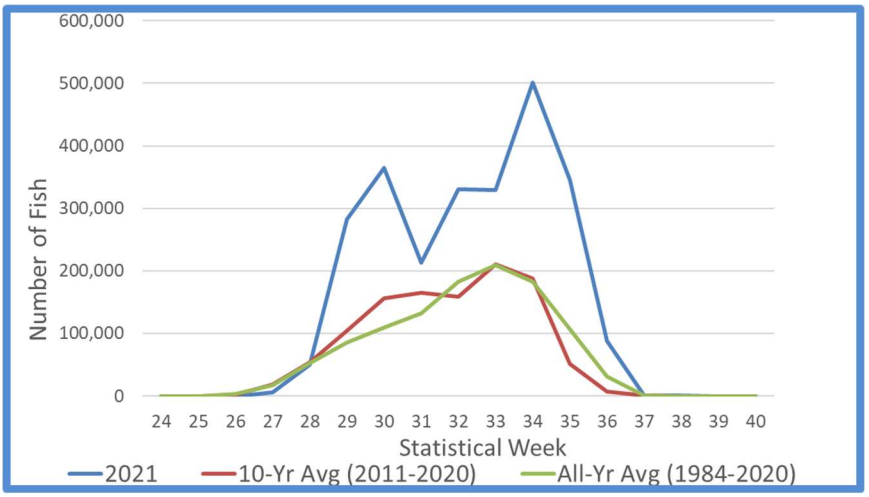

Figure 4. 2021 all-gear pink salmon harvest, by statistical week, compared to the 10-year average (2011–2020) and the average since 1984.

In most seasons, the purse seine fishery has been the primary beneficiary of the Reserve's pink salmon catch, taking an average of nearly 78% of the pinks harvested over the previous 10 seasons (2011—2020). During the previous 10 seasons, pink salmon have comprised an average of more than 91% of the purse seine harvest, and nearly 94% when averaged over the previous 37 seasons. In the 2021 season, pink salmon made up about 97% of the purse seine fleet's total catch, while accounting for nearly 83% of the fleet's earnings for the season.

Table 6. The Annette Islands Reserve pink salmon catch, in 2021, by gear, management period, and statistical week, compared to the 10- and 37-year average.

		Gillnet			Purse Seine			Total		
Mgmt. Period	Stat Week	2021	10-Yr Avg (2011-2020)	All-Yr Avg (1984-2020)	2021	10-Yr Avg (2011-2020)	All-Yr Avg (1984-2020)	2021	10-Yr Avg (2011-2020)	All-Yr Avg (1984-2020)
ESMP	24		4	2				0	3	2
	25	0	133	249				0	133	235
	26	98	1,614	2,813	0	897	1,164	98	2,242	3,285
	27	550	11,352	12,292	4,902	6,808	4,967	5,568	18,165	16,817
	28	13,156	21,881	26,146	37,077	31,950	23,472	50,233	53,860	53,044
	29	24,294	24,043	28,975	257,760	80,666	49,934	283,093	104,719	85,294
	Total	38,098	59,025	70,478	299,739	120,322	79,537	338,992	179,121	158,677
SMP	30	21,753	28,195	29,263	342,300	128,368	76,192	365,192	156,563	110,136
	31	14,948	36,156	37,356	198,591	129,598	83,812	213,539	165,759	132,273
	32	12,958	29,538	42,050	317,895	129,844	125,929	330,853	159,396	182,451
	33	11,891	42,235	47,320	317,549	168,274	145,143	329,574	210,511	208,968
	34	12,303	32,162	47,838	488,251	155,506	124,391	500,855	187,670	183,156
	35	10,060	16,828	32,105	335,624	43,775	74,300	345,684	51,848	106,946
	Total	83,913	185,114	235,934	2,000,210	755,364	629,767	2,085,697	931,747	923,930
FMP	36	4,679	6,451	15,771	83,897	3,288	19,159	88,586	7,109	30,941
	37	429	770	855		1,231	836	429	1,044	1,010
	38	28	174	136	485	374	284	513	268	219
	39	0	7	18		73	85	0	49	56
	40	0	0	21		0	0	0	0	18
	Total	5,136	7,402	16,800	84,382	4,965	20,364	89,528	8,469	32,243
Season Total		127,147	251,542	323,211	2,384,331	880,651	729,669	2,514,217	1,119,336	1,114,850

The purse seine fleet's pink salmon catch-per-unit-effort (CPUE, measured as number of fish harvested per boat per day) was 8,260 fish/boat/day for the 2021 season, which was about 210% of the 10-year average (2011—2020). It was the seine fleet's third highest season pink CPUE since 1984, and the highest since 1996. The fleet's pink salmon CPUE was above, or very near, average during every week of the seiners' 11-week season. The purse seine fleet's peak pink salmon CPUE occurred in SW#35, when the fleet caught pink salmon at the rate of 11,881 fish/boat/day, or 342% of the 10-year average. In an average season (10- and 37-year average), the seine fleet's pink CPUE peaks in SW#33. For only the second time since 2011, the purse seine fishery opened in SW#36. In most recent seasons, the purse seine fishery has been closed in SW#36 (perhaps others, as well) in order to promote local pink salmon escapement. Unlike the gillnet fleet, for which a minimum mesh-size restriction is normally imposed (normally in SW#36), there are few management measures available, other than closure, to reduce the seiners' impact on pinks returning to local streams. However, because early escapement surveys found pink escapement well above average, the FMB authorized two days of fishing for the purse seine fleet in SW#36. From those two days of fishing, seiners delivered 83,897 pinks, the fleet's largest SW#36 pink harvest in the 38 years the Community has maintained these records. During SW#36, the seiners caught pinks at the rate of 9,322 fish/boat/day, a record-high pink salmon CPUE for the week.

Pink salmon comprised more than 58% of the gillnet fleet's 2021 harvest, and nearly 16% of the value of the season's gillnet deliveries. Pink salmon have made up an

average of nearly 64% of the gillnet harvest since 1984. As previously mentioned, in recent years, the vast majority of the gillnetters have used large-mesh gear, targeting hatchery-produced summer chum, and, as a consequence, over the previous 10 seasons, pink salmon have accounted for about 53% of the gillnet fleet's average annual harvest.

Despite the well-above-average pink catches by the purse seine fleet, the gillnet fleet's pink harvest was below average in 13 of the first 14 weeks of the 2021 season, after which pink catches normally decline to negligible levels. In part, that was due to the large mesh nets that most gillnetters employed. The peak of the gillnet season's pink catch occurred in SW#29, the final week of the ESMP, and the only week to see the gillnet fleet's pink catch exceed average numbers. Gillnetters delivered 24,294 pinks, or about 101% of the average pink catch in that week over the previous 10 seasons (2011—2020). For the 2021 season, the 127,147 pink salmon that the gillnet fleet harvested ranked 32nd among the 38 years these records have been maintained. The fleet's total pink salmon harvest, in 2021, was less than 51% of the fleet's average pink salmon harvest since 2011.

For the season, the gillnet fleet's pink salmon CPUE, 168 fish/boat/day, was 88% of the 10-year average (2011—2020). The fleet's pink salmon CPUE approached, reached, or surpassed, the 10-year average in only six weeks (SW#35—SW#37) of the fleet's 16-week season. The gillnet fleet's pink salmon CPUE peaked in SW#34 when the fleet delivered pinks at the rate of 273 fish/boat/day, or 75% of the 10-year average for the week.

Chum Salmon Catch

Community fishers have adapted to local hatcheries' increased production of summer chum salmon, and those fish are now an important part of a successful salmon season, particularly during the first half of the season. However, unlike the 2018 season, when summer chum catches helped offset especially poor pink salmon catches, in the 2021 season, Reserve fisheries caught less than 49% of the average chum harvest over the previous 10 seasons (2011—2020), and less than 77% of the 37-year average (Table 7 and Figure 5).

Chum salmon catches were below — often well below — the 10-year average during every week of the 2021 season. The chum deliveries in SW#29 came closest to reaching the week's average chum harvest, with deliveries reaching 77% of the week's average (2011—2020). Chum catches were especially poor during the Fall Management Period, when chum deliveries were less than 32% of the 10-year average for that period, and only 17% of the 37-year average.

Chum comprised less than five percent of the Reserve's total salmon harvest in 2021, and less than 26% ($1,204,930) of the season's economic value. As Figures 5 and 6 illustrate, local hatcheries' increased production of summer chum in recent seasons has profoundly impacted the early portion of the Reserve's salmon net fisheries, both in terms of the gillnet fleet's choice of mesh size and the economic importance of that

portion of the season. Local hatcheries' chum production has even become economically important to the purse seine fleet in that it can help offset the economic Impacts of a poor pink salmon season, as seen in 2018. In 2021, however, the chum harvest was poor for both gear types.

Table 7. The Annette Islands Reserve chum salmon catch, in 2021, by gear, management period, and statistical week, compared to the 10- and 37-year average.

		Gillnet			Purse Seine			Total		
Mgmt. Period	Stat Week	2021	10-Yr Avg (2011-2020)	All-Yr Avg (1984-2020)	2021	10-Yr Avg (2011-2020)	All-Yr Avg (1984-2020)	2021	10-Yr Avg (2011-2020)	All-Yr Avg (1984-2020)
ESMP	24		259	410					172	280
	25	67	3,648	2,153				67	3,648	1,963
	26	105	13,513	5,842	0	3,482	1,870	105	15,950	6,601
	27	334	15,569	9,485	1,144	4,094	1,952	1,478	19,663	11,139
	28	15,925	27,909	15,465	3,987	11,715	5,170	19,912	39,647	20,269
	29	21,143	32,608	16,578	13,532	12,383	5,287	34,685	44,991	21,777
	Total	37,574	93,505	49,934	18,663	31,674	14,279	56,247	124,072	62,029
SMP	30	13,624	26,003	14,925	10,067	12,539	5,352	23,712	38,542	20,019
	31	7,089	21,299	11,249	5,296	10,387	4,200	12,385	31,686	15,478
	32	3,712	9,902	5,622	4,898	4,322	2,267	8,610	14,225	7,934
	33	2,802	5,657	3,770	2,449	3,415	1,783	5,252	9,074	5,590
	34	2,504	4,316	3,691	2,680	2,578	1,889	5,186	6,894	5,517
	35	2,128	6,045	6,475	2,062	1,825	2,068	4,190	7,505	8,311
	Total	31,859	73,222	45,732	27,452	35,066	17,559	59,335	107,925	62,849
FMP	36	2,003	7,648	9,223	866	586	1,339	2,869	7,825	10,203
	37	1,061	4,424	9,705		1,308	1,415	1,061	4,686	10,491
	38	1479	2,828	7,145	57	200	977	1,536	2,908	7,884
	39	220	2,059	3,960		42	495	220	2,092	4,380
	40	90	815	1,747		9	186	90	818	1,800
	Total	4,853	17,775	31,779	923	2,145	4,412	5,776	18,329	34,759
Season Total		74,286	184,501	127,446	47,038	68,885	36,250	121,358	250,325	159,637

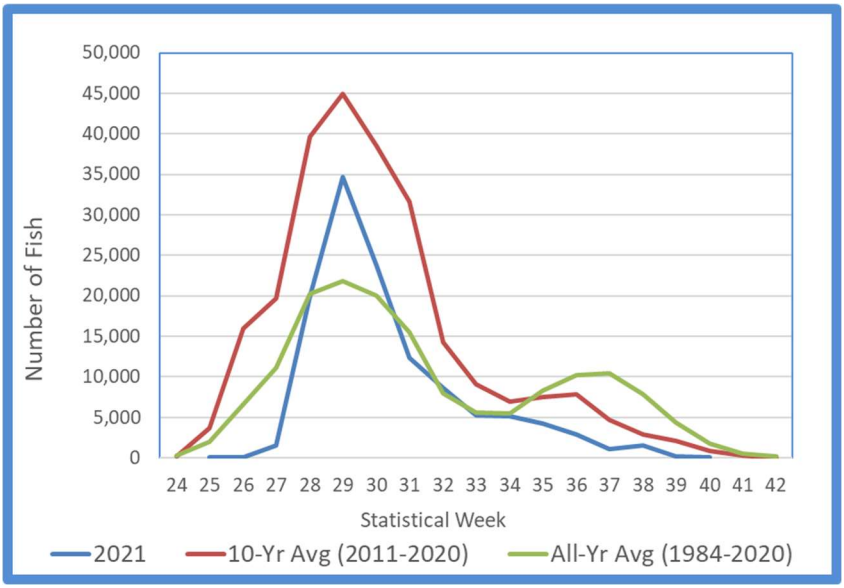

Figure 5. The Annette Islands Reserve chum salmon harvest, by statistical week, comparing the 2021 harvest with the average harvest over the previous 10 seasons, and the average harvest since 1984.

Community fisheries harvested only 121,358 chum salmon (fall and summer) in 2021. It was the third smallest chum harvest since 2006. Since 2006, the three poorest chum seasons have occurred in the last three seasons (2019—2021). The 2021 chum harvest was less than 49% of the average annual chum harvest since 2011, or 77% of the average chum harvest since 1984. Of course, the 10-year average is based on some of the largest chum

catches the Reserve has seen, a clear benefit of local hatcheries' summer chum production. In fact, seven of the Reserve's top eight chum harvests, or nine of the top ten, have occurred since 2010.

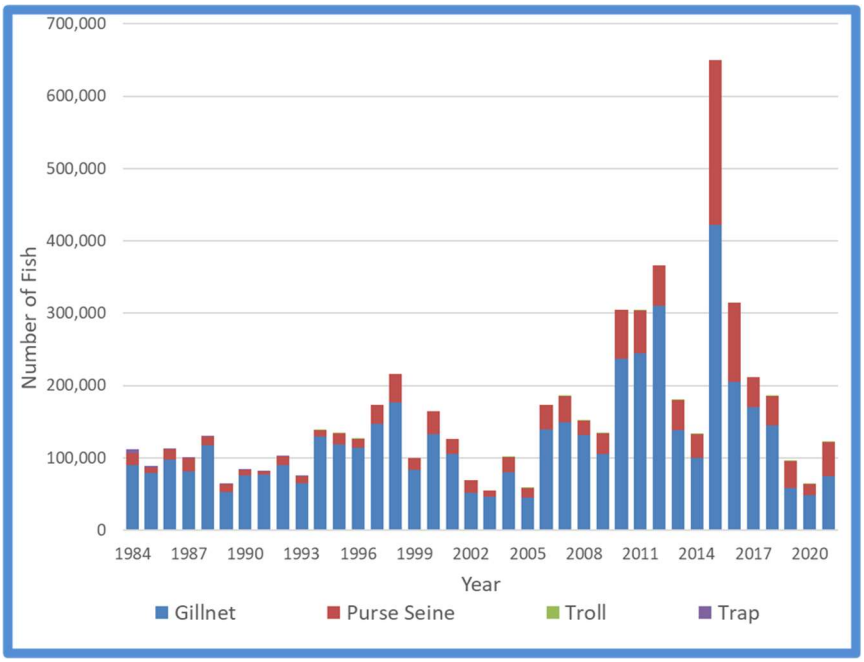

Figure 6. The Annette Islands Reserve annual chum salmon harvest, by year and gear (1984 – 2021), illustrating the distribution of the catch between gear-types (traps ceased operation following the 1993 season).

As has been true in recent years, the 2021 season's chum harvest was mostly comprised of summer chum, which are largely hatchery-produced. Prior to local hatcheries' increased production of summer chum, fall chum comprised the bulk of the Reserve's annual chum harvest, with the FMP seeing the largest share of the annual chum harvest. That was especially true for the gillnet fleet due, in large part, to the production of the Tamgas Creek Hatchery (TCH). However, TCH's fall chum production was terminated in 2011, as a condition for Marine Stewardship Council certification (a condition that was subsequently withdrawn). By 2013, TCH's fall chum contributions had largely ended During the seasons prior to the loss of TCH's fall chum contributions (approximately 1984-2012), Reserve fisheries harvested an average of 39,543 chum during the FMP, which was the period during which the TCH chum returned. Since the termination of the TCH fall chum program (2013-2021), the FMP has yielded an average harvest of only 13,235 chum. Over the last five seasons (2017-2021), an average of only 4,099 chum have been delivered during the FMP. In making this comparison, however, it is worth noting that local fall chum escapement has also sharply declined during recent years. TCH is attempting to restore its fall chum production to former levels, but there can be no doubt that the fall portion of the salmon season has been significantly impacted by the loss of the TCH fall chum production.

There is no clear timing distinction between the summer and fall components of a season's chum return, but based upon historical data, the transition appears to typically occur during the period from SW#32 through SW#35 (Figure 5). Prior to about 2012, there were two distinct peaks to the annual chum harvest, reflecting the two components of the chum return. However, looking at the chum harvest during the Fall Management Period (FMP), which includes the period from SW#36 through the

remainder of the season, the decline in the fall chum component of the annual chum harvest is quite apparent (Figure 7) and the peak of the fall component is becoming less distinct. For the 2021 season's FMP, only 5,776 chum were delivered, accounting for less than five percent of the season's total chum harvest. It was also the fourth fewest chum ever harvested during the FMP. In fact, the FMP's five smallest chum harvests have occurred in the last five seasons (2017—2021). The chum harvest during the 2021 season's FMP was less than 32% of the average chum harvest during that period (2011—2020), and only 18% of the 37-year average.

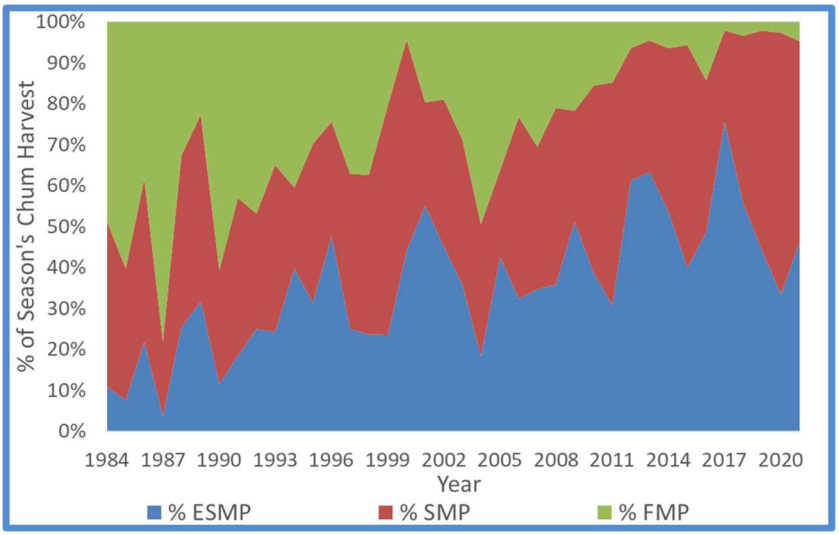

Figure 7. The relative distribution of the annual Annette Islands Reserve chum salmon harvest between the three management periods that comprise the net fisheries' season: the Early Summer Management Period (ESMP), the Summer Management Period (SMP), and the Fall Management Period (FMP).

Nearly 75% of the 2021 season's chum harvest was taken during the four-week period from SW#28 through SW#31. After peaking in SW#29 (34,685 fish), chum catches steadily declined for the remainder of the season. However, even in SW#29, chum deliveries were only 77% of the 10-year average (2011—2020). A record-low chum harvest was established for the 2021 season's SW#26 when chum deliveries amounted to less than one percent of the week's average chum catch. No week during the FMP saw chum catches reach as much as 29% of the weeks' 37-year average chum harvests.

The gillnet fleet delivered 74,286 chum salmon during the 2021 season, which accounted for more than 61% of the Reserve's total chum harvest. Chum made up about 34% of the gillnet fleet's total harvest, and nearly 66% ($783,301) of the value of the 2021 gillnet season. For the 2021 season, gillnetters' chum harvest was about 40% of the 10-year average (2011—2020) and 59% of the 37-year average (1984—2020). The gillnet fleet's 2021 chum harvest ranked 31st out of the 38 seasons the Community has maintained these data. It is worth noting that the 10-year average is heavily influenced by the fact that seven of the gillnet fleet's top 10 chum harvests have been achieved since 2010. However, the 2019, 2020, and 2021 seasons were three of the eight poorest chum seasons the gillnet fleet has experienced since 1984. In 2021, the gillnet fleet saw record-low chum harvests recorded in SW#26 and SW#27.

The gillnet fleet's chum CPUE for the season was 98 fish/boat/day, which was less than 81% of the fleet's 10-year average (2011—2020), ranking 17th among the fishery's 38

seasons. The gillnet fleet's chum CPUE peaked at 189 fish/boat/day in SW#28, which is about one week earlier than the average timing over the previous 10 seasons. SW#28 was the only week in the 16-week gillnet season that saw chum CPUE reach, or exceed the 10-year average. However, following SW#28, the gillnet fleet's chum CPUE declined with each successive week, except for a small spike in SW#36. In that week, the fleet's chum CPUE was only 62 fish/boat/day, or about 63% of the 10-year average and less than 55% of the 37-year average (1984—2020). SW#36 is the later of the two peaks in the gillnet fleet's average weekly chum CPUE and through the late 1990s, it was the larger of the two.

Chum salmon made up less than two percent of the purse seine fleet's deliveries, accounting for only 12% ($421,405) of the value of the 2021 purse seine season. The 47,038 chum salmon delivered by the purse seine fleet was that fleet's sixth largest chum salmon harvest since 1984, but was only 71% of the fleet's average annual chum harvest over the previous 10 seasons (2011—2020). The purse seine fleet's chum salmon deliveries reached, or exceeded, the 10-year average in only five of the seiners' 11-week season. The fleet's peak chum harvest occurred during SW#29, which is close to the average timing of the peak over the previous 10 seasons.

The purse seine fleet caught chum at the rate of 163 fish/boat/day during the 2021 season, which was only 48% of the fleet's average annual chum CPUE since 2011. However, when compared with the 37-year average, the fleet's chum harvest in 2021 appears more favorable, coming in at nearly 84% of that average. The fleet's chum CPUE was well below the 10-year average in every week of the 11-week purse seine 2021 season. In fact, in five of the weeks, seiners' chum CPUE was less than 50% of the week's 10-year average. The 2021 purse seine season's peak chum CPUE, 401 fish/boat/day, occurred in SW#29, which is consistent with the timing of the 10- and 37-year average peaks.

Sockeye Salmon Catch

Community fisheries harvested 15,638 sockeye in 2021, the Reserve's largest sockeye harvest since 2016, but only the 28th largest sockeye harvest in the 38 seasons these records have been maintained. The 2021 season's sockeye harvest was less than 88% of the 10-year average, but only 50% of the 37-year average. However, as Figure 8 illustrates, the Reserve's sockeye salmon harvest has been declining since the mid-1990s. That decline is especially noticeable in the gillnet fleet's sockeye harvest, and in that fleet's share of the Reserve's total sockeye harvest. The gillnet fleet's use of large-mesh gear in recent years to target the larger chum salmon has likely had some impact on that fleet's sockeye catches, because there has not been an equivalent decline in the purse seine fleet's sockeye catches.

Sockeye salmon accounted for much less than one percent of the Reserve's total harvest in 2021 while contributing a little more than three percent ($149,874) of the

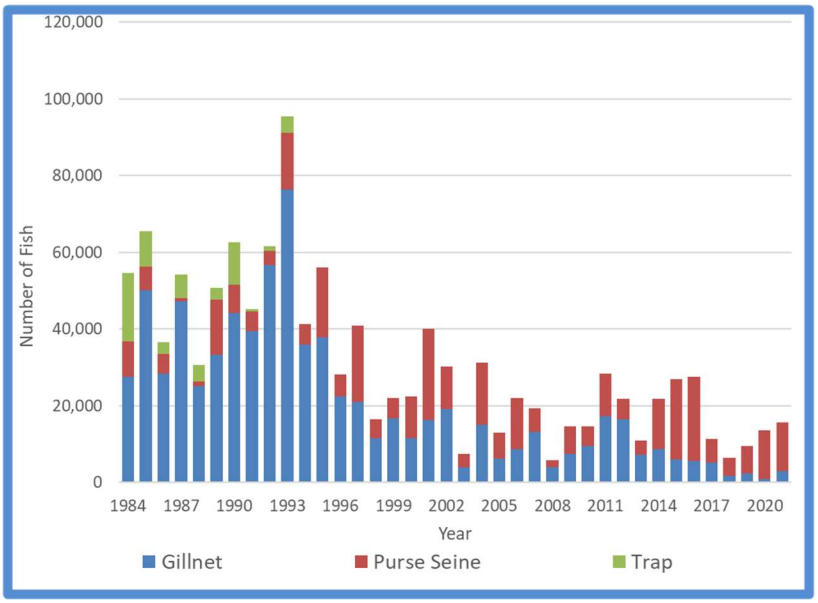

Figure 8. The Annette Islands Reserve annual sockeye salmon harvest, by year and gear (1984 – 2021), illustrating the distribution of the catch between gear-types.

season's value. The purse seine fleet took more than 81% of the season's sockeye harvest, with the gillnetters having delivered less than 19%

As Figure 9 and Table 8 illustrate, the 2021 sockeye salmon harvest was a poor one, although it was improved over the sockeye harvest in the four preceding seasons. Nearly 46% of the 2021 season's sockeye harvest was delivered in the two-week period from SW#32 through SW#33. Sockeye catches were above average in the period from SW#32 through SW#36, but were below average in every other week of the 2021 season. In fact, the 2021 season's SW#27 sockeye harvest was only two fish greater than the week's record-low sockeye harvest, which occurred in 2020

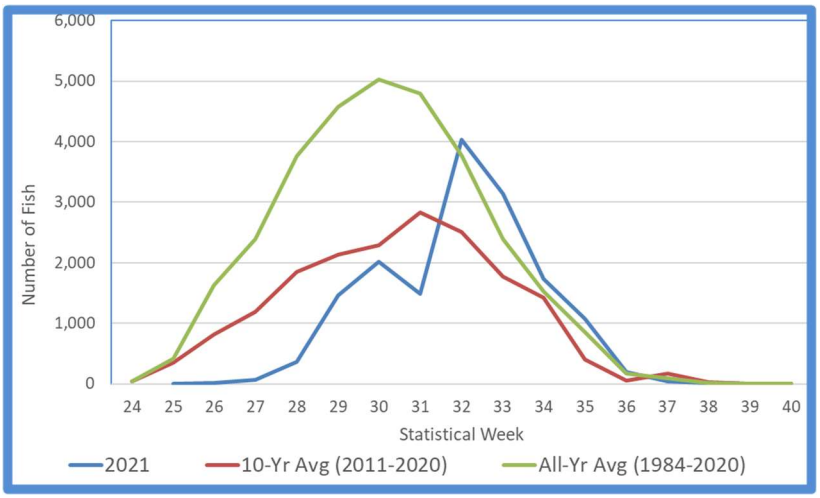

Figure 9. The Annette Islands Reserve sockeye salmon harvest, by statistical week, comparing the 2021 harvest with the average harvest over the previous 10 seasons, and the average harvest since 1984.

The purse seine fleet harvested 12,685 sockeye during the 2021 season, which is about 118% of the 10-year average (2011—2020). It was the purse seine fleet's 12th largest sockeye harvest since 1984. Sockeye made up less than one percent of the purse seine 2021 harvest, and a little more than three percent ($116,877) of the value of that harvest.

The purse seine fleet's peak sockeye salmon catches occurred in SW#32. The purse seine fleet's peak sockeye catch has typically occurred in either SW#31 or SW#32 (both 10- and 37-year averages).

The purse seine fleet's season sockeye CPUE, 44 fish/boat/day, was 74% of the 10-year average (60 fish/boat/day), and 74% of the 37-year average (62 fish/boat/day). The seiners' 2021 season sockeye CPUE was ranked 24th among the 38 seasons these records have been maintained by the Community. The purse seine fleet's sockeye CPUE was below average in seven of the seiners' 11-week season. Seiners' sockeye CPUE peaked in SW#32, with a catch rate of 86 fish/boat/day, which was 103% of the week's 10-year average (2011—2020). Over the previous 10 seasons, the seiners' average peak sockeye CPUE has also been recorded in SW#32, while over the previous 37 seasons, seiners' sockeye CPUE normally peaked in SW#30.

Table 8. The Annette Islands Reserve sockeye salmon catch, in 2021, by gear, management period, and statistical week, compared to the 10- and 37-year average.

		Gillnet			Purse Seine			Total		
Mgmt. Period	Stat Week	2021	10-Yr Avg (2011-2020)	All-Yr Avg (1984-2020)	2021	10-Yr Avg (2011-2020)	All-Yr Avg (1984-2020)	2021	10-Yr Avg (2011-2020)	All-Yr Avg (1984-2020)
ESMP	24		68	61					45	41
	25	0	347	457				0	347	420
	26	13	720	1,407	0	143	563	13	820	1,635
	27	2	849	2,074	67	341	322	69	1,190	2,392
	28	142	1,191	2,860	226	657	679	368	1,848	3,756
	29	262	938	3,238	1,200	1,190	1,096	1,462	2,128	4,582
	Total	419	4,112	10,097	1,493	2,331	2,660	1,912	6,379	12,827
SMP	30	319	1,040	3,327	1,690	1,253	1,528	2,011	2,293	5,029
	31	339	725	2,740	1,154	2,105	1,659	1,493	2,829	4,802
	32	385	403	1,894	3,652	2,101	1,695	4,037	2,504	3,774
	33	550	357	1,220	2,596	1,420	1,064	3,146	1,777	2,389
	34	346	269	826	1,387	1,156	662	1,733	1,426	1,526
	35	439	157	434	630	309	458	1,069	404	859
	Total	2,378	2,952	10,441	11,109	8,344	7,064	13,489	11,234	18,380
FMP	36	105	53	112	83	3	63	189	54	162
	37	34	44	44		622	83	34	169	90
	38	14	12	13	0	43	7	14	30	18
	39	0	2	2		2	1	0	3	3
	40	0	0	1		0	1	0	0	1
	Total	153	112	171	83	669	155	237	255	274
Season Total		2,950	7,176	20,709	12,685	11,344	9,880	15,638	17,867	31,480

The gillnet fleet delivered only 2,950 sockeye during the 2021 season. Since 1984, only three seasons – the three seasons immediately preceding 2021, in fact – have seen gillnetters deliver fewer sockeye than in 2021. The fleet's 2021 sockeye catch was only 41% of the 10-year average (2011—2020) and only 14% of the 37-year average (1984—2020). The last four seasons yielded the poorest sockeye catches the gillnet fleet has seen. Seven of the fleet's nine poorest sockeye catches occurred in the last seven seasons. Sockeye made up a little more than one percent of the gillnet fleet's total 2021 harvest, and little more than three percent ($32,969) of the gillnetters' 2021 season value.

The gillnet fleet's sockeye harvest was below average in 11 weeks of the gillnetters' 16-week 2021 season. A record-low sockeye harvest was recorded by the gillnet fleet in

SW#27 when only two sockeye were delivered. The fleet's sockeye harvest peaked in SW#33 when 550 sockeye were delivered, which was nearly 154% of the 10-year average for the week (2011—2020), but only 45% of the 37-year average (1984—2020).

The gillnet fleet's sockeye CPUE for the 2021 season was less than four fish/boat/day, which was 90% of the 10-year average, but only 29% of the fleet's 37-year average. Since 1984, only eight seasons have seen the gillnet fleet harvest sockeye at a lower rate than in 2021, and seven of those seasons occurred after 2013. The gillnet fleet saw record-low sockeye CPUE in SW#27 and SW#28 in 2021. The gillnet fleet's sockeye CPUE peaked in SW#33 when sockeye were caught at the rate of nearly 12 fish/boat/day, which was nearly 281% of the fleet's 10-year average. Over the previous 10 seasons, the average timing of the peak of the gillnetters' sockeye CPUE was SW#28. Over the 38 seasons these records have been maintained, the average timing of the peak in the gillnetters' sockeye catch is SW#30.

Coho Salmon Catch

Coho have been an important part of the Reserve's fall fishery for many years, especially for the gillnet fleet. However, with the loss of the Tamgas Creek Hatchery's fall chum production in 2011 (discussed on page 19), coho have taken on an even more critical role, most especially during the Fall Management Period (FMP), when Tamgas Creek Hatchery coho are most abundant in the Reserve's fisheries. In recent years, however, coho catches have declined significantly, especially during the FMP (Figure 10). During the period from 1990 to 2010, the FMP yielded 79% of an average season's all-gear coho harvest. From 2011 through 2017, the FMP accounted for an average of 70% of the Reserve's annual coho harvest. Over the last four seasons (2018—2021), the FMP's coho harvest made up an average of less than 51% of the Reserve's annual coho harvest. The last four seasons, 2018—2021, have seen four of the seven poorest coho catches in the 38 years records have been maintained. The 25,233 coho delivered in the Reserve's 2021 season ranked 32nd among those 38 seasons.

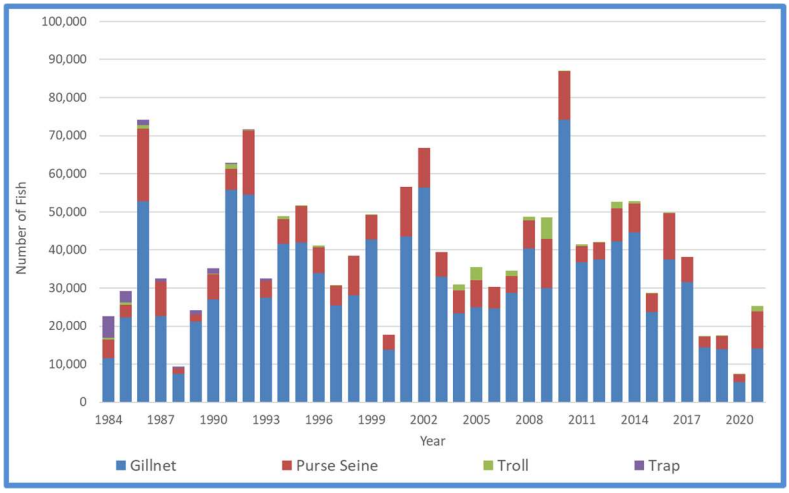

Figure 10. The Annette Islands Reserve annual coho salmon harvest, by year and gear (1984 – 2021).

The 2021 season's coho harvest was 73% of the 10-year average all-gear coho harvest and only 62% of the 37-year average (Table 9). Coho made up less than one percent of the Reserve's total harvest, and accounted for less than five percent of the value of the 2021 season.

Table 9. The Annette Islands Reserve coho salmon catch, in 2021, by gear, management period, and statistical week, compared to the 10- and 37-year average.

		Gillnet			Purse Seine			Total		
Mgmt. Period	Stat Week	2021	10-Yr Avg (2011-2020)	All-Yr Avg (1984-2020)	2021	10-Yr Avg (2011-2020)	All-Yr Avg (1984-2020)	2021	10-Yr Avg (2011-2020)	All-Yr Avg (1984-2020)
ESMP	24		14	9					10	7
	25	0	56	66				0	56	64
	26	10	218	222	0	109	93	12	302	262
	27	9	281	430	116	184	122	134	482	546
	28	174	617	519	377	346	214	551	1,006	773
	29	504	457	479	1,242	513	279	1,753	978	798
	Total	697	1,643	1,724	1,735	1,151	707	2,450	2,834	2,450
SMP	30	691	455	542	1,274	562	331	2,032	1,027	915
	31	817	536	469	688	724	560	1,505	1,269	1,142
	32	445	314	374	850	593	417	1,295	928	894
	33	854	430	454	851	689	508	2,139	1,178	1,073
	34	1,161	930	760	1,332	744	620	3,155	1,700	1,511
	35	1,076	1,531	1,352	1,646	607	859	2,856	2,049	2,240
	Total	5,044	4,195	3,951	6,641	3,918	3,296	12,982	8,151	7,774
FMP	36	1,397	2,814	2,752	1,048	52	769	2,503	2,867	3,389
	37	2,065	5,070	5,308		1,416	1,272	2,079	5,368	6,057
	38	3,463	5,211	5,991	310	526	1,101	3,773	5,427	6,844
	39	877	6,019	6,779		352	1,225	877	6,293	7,823
	40	569	3,782	5,223		114	739	569	3,821	5,666
	Total	8,371	22,897	26,053	1,358	2,460	5,106	9,801	23,776	29,780
Season Total		14,112	28,734	31,728	9,734	7,529	9,109	25,233	34,762	40,004

As in the previous three seasons (2018—2020), the poor coho catches during the 2021 season were most evident during the Fall Management Period (FMP) when the coho harvest was 41% of the 10-year average (2011—2022) and 32% of the 37-year average (1984—2020) for that management period (Figure 11). It was the third fewest coho the Reserve has harvested during the FMP in the fishery's 38-year history, although it was more than double the Reserve's coho harvest during the 2020 FMP, when the Reserve's record-low FMP coho harvest was established. For the second time since 1985 (the 2020 season was the first), more coho were harvested during the 2021 season's Summer Management Period than in the FMP, the period when the majority of TCH coho return to the area. Less than 39% of the 2021 season's coho harvest was delivered during the FMP,

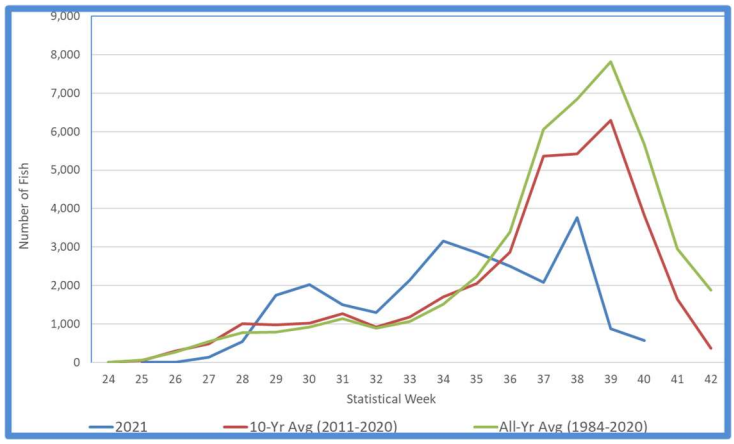

Figure 11. Annette Islands Reserve 2021 coho salmon harvest, by statistical week, compared to the 10-year average harvest, and the average harvest since 1984.

while over the previous 10 seasons (2011—2020), the FMP yielded an average of more than 68% of the annual coho harvest.

Coho deliveries peaked in the 2021 season's SW#38 when 3,773 coho were delivered, which was one week earlier than the average timing of the coho peak (10- and 37-year average). Coho deliveries were below average in nine weeks of the 16-week 2021 season. Coho catches were above average during the period from SW#29 though SW#35, but were well below average from SW#37 through the season closure in SW#40. The fishery saw a record-low coho harvest in SW#39 when coho deliveries were only 14% of the week's 10-year average and 11% of the 37-year average.

Throughout the history of the Reserve's salmon fishery, the gillnet fleet has dominated the Reserve's coho catches. In fact, since 1984, the gillnet fleet has failed to harvest at least 71% of the annual coho harvest in only four seasons, and two of those seasons occurred while the traps were in operation. On average, since 1994 (the year after the traps closed), the gillnet fleet has taken 81% of the coho harvested on the Reserve. Since coho catches have usually been greatest during the FMP, a period during which seiners' effort is greatly reduced, gillnetters would be expected to benefit most from the TCH coho production. For the 2021 season, however, the gillnet fleet delivered less than 56% of the coho harvested, the purse seine fleet took nearly 39%, and almost six percent were caught by trollers.

Coho accounted for more than six percent of the gillnet fleet's total 2021 harvest and was the third most important species, in terms of value, to the gillnetters' season. Coho accounted for about 12% ($145,054) of the fleet's 2021 season value. In total, the gillnet fleet delivered 14,112 coho during the 2021 season, or about 49% of the fleet's average coho harvest over the previous 10 seasons (2011—2020). The gillnet fleet's 2021 season coho harvest was its 33rd largest coho harvest in the 38-year history of the fishery. Fifty-nine percent of the coho delivered during the 2021 gillnet season were delivered during the Fall Management Period (FMP), while, over the previous 10 seasons, an average of about 80% of the gillnet-caught coho were harvested during the FMP.

In 2021, coho deliveries were below average in 10 of the 16-week gillnet season. The gillnet fleet's coho catches were above average during the period from SW#29 through SW#34, but were well below average from SW#35 through SW#40, the final weeks of the 2021 season. The gillnet season's peak coho harvest occurred in SW#38, which was about one week earlier than either the 10-, or the 37-year average. Even in SW#38, the fleet's coho deliveries were only 67% of the week's 10-year average, or 58% of the 37-year average.

For the 2021 season, the gillnet fleet caught coho at the rate of nearly 19 fish/boat/day, which was nearly identical to the 10-year average but only 79% of the 37-year average. The 2021 gillnet season's coho CPUE ranked 24th out of the 38 seasons for which records have been maintained. Gillnetters' coho CPUE was below average in nine of the gillnetters' 16-week season, including all five weeks of the FMP. The fleet's coho

CPUE peaked in SW#38 when coho were harvested at the rate of less than 79 fish/boat/day, or about 95% of the fleet's average SW#38 coho CPUE since 2011. Over the previous 10 seasons, the gillnet fleet's average peak coho CPUE has occurred one week later, in SW#39. Over the previous 37 seasons, the average peak has occurred in SW#40. During the FMP, the portion of the season when returning TCH coho should be most abundant in the vicinity of the Reserve, the gillnet fleet's coho CPUE was 62 fish/boat/day, or about 85% of the 10-year average (2011—2020).

Because coho catches normally peak during the FMP, a period when purse seine effort usually declines quite significantly, the purse seine fleet has not, typically, harvested a large number of coho. With the delivery of only 9,734 coho, the 2021 season was not an exception to that norm. Still, the seiners' 2021 coho harvest was the fleet's ninth largest since 1984. The seiners' 2021 coho harvest was nearly 170% of the fleet's 10-year average coho harvest, or 136% of the 37-year average. However, there was only one purse seine delivery after SW#36, the period when coho catches have typically been greatest. Seiners' coho deliveries peaked in SW#35 of the 2021 season, which is two weeks earlier than the average timing of the fleet's peak coho catches, SW#37 (10- and 37-year averages). There was minimal purse seine effort during the 2021 FMP, and as a result, seiners' FMP coho accounted for only 14% of the seiners' total coho harvest for the season. Over the previous 10 seasons, nearly 18% of the seiners' annual coho catch was delivered during the FMP. When viewed over the previous 37 years, the FMP has accounted for more than 52% of the seiners' coho catch. In total, coho made up much less than one percent of the purse seine total all-species harvest, and added about one percent ($43,400) to the value of the seiners' 2021 season.

The seine fleet's coho CPUE for the 2021 season was nearly 34 fish/boat/day, or about 118% of the fleet's 10-year average season coho CPUE, but only 70% of the fleet's average coho CPUE over the 38 years harvest data has been maintained by the Community. The seiners' 2021 season coho CPUE ranked 24th in the 38 seasons since 1984. The fleet's peak coho CPUE occurred in SW#38, which is consistent with the timing of the seiners' average peak coho CPUE (10- and 37-year average). However, by that point in the season, only a single purse seine vessel was still fishing, catching coho at the rate of 310 fish/boat/day, which was less than 60% of the SW#38 10-year average coho CPUE (2011—2020). The fleet's coho CPUE was above average in SW#29, SW#30, and from SW#34 through SW#36, but was below average in each of the other six weeks of the purse seiners' 2021 season.

In most seasons, a small number of troll-caught coho are also delivered. For the 2021 season, trollers delivered 1,387 coho, or nearly 470% of the fleet's average coho harvest over the previous 10 seasons and more than 180% of their average annual coho deliveries since 1984. Peak troll-caught coho deliveries occurred in SW#34 of the 2021 season when 662 coho were delivered, substantially more than the 66 coho that trollers have delivered in that week, on average, over the previous 10 seasons. The timing of the 2021 season's peak troll-caught coho deliveries was about one week earlier than has been averaged since 2011, but was consistent with the timing of the

coho peak over the previous 37 seasons. For the season, trollers' coho deliveries were valued at $24,070, or about 39% of the value of the 2021 season's troll deliveries.

King Salmon Catch

King salmon typically make up a very small part of the Reserve's annual commercial salmon deliveries, comprising much less than one percent of the average harvest. However, there have been years when king salmon harvests added significantly to a season's value, most particularly during the Preseason Troll fishery and the ESMP. King salmon are the target of the Preseason Troll fishery, which precedes the start of the net fisheries' season. The 1,546 king salmon harvested on the Reserve in 2021 made up much less than one percent of the Reserve's salmon harvest but accounted for nearly two percent ($88,341) of the season's value. The value of the 2021 season's king salmon deliveries ranked last among the five salmon species harvested in the Reserve's fishery. The Covid-19 pandemic, which had disrupted the 2020 preseason troll fishery, was still raging during the 2021 season. However, there were far fewer constraints on the sale of fish harvested during the Preseason Troll Management Period, largely as a result of there being an effective vaccine available.

The 2021 king salmon harvest was 96% of the 10-year average king salmon harvest, and the Reserve's 13th largest king salmon harvest since 1984. Nearly 85% of the Reserve's king salmon deliveries occurred in the weeks prior to Week #30, including troll deliveries that preceded the start of the net season, which accounted for 12% of the 2021 season's king salmon harvest (Table 10).

Table 10. The Annette Islands Reserve king salmon catch, in 2021, by gear, management period, and statistical week, compared to the 10- and 37-year average.

		Gillnet			Purse Seine			Troll			Total		
Mgmt. Period	Stat Week	2021	10-Yr Avg (2011-2020)	All-Yr Avg (1984-2020)	2021	10-Yr Avg (2011-2020)	All-Yr Avg (1984-2020)	2021	10-Yr Avg (2011-2020)	All-Yr Avg (1984-2020)	2021	10-Yr Avg (2011-2020)	All-Yr Avg (1984-2020)
Before SW#24								181	151	80	181	151	80
ESMP	24		43	46				32	29	40	32	72	86
	25	65	174	153				30	32	29	95	206	182
	26	43	255	186		72	67	12	28	23	55	354	276
	27	51	228	182	53	80	56	13	15	28	117	323	266
	28	359	147	142	197	73	97	3	6	19	559	226	259
	29	186	88	87	84	65	36	4	5	22	274	158	144
	Total	704	936	796	334	289	256	94	114	161	1,132	1,339	1,213
SMP	30	96	52	45	21	39	24	1	1	9	118	92	78
	31	21	31	21	5	36	14	0	1	9	26	68	44
	32	4	9	8	28	15	8	0	1	3	32	25	19
	33	10	4	4	2	7	3	7	5	5	19	17	12
	34	0	2	2	22	4	2	13	3	4	35	9	8
	35	0	1	1		0	0	2	2	2	2	4	4
	Total	131	99	81	78	102	53	23	13	31	232	214	165
Season Total		835	1,035	877	412	391	309	299	278	273	1,546	1,704	1,458

The Reserve's Preseason Troll fishery includes all fish harvested prior to SW#24, when the Reserve's gillnet fishery has often started (although it did not open until SW#25 in 2021). During that period, which, for the 2021 season, included deliveries in 11 of the 23-week period, Reserve trollers delivered 181 king salmon, or 61% of the troll-caught king salmon delivered in 2021. Over the previous 10 seasons, the Preseason Troll Management Period has seen an average of 151 king salmon delivered, making up an average of 67% of trollers' total annual king salmon harvest.

In total, trollers delivered 299 kings in 2021, accounting for 19 percent of the Reserve's total king salmon harvest. The gillnet fleet harvested 835 kings, which represented about 54% of Reserve's king salmon harvest. The purse seine fleet delivered 412 kings, accounting for about 27% of the total king salmon harvest. In an average season since 1994, the year after the Reserve's fish traps closed, the gillnet fleet has taken an average of 69% of the Reserve's king salmon harvest, with the purse seine fleet averaging about 23%, and troll-caught kings making up about nine percent of the average annual king salmon harvest.

The 2021 season's king salmon deliveries peaked in SW#28 when 559 king salmon were delivered, or about 251% of the 10-year average for that week. Over the previous 10 seasons, the average peak all-gear king salmon harvest occurred in SW#26, while over the previous 37 seasons, the average peak king salmon catch has occurred in SW#28. King salmon deliveries were below the 10-year average during the first four weeks (SW#24—SW#27) of the net fisheries' season, but were above average in six of the following seven weeks.

The 835 king salmon harvested by the gillnet fleet in 2021 was 82% of the fleet's average king salmon harvest since 2011, but was nearly 102% of the average over the previous 37 seasons (1984—2020). More than 84% of the gillnet fleet's 2021 king salmon harvest was delivered during the ESMP (SW#25 - SW#29). Nearly 80% of the ESMP king harvest occurred in SW#28 and SW#29, the last two weeks of the period. The peak of the fleet's 2021 king salmon harvest was in SW#28 when the fleet delivered 359 kings, the second largest SW#28 king harvest since 1984. Over the previous 10 seasons, as well as over the previous 37 seasons, the gillnet fleet's average peak king salmon catches have occurred in SW#26. King salmon accounted for much less than one percent of the gillnet fleet's total all-species harvest, but those deliveries accounted for more than three percent ($39,630) of the value of the 2021 gillnet season.

The purse seine fleet harvested 412 king salmon in 2021, or 112% of the fleet's average king harvest (2011–2020). King salmon made up much less than one percent of both the purse seine fleet's 2021 harvest, and the value of the season's purse seine deliveries. The fleet's peak king salmon deliveries occurred in SW#28, when the fleet delivered 197 kings, or 271% of the fleet's average king harvest in that week (2011—2020). Eighty-one percent of the seine fleet's 2021 king salmon catch was delivered during the period from SW#27 through SW#29.

Trollers harvested 299 king salmon in 2021, or about 132% of the average number of troll-caught kings delivered in a season since 2011. Trollers delivered 181 king salmon during the Preseason Troll Management Period (SW#1—SW#23). In an average season (2011—2020), the Preseason Troll fishery has accounted for nearly 67% of trollers' king salmon deliveries. Troll-caught king salmon accounted for 19% of the Reserve's total king salmon harvest in 2021, and were valued at $34,707, accounting for nearly 56% of the value of the trollers' 2021 season.

Catch by Gear-Type

Gillnet Fishery

The gillnet fleet harvested only 219,330 salmon during the 2021 season, which was the fourth fewest the fleet has harvested since 1984. The fleet's 2021 harvest was only 46% of the 10-year average (2011—2020), or 44% of the 37-year average (Table 11). The gillnet harvest represented eight percent of the Reserve's total catch, and 25% of the total value of the Reserve's 2021 salmon fishery.

Gillnet deliveries peaked in SW#29, at a point in the season when pink salmon were beginning to dominate the fishery. Over the previous 10 seasons, gillnetters' peak catches have usually occurred during the period from SW#29 to SW#31, but when viewed from the perspective of the previous 37 years of harvest data, the average peak has occurred in SW#33. The gillnet fleet's all-species catch was below average in every week of the 2021 season. In fact, the gillnet all-species catch reached, or exceeded, 50% of the 10-year average (2011—2020) harvest in only five of the gillnetters' 16-week season. Gillnetters saw record-low harvests in SW#26, SW#27, and SW#39.

Table 11. Annette Islands Reserve 2021 gillnet harvest data, compared to 10- and 37-year average. CPUE refers to catch-per-unit-effort, and is measured in fish/boat/day.

	Species					
	King	Sockeye	Coho	Pink	Chum	Total
No. of Fish (2021)	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
CPUE (2021)	1.10	4	19	168	98	289
10-Yr. Avg.Season CPUE	0.73	4	19	190	122	320
All-Yr. Avg. Season CPUE	0.66	13	24	267	90	333
Pounds (2021)	10,053	16,777	100,748	544,881	659,824	1,332,283
Value (2021)	$39,630	$32,969	$145,054	$191,740	$783,301	$1,192,694

For the 2021 season, the gillnet fleet's all-species catch-per-unit-effort (CPUE) was 289 fish/boat/day, which was nearly 90% of the 10-year average and 87% of the 37-year average. The gillnet fleet's 2021 season all-species CPUE ranked 29th out of the 38 seasons for which these records exist. The gillnet all-species CPUE peaked during SW#34 of the 2021 season, with the fleet harvesting salmon at the rate of 363 fish/boat/day. Only two weeks during the 2021 season saw all-species CPUE reach the weeks' average CPUE over the previous 10 seasons (2011—2020). No week saw the gillnetters' all-species CPUE reach the 37-year average for the week. Over the previous 10 seasons, the gillnet fleet's peak all-species CPUE has occurred in SW#33, while over the previous 37 seasons, the average peak has occurred in SW#34. Record-low all-species catch rates were recorded during the 2021 season's SW#26 and SW#39. Furthermore, the fleet's 2021 SW#27 all-species CPUE was only slightly greater than the record-low CPUE for the week (1987).

The ex-vessel value of the 2021 gillnet season was $1,192,694, the fishery's 20th most valuable season since 1984 (no adjustment for the value of the dollar). The value of the 2021 gillnet season was 64% of the average annual value over the previous 10 seasons. The fleet's peak earnings occurred in SW#29, which is consistent with the 10- and 37-year averages. Gillnetters' SW#29 deliveries were valued at $277,958, which was 107% of the gillnetters' average SW#29 value since 2011, and one of only two weeks that saw the value of the fleet's deliveries exceed the weeks' average value. The 2021 season saw gillnetters set record-low values in SW#27 and SW#39. Since 1990, the FMP has yielded about 25% of the gillnet fleet's average annual earnings, and, in several seasons, FMP deliveries accounted for more than 50% of the fleet's annual earnings. From 1990 through 2010, the FMP made up nearly 36% of the gillnet fleet's average annual earnings. More recently, however, from 2011 through 2021, an average of less than 17% of the gillnet fishery's total season value was delivered during the FMP; over the last five seasons (2017—2021), it declined to only 13%. For the 2021 season, FMP deliveries were valued at $161,535, which accounted for less than 14% of the value of the gillnetters' season and was only 50% of the period's 10-year average.

Chum salmon made up nearly 66% of the gillnet fleet's earnings in 2021 while accounting for 34% of the salmon delivered by the fleet during the season. Pink salmon made up nearly 58% of the gillnet catch and added less than 16% of the gillnet fishery's value for the season. Coho accounted for about six percent of the gillnet season's catch and 12% of the fleet's season value. A little more than one percent of the gillnet harvest came from sockeye salmon, which represented less than three percent of the 2021 gillnet fishery's ex-vessel value. King salmon, which accounted for only 0.3% of the total gillnet harvest, added more than three percent of the 2021 gillnet season's value. Over the previous 10 seasons (2011—2020), 53% of an average gillnet season's total harvest has been comprised of pink salmon, with chum making up about 39%. Over the same period, chum accounted for about 63% of the value of an average gillnet season, while pinks have added about 19%, and coho have made up about 13%. In combination, sockeye and king salmon have made up less than two percent of an average gillnet season's harvest (2011—2020) and about five percent of an average season's value.

Fifty-six gillnet vessels made at least one delivery during the 2021 season while, at peak participation, 47 vessels fished in SW#30. An average week saw fewer than 26 vessels fishing (Table 12), which was about 18 vessels fewer than the 10-year average of 43 vessels. Average vessel participation was greatest during the Summer Management Period (SW#30 – SW#35) when an average of 33 vessels made deliveries per opening. Vessel participation was at its least during the ESMP when an average of only 21 vessels made deliveries each week, more than 21 vessels fewer than the 10-year average (2011—2020) of 42 vessels.

An average gillnet vessel would have expected to earn $36,825 by fishing each of the 16 weeks the season was open for gillnetting, which was 103% of average earnings over the previous 10 seasons. Nearly 41% of an average gillnetter's 2021 season

earnings was delivered during the SMP, while the ESMP accounted for about 40% and the FMP added about 19%. In an average season (2011—2020), the ESMP has accounted for an average of 41% of gillnetters' earnings, the SMP has added about 37%, and the FMP has made up nearly 22%. For the 2021 season, gillnetters made an average of $1,571 per boat-day fished, which was about 129% of the 10-year average. The SMP saw gillnetters average about $2,025 per boat-day fished, which was, by far, the most cost-effective period of the 2021 season.

The gillnet fishery was open for 65 days in 2021, or nearly one day less than in an average season over the previous 10 seasons, and nearly five days fewer than the average since 1984. The 2021 gillnet fishery was open three fewer days in the ESMP than the 10-year average schedule for the period, four more days than in an average SMP (2011–2020), and one day less than the average number of days in the FMP. In terms of number of days open, the 2021 gillnet schedule ranked 26th among the 38 seasons for which data exists. Weekly fishing schedules during the 2021 season's FMP were constrained by the poor fall chum catches that have been observed in recent seasons, including the 2021 season. In addition, the FMB was cognizant of continuing concerns for local fall chum escapement, which had been well below both average escapement and escapement goals over most of the previous decade.

Table 12. Effort and earnings data from the 2021 season's gillnet fishery, comparing 2021 results with average over the previous 10 seasons (2011–2020), as well as with average since 1984.

		Management Period			
		ESMP	SMP	FMP	Total
Days Open	2021	18	30	17	65
	10-Yr. Avg.	21	26	18	66
	All-Yr. Avg.	21	27	22	70
Average Fleet Size	2021	20.8	33.3	27.0	25.6
	10-Yr. Avg.	42.4	49.2	35.6	42.6
	All-Yr. Avg.	34.8	41.8	35.9	37.7
Boat-Days Fished	2021	246.50	376.50	136.00	759.00
	10-Yr. Avg.	549.82	606.32	308.46	1,464.60
	All-Yr. Avg.	445.88	630.68	381.55	1,458.11
Ex-Vessel Value	2021	$499,273	$531,886	$161,535	$1,192,694
	10-Yr. Avg.	$819,821	$722,510	$320,721	$1,863,052
	All-Yr. Avg.	$453,347	$496,196	$329,114	$1,344,028
Average Vessel Earnings	2021	$14,769	$15,040	$5,240	$36,825
	10-Yr. Avg.	$14,750	$13,267	$7,745	$35,763
	All-Yr. Avg.	$10,171	$10,815	$8,645	$29,135

In evaluating the 2021 gillnet season, it is important to understand that local hatcheries' production of summer chum salmon, in particular, has substantially altered the gillnet fleet's choice of mesh size, most especially during the first third of the season. Discussions with fishermen suggest that most gillnetters are using larger-mesh gear (5-1/2 inches or larger) in order to take advantage of early season chum. Through the 1990s, most gillnetters used smaller-mesh gear, targeting sockeye salmon during the ESMP and pink salmon during the SMP, switching to larger-mesh nets during the FMP. That observation seems to be supported by harvest data since the early 2000s, as summer chum have dominated early season harvests during that period, with corresponding reductions in sockeye catches (as discussed earlier). Further, anecdotal reports suggest that the larger gear is now being used throughout the season by many gillnetters.

Chum Salmon— The 74,286 chum salmon caught by the gillnet fleet during the 2021 season ranked 31st among the 38 seasons these records have been maintained by the Community (Figure 12). In the previous 10 seasons (2011–2020), chum salmon accounted for an average of about 39% of the gillnet fleet's annual harvest, while for the 2021 season, chum accounted for 34%. The fleet's 2021 chum harvest was about 40% of the fleet's 10-year average, and only 59% of the 37-year average (1984—2020). The fleet's chum catches were below the 10-year average in all 16 weeks of the 2021 gillnet season (Table 13 and Figure 13). In fact, only SW#29 saw the gillnet fleet's chum catches reach 60% of each week's 10-year average. The 2021 gillnet season saw record-low chum catches recorded in SW#26 and SW#27.

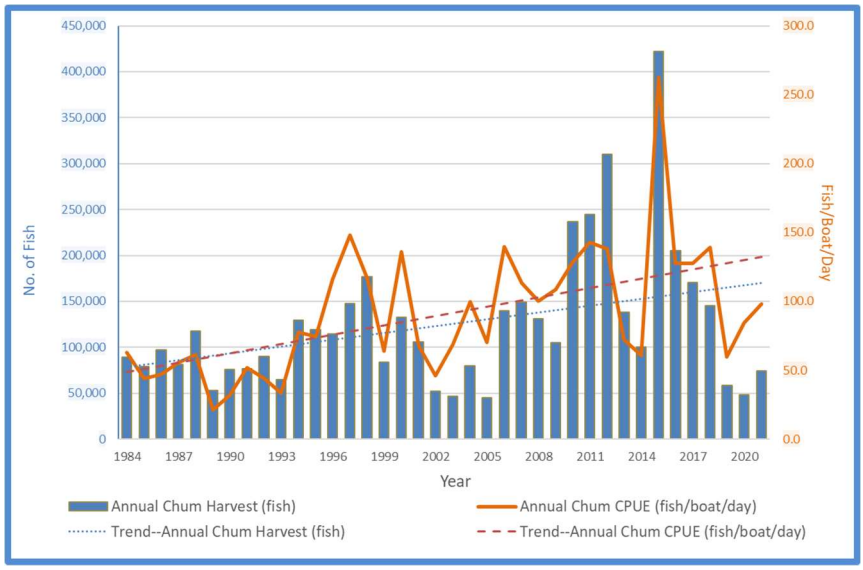

Figure 12. The Annette Islands Reserve gillnet fleet's chum harvest and season catch-per-unit-effort (CPUE) from 1984 to 2021, illustrating the trend for both. The total chum catch is reflected in the bars and refers to the blue scale on the left. CPUE is denoted by the orange line and refers to the scale on the right.

Chum catches peaked for the gillnet fleet in SW#29, which was consistent with the average timing of the chum peaks (10- and 37-year average). The fleet's chum CPUE peaked in SW#28 (189 fish/boat/day), which was also consistent with average timing. The gillnet fleet caught chum at the rate of 98 fish/boat/day during the 2021 season, which was 81% of the 10-year average but 108% of the 37-year average.

Deliveries during the ESMP accounted for 51% of the chum harvested by the gillnet fleet in 2021, which is equal to the average percentage of an annual harvest that the ESMP comprises in a season (2011—2020). Nearly 99% of the chum harvested during the 2021 season's five-week ESMP were harvested during the final two weeks of the period, SW#28 and SW#29. However, even in those weeks, chum deliveries were only 61% of the combined average catch of those weeks over the previous 10 seasons.

As seen in Table 13, the gillnet fleet's chum deliveries were well below the 10-year average in every week of the six-week SMP (SW#30–SW#35). Chum deliveries during the SMP (29,912) accounted for about 43% of the 2021 gillnet season's total chum harvest, while, in an average season (2011–2020), about 40% of a season's chum harvest has been caught during the SMP. However, that harvest was less than 44% of

Table 13. The gillnet fleet's chum salmon catch and catch-per-unit-effort (CPUE) in 2021, by statistical week and management period, compared with the fleet's average chum catch and CPUE over the previous 10 seasons (2011–2020), and over the previous 37 seasons (1984–2020).

		CATCH			CPUE		
Mgmt. Period	Stat Week	2021	10-Yr Avg (2011-2020)	All-Yr Avg (1984-2020)	2021	10-Yr Avg (2011-2020)	All-Yr Avg (1984-2020)
ESMP	24		259	410		21.9	19.8
	25	67	3,648	2,153	11.2	60.5	44.8
	26	105	13,513	5,842	7.9	105.8	62.7
	27	334	15,569	9,485	27.3	118.4	92.9
	28	15,925	27,909	15,465	189.0	180.4	121.5
	29	21,143	32,608	16,578	161.7	203.5	127.8
	Total	37,574	93,402	49,261	152.4	160.3	107.7
SMP	30	13,624	26,003	14,925	129.1	169.7	118.5
	31	7,089	21,299	11,249	87.0	144.9	99.2
	32	3,712	9,902	5,622	70.0	96.7	65.7
	33	2,802	5,657	3,770	58.7	66.1	46.1
	34	2,504	4,316	3,691	55.6	58.5	50.3
	35	2,128	6,045	6,475	48.6	77.6	77.1
	Total	31,859	73,222	45,633	84.6	116.8	82.7
FMP	36	2,003	7,648	9,223	62.1	98.3	113.5
	37	1,061	4,424	9,705	35.4	59.5	112.8
	38	1,479	2,828	7,145	33.6	38.6	83.7
	39	220	2,059	3,960	11.3	27.0	51.5
	40	90	815	1,747	8.8	13.5	25.4
	41		316	538		9.7	12.5
	42			159			4.7
	Total	4,853	17,646	31,094	35.7	49.8	79.3
Season Total		74,286	184,269	125,988	97.9	121.6	90.4

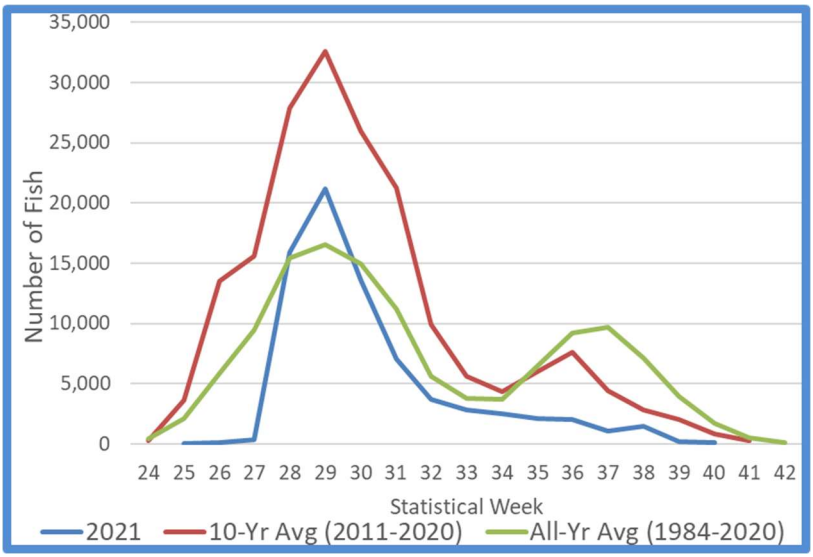

Figure 13. The Annette Islands Reserve 2021 chum salmon harvest by the gillnet fleet, by statistical week, compared to the average chum harvest, by statistical week, over the previous 10 seasons (2011–2020) and the previous 37 years (1984–2020).

the 10-year average for the SMP (73,222). More than 65% of the chum harvested during the SMP were harvested in the first two weeks of the period (SW#30 and SW#31). During the 2021 SMP, chum were caught at the rate of 85 fish/boat/day, about 72% of the SMP's 10-year average chum CPUE. The peak chum CPUE for the SMP, 120 fish/boat/day, was achieved in the first week of the period, SW#30, and was 76% of the 10-year average for the week, 170 fish/boat/day (Figure 14).

Only 4,853 chum were harvested during the 2021 gillnet season's FMP, which was less than 28% of the fleet's average chum harvest during the FMP over the previous 10 seasons (2011—2020). It was the fourth fewest chum ever delivered by Reserve gillnetters during the FMP. In fact, the last three seasons (2019, 2020, and 2021) have seen the gillnetters deliver three of the four fewest chum in the FMP in the fishery's 38 seasons. Looking only at the gillnet fleet's average (2011–2020) weekly chum harvest during the FMP (SW#36 to season closure), the period's peak chum deliveries have typically occurred in SW#36, which is also when the peak

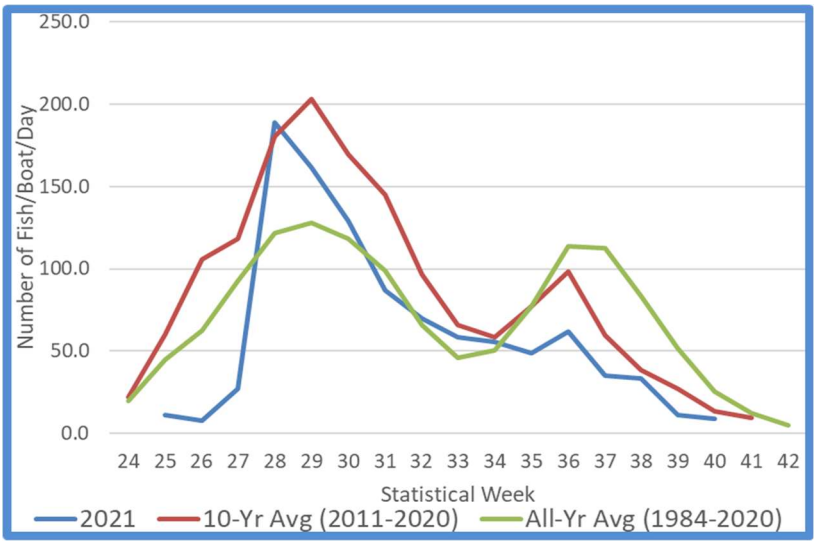

Figure 14. The Annette Islands Reserve 2021 chum salmon catch-per-unit-effort (CPUE, measured in fish/boat/day) by the gillnet fleet, by statistical week, compared to average chum CPUE over the previous 10 seasons (2011–2020) and over the previous 37 seasons (1984–2020).

occurred in 2021, although that week's gillnet chum deliveries were only 26% of the 10-year average. In total, less than seven percent of the gillnet season's chum harvest was delivered during the FMP. Over the previous 10 seasons, about 10% of the gillnet fleet's average chum harvest has been delivered during the FMP, while the average since 1984 is nearly 25%.

The FMP's peak gillnet chum CPUE was achieved in the first week of the FMP (SW#36), which is consistent with the average timing of the peak chum catch rates during the FMP. However, even in that week, gillnetters were able to harvest only 62 chum per boat per day, which was only 63% of the week's 10-year average, and only 55% of the 37-year average. In fact, the gillnet fleet's chum CPUE was well below average in every week of the 2021 season's five-week FMP.

Pink Salmon—Pink salmon accounted for more than 58% of the season's gillnet harvest, and nearly 16% of that fishery's value. Since 1984, there have been only six seasons when the gillnet fleet harvested fewer pink salmon than the 127,147 that were delivered in 2021 (Figure 15), the most recent occurring in 2020. The gillnetters' 2021 pink harvest was only 51% of the 10-year average (251,424), or about 41% of the fleet's 37-year average (313,370). The gillnet fleet's pink salmon harvest was below the 10 year-average in every week of the season, except for SW#29, when the weeks pink catch was 101% of average. The fleet's pink catch was less than 50% of average in all but six weeks of the 16-week 2021 season (Table 14 and Figure 16).

The gillnet fleet's peak pink salmon deliveries occurred in SW#29, which was about four weeks earlier than the average peak over the previous 10 seasons (SW#33) and about five weeks earlier than the average peak since 1984 (SW#34). While the fleet's peak pink salmon catches typically occur in either SW#33, or SW#34, in 2021, gillnet pink salmon deliveries were only 33% of the 10-year average pink harvest in those two weeks. A record-low pink harvest was recorded in SW#27.

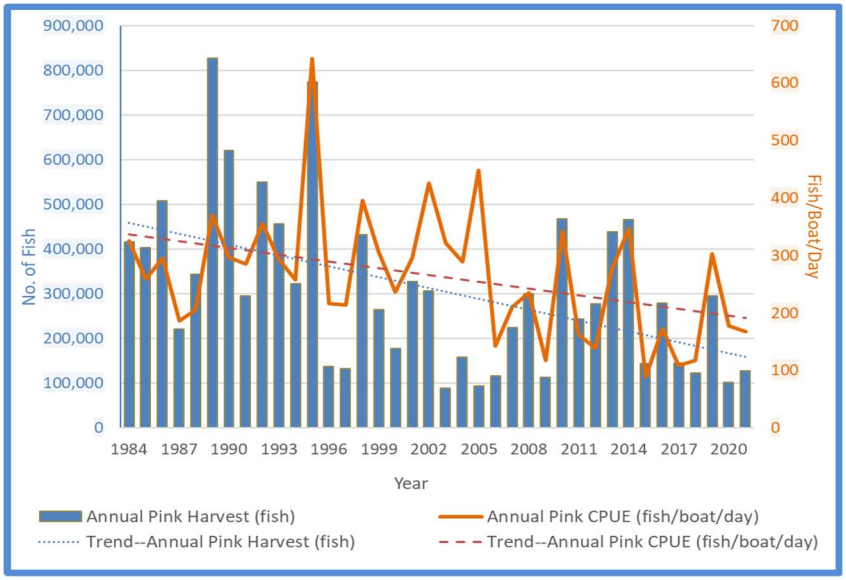

Figure 15. The Annette Islands Reserve gillnet fleet's pink salmon harvest and season catch-per-unit-effort (CPUE, in fish/boat/day) from 1984 to 2021, illustrating the trend for both. The total pink catch is reflected in the bars and refers to the blue scale on the left. CPUE is denoted by the orange line and refers to the scale on the right.

In many seasons, there are actually two peaks in the annual pink salmon harvest, with a smaller peak often occurring prior to the season's largest peak (Figure 16). Over the previous 10 seasons, the average first peak has typically occurred in SW#31, with the larger peak occurring in SW#33, or SW#34. In 2021, the gillnetters pink catch peaked only once, in SW#29, after which the fleet's pink catches declined for the rest of the seasons.

Table 14. The gillnet fleet's pink salmon catch and catch-per-unit-effort (CPUE) in 2021, by statistical week and management period, compared with the fleet's average pink catch and CPUE over the previous 10 seasons (2011–2020), and over the previous 37 years (1984–2020).

		Catch			Catch-per-unit-effort		
Mgmt. Period	Stat Week	2021	10-Yr Avg (2011-2020)	All-Yr Avg (1984-2020)	2021	10-Yr Avg (2011-2020)	All-Yr Avg (1984-2020)
ESMP	24		4	2		0.3	0.3
	25	0	133	249	0.0	4.0	8.7
	26	98	1,614	2,813	7.4	17.0	41.1
	27	550	11,352	12,292	44.9	94.6	126.7
	28	13,156	21,881	26,146	156.2	160.2	211.7
	29	24,294	24,043	28,975	185.8	170.1	225.0
	Total	38,098	59,025	70,478	154.6	121.7	162.7
SMP	30	21,753	28,195	29,263	206.2	203.5	235.0
	31	14,948	36,156	37,356	183.4	279.0	308.2
	32	12,958	29,538	42,050	244.5	318.4	396.5
	33	11,891	42,235	47,320	249.0	404.7	434.1
	34	12,303	32,162	47,838	273.4	364.8	458.0
	35	10,060	16,828	32,105	229.9	246.4	315.2
	Total	83,913	185,114	235,934	222.9	299.8	360.9
FMP	36	4,679	6,451	15,771	145.1	81.4	162.8
	37	429	770	855	14.3	12.1	11.8
	38	28	174	136	0.6	2.2	1.9
	39	0	7	18	0.0	0.1	0.2
	Total	5,136	7,402	16,779	37.8	33.9	132.2
Season Total		127,147	251,542	323,190	167.5	189.7	266.9

For the season, the gillnet fleet caught pink salmon at the rate of 168 fish/boat/day, which was 88% of the 10-year average (190 fish/boat/day), or about 63% of the 37-year average (Figure 17). The fleet's 2021 pink salmon CPUE ranked 31st out of the 38 seasons for which data exists. Gillnetters' pink salmon CPUE peaked in SW#34, when pinks were harvested at the rate of 273 fish/boat/day, which was only 75% of the 10-year average for that week. The fleet's pink salmon CPUE

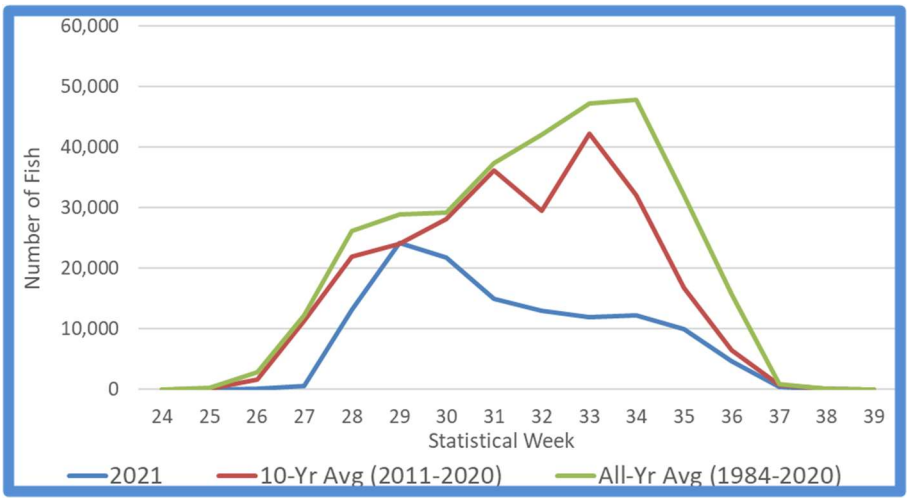

Figure 16. Gillnet pink salmon harvest, by week, in 2021, compared to average harvest over the previous 10 seasons (2011–2020), and average over the previous 37 seasons (1984–2020)..

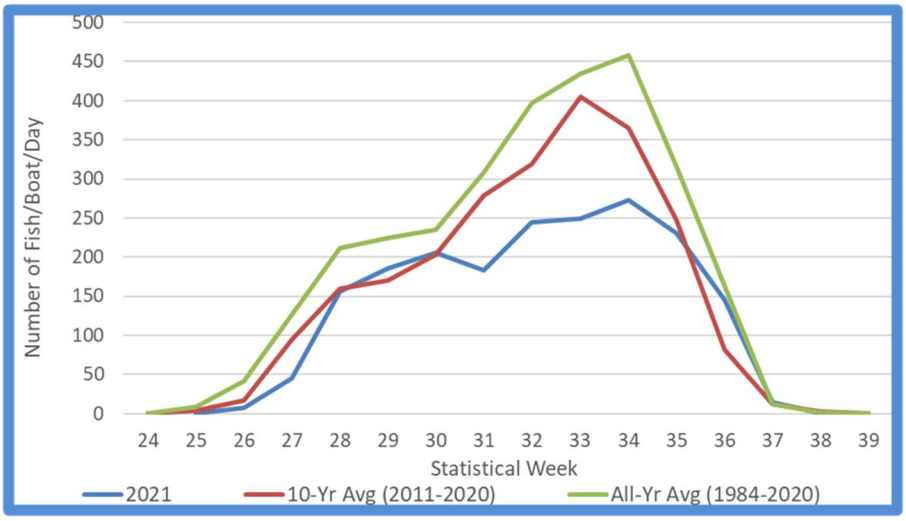

Figure 17. Gillnet pink salmon catch-per-unit-effort (CPUE) by statistical week, in 2021, compared with average pink CPUE over the previous 10 seasons (2011–2020) and the previous 37 seasons (1984–2020).

was below the 10-year average in 12 of the 16-week gillnet season, and was below the 37-year average in every week of the 2021 season.

About 30% of the pink salmon delivered by the gillnet fleet in 2021 were delivered during the ESMP (SW#25–SW#29). Over the previous 10 seasons, the ESMP has accounted for less than 24% of the gillnetters' pink catch. The fleet's pink salmon deliveries were well below both the 10-year and 37-year averages during the first four weeks of the season, before rising to slightly above average (101%) in SW#29. More than 74% of the gillnetters' ESMP pink catch was taken in SW#29. In total, the gillnet fleet harvested 38,098 pink salmon during the 2021 season's ESMP, which was less than 65% of the period's 10-year average, and 55% of the 37-year average.

Similar to the gillnet fleet's ESMP pink catch, the first three weeks of the 2021 season saw the fleet's pink salmon CPUE fall well short of average values, but substantially increasing in SW#28, the fourth week of the season. In SW#29, the final week of the ESMP, gillnetters' pink CPUE increased to 186 fish/boat/day, which was 109% of the 10-year average., but less than 83% of the 37-year average. For the period, gillnetters caught pink salmon at the rate of nearly 155 fish/boat/day, which was 127% of the 10-year average for the period, and 95% of the 37-year average. Although the gillnet fleet's ESMP pink CPUE was greater than the 10-year average, pink salmon deliveries

were well below average, a development that can be explained by the reduced effort observed during the 2021 season's ESMP. Only 45% of the boat-days that have been averaged over the previous 10 seasons were fished during the 2021 ESMP.

Sixty-six percent of the pink salmon harvested by the gillnetters' during the 2021 season were delivered during the Summer Management Period (SMP), while over the previous 10 seasons, about 74% of gillnetters' pink salmon catch has been delivered during the SMP. The 83,913 pink salmon harvested by the gillnet fleet during the SMP was only 45% of the 10-year average for the period, and only 36% of the 37-year average. The gillnet fleet caught pink salmon at the rate of 223 fish/boat/day during the SMP, which was 74% of the gillnetters' average SMP pink CPUE since 2011. The fleet's peak pink salmon catches for the season occurred in the last week of the ESMP (SW#29), rather than in SW#33, the fourth week of the SMP, which is the average peak of the gillnetters' pink catches (2011—2020). The gillnetters' peak catches during the SMP were in SW#30, the first week of the period, but the 21,753 pinks the fleet delivered in that week was only 77% of the 10-year average. The fleet's peak pink salmon CPUE, at 264 fish/boat/day, occurred in SW#34, which is about one week later than the 10-year average, but was only 75% of the average (2011—2020) pink CPUE for the week.

The gillnet fleet's pink salmon catches typically decline rapidly during the Fall Management Period (FMP), the period from SW#36 to season closure. In 2021, the rapid decline began following SW#35, as the fleet delivered only 4,679 pink salmon in SW#36, or less than 73% of the week's 10-year average. During the FMP, the gillnet fleet is normally required to use nets with 5-1/2" mesh, or larger, the intent being to reduce the fishery's impact on local pink salmon escapement. Over the previous 10 seasons, an average of less than three percent of gillnetters' pink salmon harvest has been delivered during the FMP. The gillnet fleet's FMP pink salmon harvest accounted for four percent of the gillnet fleet's total pink salmon harvest in 2021. For the period, the gillnet fleet delivered only 71 percent of the pink salmon it has harvested in an average FMP (2011—2020). The fleet's pink salmon CPUE was 38 fish/boat/day during the FMP, while over the previous 10 seasons, it has averaged about 34 pinks/boat/day, or an average of 132 pinks/boat/day when averaged over the previous 37 seasons.

Sockeye Salmon—The gillnet fleet harvested 2,950 sockeye during the 2021 season, the fourth fewest the fleet has harvested in the 38 years these records have been maintained (Figure 18 and Table 15). The gillnet fleet's four poorest sockeye harvests have come in the last four seasons. Seven of the gillnet fleet's nine poorest sockeye harvests have occurred in the last seven seasons. The fleet's 2021 sockeye harvest was only 41% of the average sockeye harvest since 2011, and only 14% of the average harvest over the previous 37 seasons.

As previously reported, sockeye catches, in general, have declined quite significantly since the 1990s, but that is especially true, and, perhaps, exclusively so, for the gillnet fleet. During the period from 1984 through the 1997 season, sockeye comprised an average of seven percent of the gillnet fleet's annual harvest. However, in the years following the 1997 season, sockeye have comprised an average of only two percent of

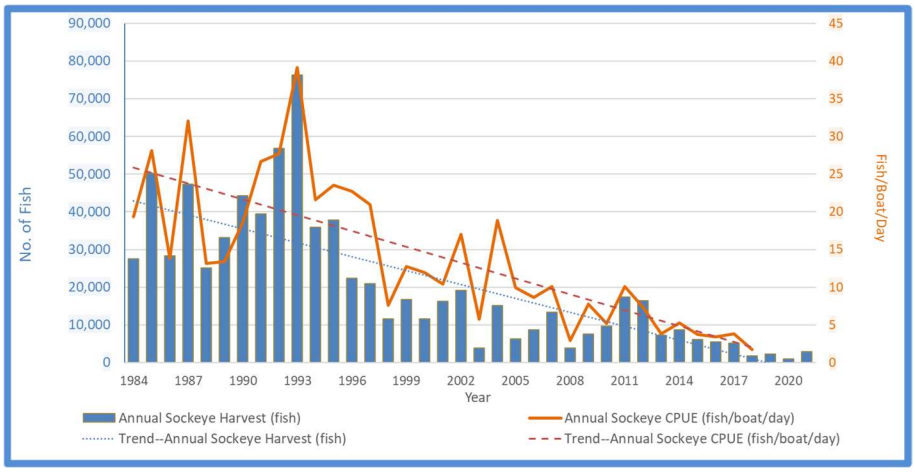

Figure 18. The Annette Islands Reserve gillnet fleet's sockeye harvest and season catch-per-unit-effort (CPUE) from 1984 to 2021, illustrating the trend for both. The total sockeye catch is reflected in the bars and refers to the blue scale on the left. CPUE is denoted by the orange line and refers to the scale on the right.

Table 15. The gillnet fleet's sockeye salmon catch and catch-per-unit-effort (CPUE) in 2021, by statistical week and management period, compared with the fleet's average sockeye catch and CPUE over the previous 10 seasons (2011–2020), and over the previous 37 years (1984–2020).

		CATCH			CPUE		
Mgmt. Period	Stat Week	2021	10-Yr Avg (2011-2020)	All-Yr Avg (1984-2020)	2021	10-Yr Avg (2011-2020)	All-Yr Avg (1984-2020)
ESMP	24		68	61		5.0	4.5
	25	0	347	457	0.0	5.8	13.2
	26	13	720	1,407	1.0	6.2	22.1
	27	2	849	2,074	0.2	6.6	22.3
	28	142	1,191	2,860	1.7	6.9	22.3
	29	262	938	3,238	2.0	5.8	25.1
	Total	419	4,085	9,971	1.7	6.5	23.1
SMP	30	319	1,040	3,327	3.0	6.6	25.5
	31	339	725	2,740	4.2	5.3	21.7
	32	385	403	1,894	7.3	4.4	17.4
	33	550	357	1,220	11.5	4.1	11.5
	34	346	269	826	7.7	3.9	8.0
	35	439	157	434	10.0	2.8	5.2
	Total	2,378	2,952	10,419	6.3	4.6	16.0
FMP	36	105	53	112	3.3	1.0	1.6
	37	34	44	44	1.1	0.6	0.6
	38	14	12	13	0.3	0.2	0.2
	39	0	2	2	0.0	0.0	0.0
	40	0	0	1	0.0	0.0	0.0
	Total	153	112	170	1.1	0.4	0.5
Season Total		2,950	7,149	20,560	3.9	4.3	13.3

the gillnet catch, and still more recently, from 2008 through 2021, sockeye have averaged less than 1.5% of the annual gillnet harvest. Sockeye made up about 1.3% of the gillnetters' catch in 2021 and accounted for less than three percent of the fleet's total earnings from the 2021 season. Sockeye were also the least valuable of the five salmon species to the gillnetters' 2021 season value.

Sockeye catches were well below the 10- and 37-year average during the first seven weeks of the 2021 gillnet season. The fleet's sockeye catches increased to near, or greater than the 10-year average from SW#32 through SW#36, before falling below average again in SW#37, by which time sockeye catches normally decline very rapidly. The 2021 season's sockeye deliveries peaked in SW#33, when the fleet delivered 550 sockeye, which was about 154% of the gillnetters' 10-year average sockeye catch in the week, but was only 45% of the 37-year average. A record-low sockeye harvest was established by the gillnet fleet in SW#27 (Figure 19).

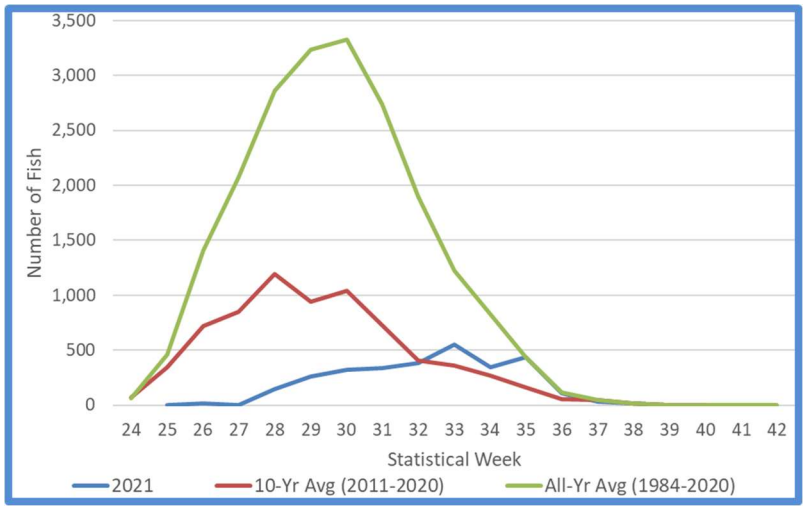

Figure 19. Gillnet sockeye salmon harvest, by week, in 2021, compared to average harvest over the previous 10 seasons (2011–2021), and the previous 37 seasons (1984–2020).

For the 2021 season, the gillnet fleet harvested sockeye at the rate of less than four fish/boat/day, which was 90% of the 10-year average, but only 29% of the 37-year average sockeye CPUE. The gillnetters' 2021 season sockeye CPUE ranked 30th out of the 38 seasons these records have been maintained. The gillnet fleet's sockeye CPUE was below average for the first seven weeks of the 2021 season (SW#25—SW#31). Then, in SW#32, and for the next six weeks (SW#32—SW#38), sockeye CPUE was well above average (Figure 20). The gillnet fleet's 2021 sockeye CPUE peaked in SW#33 when sockeye were harvested at the rate of nearly 12 fish/boat/day. Over the previous 10 seasons, the fleet's average peak sockeye CPUE has occurred in SW#28, while, on average, over the previous 37 seasons, the fleet's peak sockeye CPUE has occurred in SW#30.

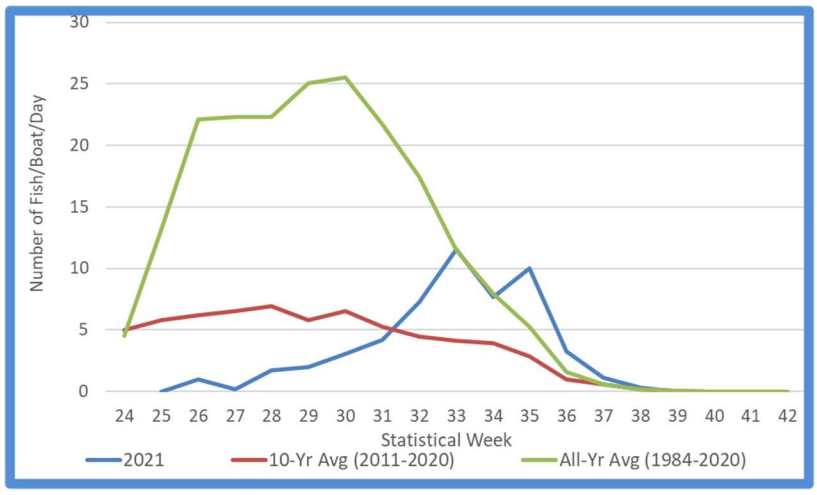

Figure 20. Gillnet sockeye salmon catch-per-unit-effort (CPUE) by statistical week, in 2021, compared with average sockeye CPUE over the previous 10 years (2011–2020) and the previous 37 years (1984–2020).

Over the previous 10 seasons (2011—2020), the ESMP has accounted for about 57% of the gillnet fleet's total sockeye catch. Averaged over the previous 37 seasons, the ESMP has added about 49% of the gillnetters' sockeye catch. In 2021, however, only 14% of the gillnet fleet's sockeye harvest was delivered during the ESMP. The fleet delivered only 419 sockeye during the 2021 ESMP, or 10% of the gillnetters' average sockeye harvest in that management period since 2011 and only four percent of the average since 1984. The gillnet fleet caught sockeye at the rate of less than two fish/boat/day during the ESMP, or 26% of the 10-year average, and seven percent of the 37-year average for the management period. It was the second lowest sockeye CPUE the gillnet fleet has ever recorded during the

ESMP. The fleet's sockeye CPUE was below average in every week of the ESMP. Only in the final week of the period, SW#29, did the fleet's sockeye CPUE exceed even 30% of the 10-year average, and no week of the ESMP saw sockeye CPUE reach as high as 10% of the 37-year average (Figure 20).

Nearly 81% of the gillnet fleet's 2021 sockeye catch was delivered during the Summer Management Period (SMP), the largest share of a gillnet season's sockeye harvest the SMP has ever contributed. Over the previous 10 seasons, an average of about 41% of the gillnet season's sockeye harvest has been taken during the SMP, and over the previous 37 seasons, the period has yielded an average of 51% of that catch. The fleet's 2021 SMP sockeye harvest was 81% of the period's 10-year average sockeye harvest (2011—2020), but less than 23% of the average since 1984 (1984—2020). During the 2021 SMP, gillnetters caught sockeye at the rate of more than six fish/boat/day, the highest sockeye CPUE recorded for the management period since 2011, and 136% of the 10-year average for the SMP, or 40% of the 37-year average.

Gillnetters delivered 153 sockeye during the 2021 season's FMP, the most delivered in the period since 2016. However, the FMP rarely sees many sockeye harvested, averaging only 112 fish for the period since 2011, or, about 170 fish when averaged over the previous 37 seasons. By the FMP, the gillnet fleet's sockeye CPUE is normally reduced to less than one fish/boat/day. During the 2021 season's FMP, the gillnet fleet caught sockeye at the rate of slightly more than one fish/boat/day, which was greater than both the 10- and 37-year average, but involved only a very small number of fish.

Coho Salmon—Coho salmon have been an important part of the Reserve's fall fishery for many years, and that's especially true for the gillnet fleet (Figure 21 and Table 16). Since 1984, an average of nearly 80% of the coho salmon that have been caught on the Reserve have been caught by the gillnet fleet, and nearly 83% of those coho were caught during the FMP (SW#36 to season closure). For the 2021 season, the gillnet fleet delivered only 14,112 coho, which was only 49% of the 10-year average, and less than 44% of the 37-year average. It was the sixth fewest coho the fleet has ever caught for a season. Only 59% of the gillnet fleet's 2021 season coho harvest was delivered during the FMP.

Coho salmon made up six percent of the 2021 season's gillnet harvest. Over the previous 10 seasons (2011—2020), coho have accounted for an average of about six percent of the fleet's annual salmon harvest, while over the previous 37 seasons, coho have made up about seven percent of the gillnetters' annual harvest. The fleet's Coho catches peaked in SW#38, but only 3,463 were delivered, which was less than 67% of the 10-year average for the week. On average (10- and 37-year), the fleet's peak coho catches have occurred in SW#39. After peaking in SW#38, coho catches declined substantially in SW#39, with less than 15% of the 10-year average coho catch being delivered in that week (Figure 22).

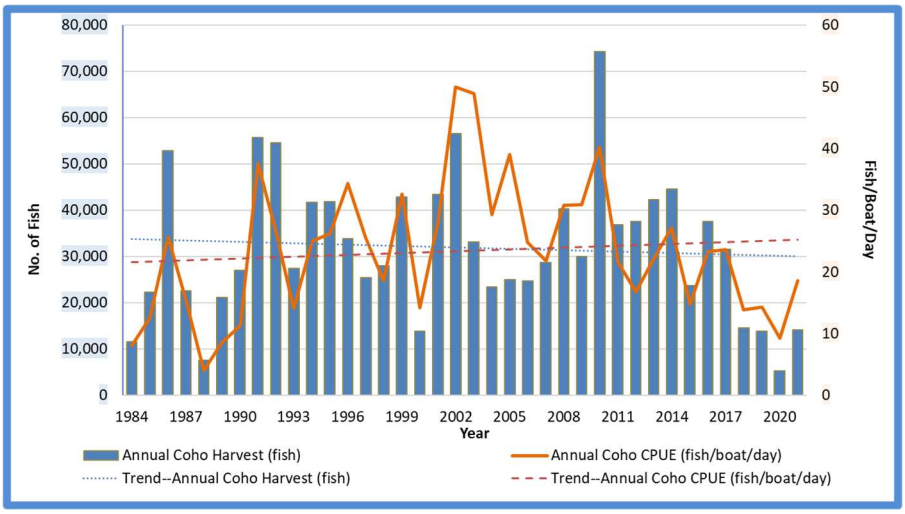

Figure 21. The Annette Islands Reserve gillnet fleet's coho harvest and season catch-per-unit-effort (CPUE) from 1984 to 2021, illustrating the trend for both. The total coho catch is reflected in the bars and refers to the blue scale on the left. CPUE is denoted by the orange line and refers to the scale on the right.

Table 16. The gillnet fleet's coho salmon catch and catch-per-unit-effort (CPUE) in 2021, by statistical week and management period, compared with the fleet's average coho catch and CPUE over the previous 10 seasons (2011–2020), and over the previous 37 years (1984–2020).

		CATCH			CPUE		
Mgmt. Period	Stat Week	2021	10-Yr Avg (2011-2020)	All-Yr Avg (1984-2020)	2021	10-Yr Avg (2011-2020)	All-Yr Avg (1984-2020)
ESMP	24		14	9		1.2	1.0
	25	0	56	66	0.0	1.3	2.6
	26	10	218	222	0.8	2.3	3.3
	27	9	281	430	0.7	2.4	4.7
	28	174	617	519	2.1	3.7	4.2
	29	504	457	479	3.9	2.9	4.0
	Total	697	1,637	1,706	2.8	2.8	6.5
SMP	30	691	455	542	6.5	3.0	4.4
	31	817	536	469	10.0	3.8	4.4
	32	445	314	374	8.4	3.4	4.1
	33	854	430	454	17.9	4.4	5.5
	34	1,161	930	760	25.8	13.0	8.9
	35	1,076	1,531	1,352	24.6	23.0	16.8
	Total	5,044	4,195	3,930	13.4	6.9	6.5
FMP	36	1,397	2,814	2,752	43.3	46.5	38.1
	37	2,065	5,070	5,308	68.8	71.1	62.3
	38	3,463	5,211	5,991	78.7	82.5	74.9
	39	877	6,019	6,779	45.0	90.4	86.7
	40	569	3,782	5,223	55.5	78.8	88.3
	41		1,952	2,816		71.8	76.7
	42			1,728			79.3
	Total	8,371	22,930	26,710	61.6	72.7	68.4
Season Total		14,112	28,762	32,346	18.6	18.7	23.5

Coho were the third most valuable species to the gillnetter's 2021 season, behind pink and chum salmon. In total, coho contributed about 14% of the fleet's 2021 season earnings. In an average season (2011—2020), coho deliveries have been valued at $238,254, or about 13% of an average gillnet season's value.

For the 2021 season, the gillnet fleet caught coho at a rate of nearly 19 fish/boat/day, which was roughly equal to the 10-year average (19 fish/boat/day). The gillnetters' 2021 season coho CPUE ranked 24th out of the 38 years for which data exists. Coho CPUE peaked in SW#38, when coho were harvested at a rate of nearly 79 fish/boat/day (Figure 23). The fleet's coho CPUE typically peaks in SW#39, with peak coho CPUE averaging about 90 fish/boat/day (2011–2020).

The 2021 season's ESMP saw 697 coho delivered by the gillnet fleet, or about 49% of

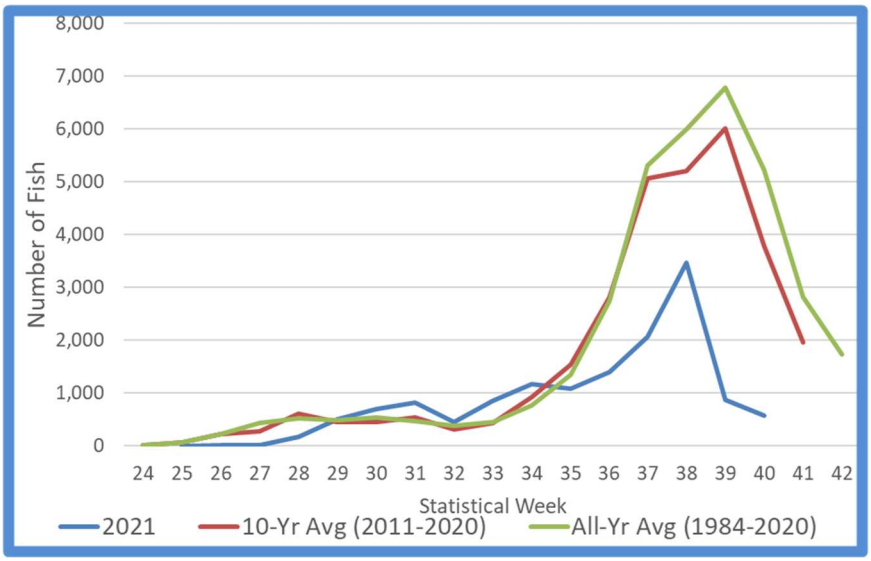

Figure 22. Gillnet coho salmon catch, by statistical week, in 2021, compared with the average coho catch over the previous 10 years (2011–2020) and the previous 37 years (1984–2020).

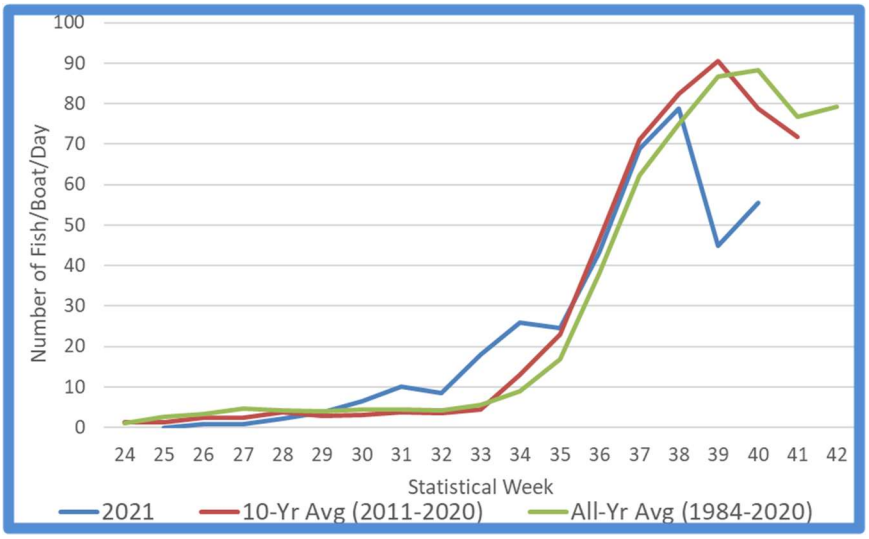

Figure 23. Gillnet coho salmon catch-per-unit-effort (CPUE) by statistical week, in 2021, compared with average coho CPUE over the previous 10 years (2011–2020) and the previous 37 years (1984–2020).

the fleet's 10-year average coho harvest during that period, and accounting for about five percent of the gillnetters' total coho catch for the 2021 season. In an average season (2011—2020), the coho harvested during the ESMP have made up about six percent of the gillnetters' total coho catch. A record-low coho catch was recorded by the gillnet fleet in SW#27, when the fleet delivered only nine coho. The fleet caught coho at the rate of less than three fish/boat/day during the ESMP, which was approximately equal to the 10-year average (2011—2020).

Nearly 36% of the gillnet fleet's coho harvest in 2021 was caught during the SMP, while over the previous 10 seasons, an average of less than 15% of the gillnetters' total coho catch has been taken during that period. The 5,044 coho delivered during the 2021 SMP was 120% of the fleet's average coho harvest during that period (2011—2020). The gillnet fleet's coho catches were above average in five of the SMP's six weeks, with only SW#35 falling below average. The gillnet fleet's coho CPUE was 13 fish/boat/day during the 2021 season's SMP, or about 194% of the 10-year average (2011—2020).

Coho produced by Tamgas Creek Hatchery are usually most abundant during the FMP, and with the severe decline in fall chum catches, hatchery-produced coho have taken on far greater economic importance to the fall fishery. For the 2021 season, nearly 59%

of the coho harvested by the gillnetters were caught during the FMP. Over the previous 10 seasons, the FMP has accounted for an average of about 80% of a gillnet season's total coho catch. That average increases to 83% when considered over the previous 37 years of harvest data. Only 8,371 coho were delivered by the gillnet fleet during the 2021 FMP, the second fewest the fleet has delivered in that management period since 1988. It was less than 37% of the FMP's average coho harvest over the previous 10 seasons (2011—2020). Coho were caught at the rate of less than 62 fish/boat/day during the FMP, which was 85% of the gillnet fleet's average coho CPUE in the FMP since 2011, and ranked 26th since 1984.

King Salmon--King salmon make up a very small part of the gillnet fleet's annual harvest, and that was the case, once again, in 2021, as king salmon comprised only 0.4% of the gillnet fleet's total harvest (Table 17 and Figure 24). The 835 king salmon delivered by the gillnet fleet in 2021 was 82% of the fleet's10-year average (1,019); 102% of the 37-year average (820); and ranked 15th among the 38 seasons these records have been maintained (Figure 25).

Table 17. The gillnet fleet's king salmon harvest, in 2021, by management period and statistical week, compared to the fleet's average king salmon harvest over the previous 10 seasons (2011–2020) and the previous 37 seasons (1984–2020).

		Catch			Catch-per-unit-effort		
Mgmt. Period	Stat Week	2021	10-Yr Avg (2011-2020)	All-Yr Avg (1984-2020)	2021	10-Yr Avg (2011-2020)	All-Yr Avg (1984-2020)
ESMP	24		43	46		4.73	5.17
	25	65	174	153	10.83	5.93	6.38
	26	43	255	186	3.25	3.75	3.91
	27	51	228	182	4.16	2.45	2.38
	28	359	147	142	4.26	1.18	1.41
	29	186	88	87	1.42	0.67	0.81
	Total	704	918	737	2.86	1.85	1.94
SMP	30	96	52	45	0.91	0.38	0.44
	31	21	31	21	0.26	0.23	0.21
	32	4	9	8	0.08	0.10	0.09
	33	10	4	4	0.21	0.05	0.07
	34	0	2	2	0.00	0.02	0.02
	35	0	1	1	0.00	0.03	0.02
	Total	131	99	81	0.35	0.17	0.17
Season Total		835	1,019	820	1.10	0.73	0.66

Despite comprising less than one percent of the fleet's total harvest, king salmon deliveries, which were valued at $39,630, accounted for more than three percent of the gillnet season's value. In terms of the 2021 season's total value, gillnetters' king salmon deliveries, ranked fourth among the five harvested salmon species, exceeding the value of the fleet's sockeye catches.

As usual, the gillnet fleet's king salmon catches were greatest during the early part of the season, with more than 84% of the fleet's 2021 king salmon harvest occurring during the ESMP. However, king salmon catches were below the 10-year average from SW#25 through SW#27, with catches only 24% of the fleet's average catch over that period. Gillnetters' king catches did increase to 244% of average in SW#28, remaining above average for the following two weeks (SW#29 and SW#30). King catches typically decline to minimal levels (<5 per week) after SW#32, as they did in 2021, although 10 kings were delivered in SW#33. The SMP saw nearly 16% of the 2021

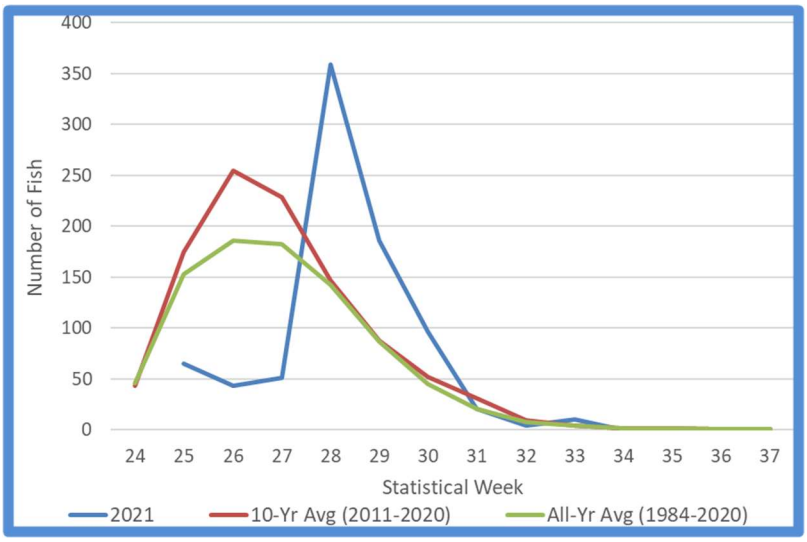

Figure 24. The gillnet fleet's king salmon harvest, by week, in 2021, compared to average harvest over the previous 10 seasons (2011–2020), and average over the previous 37 seasons (1984–2020).

season's total king salmon harvest, with the fleet delivering 131 kings during the period. No gillnet-caught kings were delivered after SW#33. For the 2021 season, the gillnet fleet caught king salmon at the rate of one fish/boat/day, while, in an average season (10- and 37-year), the fleet has harvested kings at the rate of 0.7 fish/boat/day

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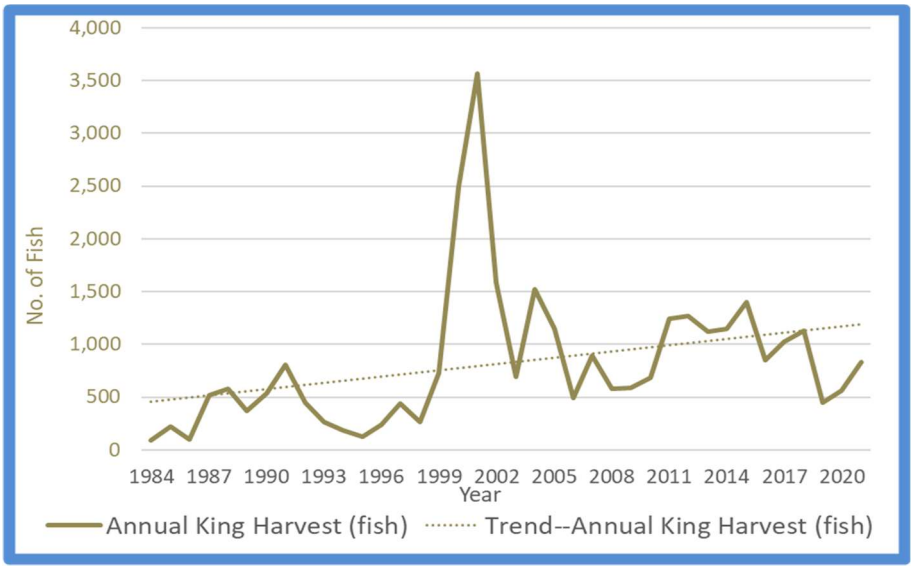

Figure 25. The gillnet fleet's annual king salmon harvest, by season (1984 – 2021).

Purse Seine Fishery

The purse seine fleet had an especially successful 2021 season, harvesting 2,454,200 salmon of all species, the largest harvest the fleet has enjoyed in the 38 years these data have been maintained by the Community. The seiners' 2021 harvest was 258% of the fleet's 10-year average (2011—2020), and 326% of the fleet's average all-species harvest since 1984 (Table 18). The 2021 season was only the second season to see the purse seine fleet deliver more than two million fish in a season, the other occurring

Table 18. The Annette Islands Reserve 2021 purse seine harvest data, compared to the 10-year (2011–2020), and 37-year average (1984–2020). CPUE refers to catch-per-unit-effort and is measured in fish/boat/day.

		Catch			Catch-per-unit-effort		
Mgmt. Period	Stat Week	2021	10-Yr Avg (2011-2020)	All-Yr Avg (1984-2020)	2021	10-Yr Avg (2011-2020)	All-Yr Avg (1984-2020)
ESMP	26		4,703	3,756		536.1	750.8
	27	6,282	11,508	7,419	966.5	1,071.0	1,039.0
	28	41,864	44,740	29,632	2,262.9	2,674.3	2,390.9
	29	273,818	94,816	56,632	8,113.1	4,481.4	3,722.4
	Total	321,964	154,356	90,090	5,480.2	3,060.2	2,669.3
SMP	30	355,352	142,761	83,427	10,080.9	4,812.0	4,514.5
	31	205,734	142,849	90,245	6,658.1	5,064.6	4,762.6
	32	327,323	136,876	130,316	7,701.7	4,703.7	5,759.8
	33	323,447	173,805	148,501	9,111.2	5,366.7	6,084.5
	34	493,672	159,988	127,564	10,393.1	5,049.2	5,567.3
	35	339,962	46,516	77,686	12,034.1	3,694.2	4,429.0
	Total	2,045,490	793,491	642,731	9,301.9	5,185.7	5,432.7
FMP	36	85,894	2,833	20,564	9,543.8	1,552.8	2,715.5
	37		4,576	2,979		1,158.5	579.8
	38	852	956	2,126	852.0	743.5	502.1
	39		427	1,734		397.4	394.3
	40		123	925		98.9	272.8
	41			726			351.2
	42			586			259.9
	Total	86,746	3,116	20,207	8,674.6	663.1	1,067.4
Season Total		2,454,200	950,340	751,936	8,502.3	4,529.7	4,524.1

in 2013 (Figure 26). The 2021 purse seine season included 11 weeks during which openings were scheduled (SW#27 through SW#36 and SW#38). Purse seining was open for only 33 days in 2021, a schedule that ranked 20th among the 38 seasons the Community has retained harvest data. Over the previous 10 seasons, seining was open for an average of 27 days, while over the previous 37 seasons, seining has been open for an average of 34 days.

The purse seine fleet's peak deliveries occurred in SW#34 of the 2021 season, during the SMP, one week later than in an average season (10- and 37-year). The purse seine harvested 493,672 salmon during SW#34, which was the second largest purse seine harvest ever recorded in any week of any season, and only 4,990 fish short of the record-high catch for the week (2013). The SW#34 catch was 309% of the average SW#34 harvest over the previous 10 seasons, and 387% of the 37-year average. Purse seine deliveries were above the 10-year average in eight of the 11 weeks in the seiners' 2021 season, and above the 37-year average in nine of those weeks.

For the 2021 season, the purse seine all-species CPUE was 8,502 fish/boat/day, the highest season all-species CPUE the fleet has ever enjoyed. The fleet's 2021 season all-species CPUE was 188% of both the 10- and 37-year average The seiners' peak all-species catch rate occurred in SW#35 of the 2021 season, when salmon were caught at the rate of 12,034 fish/boat/day, the highest all-species CPUE the fleet has ever recorded in SW#35. The SW#35 all-species CPUE was 326% of the SW#35 10-year average, and 272% of the 37-year average. The average timing of the peak purse seine all-species CPUE (10- and 37-year average) has been SW#33, although SW#34 has also seen the peak in many years. The fleet's all-species CPUE was above the 10- and 37-year average in nine of the seiners' 11-week 2021 season.

The ex-vessel value of the 2021 purse seine fishery was $3.459,958. It was the seiners' second-most valuable season since 1991, and 226% of the fleet's average ex-vessel

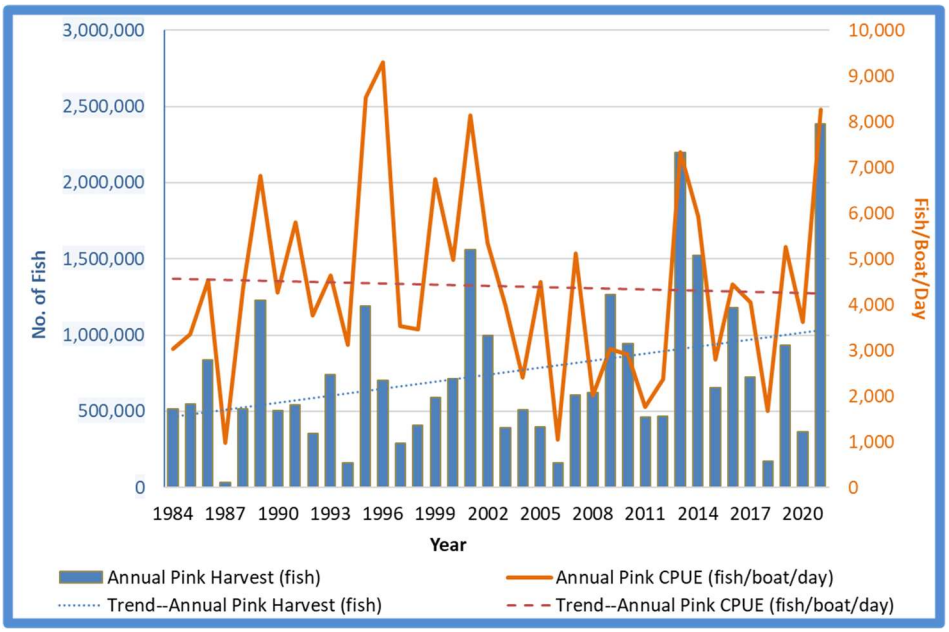

Figure 26. The Annette Islands Reserve purse seine fleet's all-salmon harvest and season catch-per-unit-effort (CPUE) from 1984 to 2021, illustrating the trend for both. The total all-salmon catch is reflected in the bars and refers to the blue scale on the left. CPUE is denoted by the orange line and refers to the scale on the right.

value over the previous 10 seasons (2011—2020). The value of the fleet's deliveries was well above the 10-year average value in eight weeks of the 11-week seine season. The most valuable week of the purse seiners' 2021 season was SW#34, when the fleet delivered salmon valued at $603,217, which was 298% of the average value of deliveries in that week (2011—2020).

Fifteen purse seine vessels fished during the 2021 season, five more than in 2020. An average of 11 vessels made deliveries each week (Table 19), about one vessel more than the average over the previous 10 seasons. Over the previous 10 seasons, average peak fleet size has been 15 vessels, with an average of nearly 10 vessels making deliveries each week. For the season, the purse seine fleet fished a total of 289 boat-days, or 149% of the fleet's average effort over the previous 10 seasons, and 182% of the 37-year average.

Table 19. Effort and earnings data from the 2021 season's purse seine fishery, by management period, comparing 2021 results with average over the previous 10 seasons (2011–2020), as well as with average since 1984 (1984—2020).

		Management Period			
		ESMP	SMP	FMP	Total
Days Open	2021	6	24	3	33
	10-Yr. Avg.	8	15	4	27
	All-Yr. Avg.	7	18	8	34
Average Fleet Size	2021	11.0	13.8	3.5	11.2
	10-Yr. Avg.	9.8	12.7	2.0	9.9
	All-Yr. Avg.	6.0	8.9	3.8	7.0
Boat-Days Fished	2021	58.75	219.90	10.00	288.65
	10-Yr. Avg.	51.55	139.54	3.98	194.27
	All-Yr. Avg.	29.70	112.17	17.77	158.67
Ex-Vessel Value	2021	$643,535	$2,703,174	$113,251	$3,459,960
	10-Yr. Avg.	$359,073	$1,161,869	$13,149	$1,531,461
	All-Yr. Avg.	$170,046	$650,411	$34,237	$852,412
Average Vessel Earnings	2021	$49,134	$158,487	$21,597	$229,218
	10-Yr. Avg.	$30,479	$87,118	$6,117	$123,714
	All-Yr. Avg.	$19,758	$61,503	$8,878	$90,219

For the season, an average vessel would have expected to earn about $268,937 by participating in each of the 11 weeks of purse seining during the 2021 season. Purse seine was open for 33 days during the 2021

season, only three days of which were scheduled during the FMP. It was the most days the seine fishery has been open since 2014, and the twentieth most days the seine fishery has been open since 1984. Over the previous 10 years, purse seine has been open an average of 27 days, with an average of four of those days occurring during the FMP. Over the previous 37 years, purse seining has been open an average of 34 days, with eight of those days falling in the FMP.

Pink Salmon—In an average season (2011—2020), pink salmon have made up an average about 91% of the purse seine harvest, while over the previous 37 seasons, they have accounted for an average of nearly 94% of the fleet's annual harvest. For the 2021 season, pink salmon made up more than 97% of the purse seine harvest, with 2,384,331 having been delivered, the fleet's largest pink harvest on record. The seiners' 2021 pink salmon harvest was 275% of the 10-year average and 339% of the 37-year average (Figure 27).

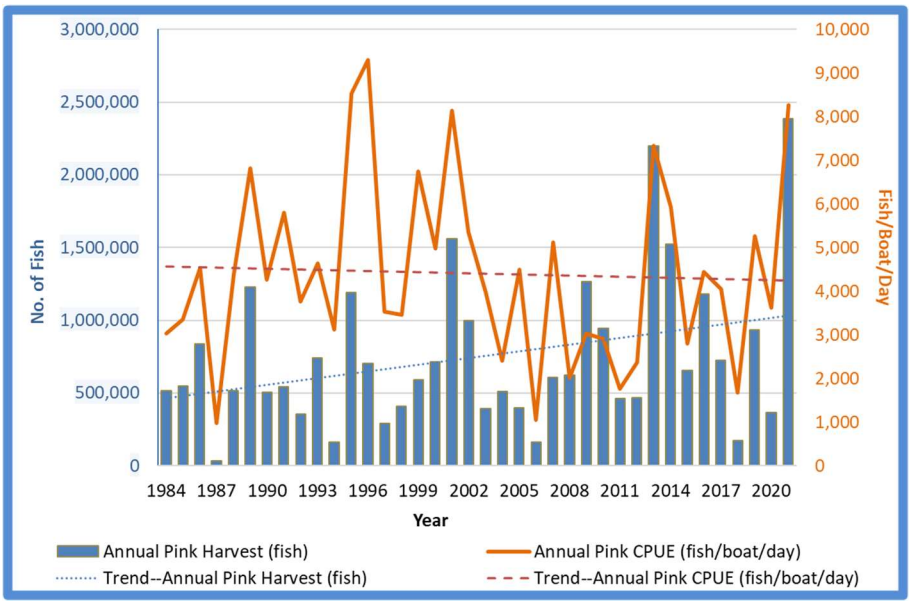

Figure 27. The Annette Islands Reserve purse seine fleet's pink salmon harvest and season catch-per-unit-effort (CPUE) from 1984 to 2021, illustrating the trend for both. The total all-salmon catch is reflected in the bars and refers to the blue scale on the left. CPUE is denoted by the orange line and refers to the scale on the right.

The purse seine fleet's pink salmon deliveries peaked in SW#34 when the fleet delivered 488,251 pink salmon, which was 314% of the 10-year average for the week, and 393% of the 37-year average. In an average season (10- and 37-year), the fleet's peak pink salmon catches occur in SW#33 (Table 20 and Figure 28). The fleet's pink salmon harvest was above the 10-year average during 10 weeks of the seiners' 11-week season. Since 2012, the purse seine fishery has normally been closed in SW#36, a measure imposed by the FMB to promote local pink salmon escapement. However, with the fleet's pink catches so far above average, and with early pink escapement surveys finding well-above-average pink numbers in local streams, the FMB scheduled two days of fishing for the seiners in SW#36. The fleet landed 83,897 pinks in SW#36 of 2021, the largest pink catch the fleet has delivered in that week since 1984.

Table 20. The purse seine fleet's pink salmon catch and catch-per-unit-effort (CPUE) in 2021, by statistical week and management period, compared with the fleet's average pink catch and CPUE over the previous 10 seasons (2011–2020), and over the previous 37 years (1984–2020).

		Catch			Catch-per-unit-effort		
Mgmt. Period	Stat Week	2021	10-Yr Avg (2011-2020)	All-Yr Avg (1984-2020)	2021	10-Yr Avg (2011-2020)	All-Yr Avg (1984-2020)
ESMP	26		897	1,164		117.8	280.7
	27	4,902	6,808	4,967	754.2	716.5	741.7
	28	37,077	31,950	23,472	2,004.2	2,048.6	1,960.2
	29	257,760	80,666	49,934	7,637.3	3,799.5	3,252.0
	Total	299,739	120,053	74,795	5,101.9	2,449.5	2,268.7
SMP	30	342,300	128,368	76,192	9,710.6	4,257.5	4,115.7
	31	198,591	129,598	83,812	6,426.9	4,588.7	4,429.2
	32	317,895	129,844	125,929	7,479.9	4,420.0	5,537.0
	33	317,549	168,274	145,143	8,945.0	5,112.0	5,916.0
	34	488,251	155,506	124,391	10,279.0	4,855.4	5,411.6
	35	335,624	43,775	74,300	11,880.5	3,475.5	4,207.6
	Total	2,000,210	746,609	615,608	9,096.0	4,830.3	5,185.6
FMP	36	83,897	3,288	19,159	9,321.9	1,832.5	2,500.1
	37		1,231	836		311.5	220.6
	38	485	374	284	485.0	96.7	79.3
	39		73	85		32.3	36.1
	40		0	0		0.0	0.0
	Total	84,382	2,000	14,546	8,438.2	194.8	1,697.1
Season Total		2,384,331	867,662	702,984	8,260.3	3,925.6	4,297.4

The fleet's season pink salmon CPUE was 8,260 fish/boat/day, which was the third-highest season pink CPUE the fleet has enjoyed since 1984, and 210% of the 10-year average, or 192% of the 37-year average. The fleet's pink salmon CPUE was greater than the 10-year average in 10 of the seiners' 11-week 2021 season, and greater than the 37-year average in all 11 weeks. In an average (10- and 37-year) season, the purse seine fleet's peak pink salmon CPUE has occurred in SW#33.

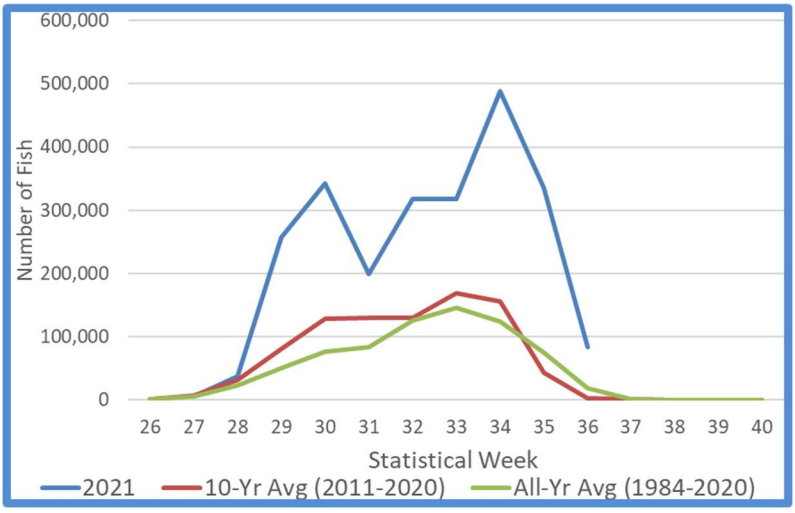

Figure 28. Purse seine pink salmon catch, by statistical week, in 2021, compared with the average pink catch over the previous 10 years (2011–2020) and the previous 37 years (1984–2020).

Thirteen percent of the purse seine fleet's 2021 pink salmon harvest was delivered during the ESMP, slightly less than the 14% that has been averaged over the previous 10 seasons. However, the pink harvest during the 2021 ESMP was 250% of average catch during the period (2011—2020). The first week of the ESMP saw the seiners' pink salmon catch come in at about 72% of the week's 10-year average, or 99% of the 37-year average, but the remaining four weeks of the period saw pink deliveries exceed both the 10- and 37-year average. During the final week of the ESMP, SW#29, seiners delivered 320% of the 10-year average pink catch for the week, or 516% of the 37-year average. The fleet's pink salmon CPUE during the

2021 ESMP was 5,102 fish/boat/day, which was 208% of the 10-year average, and 225% of the 37-year average for the period (Figure 29). It was the third-highest pink CPUE ever recorded in the ESMP.

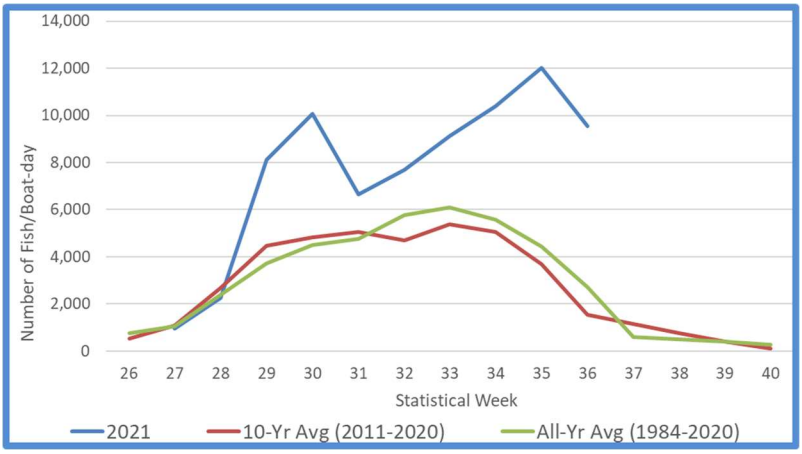

Figure 29. Purse seine pink salmon catch-per-unit-effort (CPUE), in 2021, by statistical week, compared with the average pink CPUE over the previous 10 years (2011–2020) and the previous 37 years (1984–2020).

Eight-four percent of the purse seine fleet's 2021 pink salmon harvest was taken during the Summer Management Period (SMP), which is slightly less than the period's average share over the previous 10 seasons (86%). The fleet's pink salmon harvest during the SMP was 268% of the 10-year average, and 325% of the 37-year average. During the SMP, seiners caught pink salmon at the rate of 9,096 fish/boat/day, which is about 188% of the average pink CPUE during the period over the previous 10 seasons, or 175% of the 37-year average. The fleet's pink salmon CPUE was above average in every week of the SMP.

Seining was open for only three days during the 2021 FMP). The fishery was open for two days in SW#36 and one day in SW#38, although only one vessel fished the SW#38 opening. A total of 84,382 pinks were delivered by seiners during the 2021 FMP, the fleet's second-largest pink harvest in the FMP since 1984. The vast majority of the seiners' FMP pink harvest was delivered during SW#36, the first week of the period. As previously described, over the past nine seasons, there has been only a single SW#36 purse seine opening (2017), and as a result, there is limited data as the basis for a 10-year average. However, the 2021 SW#36 pink catch was 580% of the 37-year average. In an average FMP since 2011 the purse seine fleet has delivered 2,000 pink salmon, while the average since 1984 is 14,546 pinks. The fleet's pink CPUE during the 2021 FMP was 8,438 fish/boat/day, while average pink CPUE during that period has been about 195 fish/boat/day over the previous 10 seasons, or 1,697 fish/boat/day over the previous 37 seasons.

Chum Salmon—Purse seiners delivered 47,038 chum salmon during the 2021 season, the fleet's sixth-largest chum harvest since 1984 (Figure 30). It was also the seiners' sixth-largest chum harvest since 2010, as nine of the fleet's top ten chum seasons have occurred in that period. The fleet's 2021 chum harvest was about 71% of the fleet's 10-year average, but was 146% of the 37-year average. Nearly 40% of the seiners' chum catch in 2021 were delivered during the ESMP (Table 21), while over the previous 10 seasons (2011—2020), the ESMP has accounted for an average of about 47% of the seiners' total chum catch. More than 58% of 2021 season's purse seine chum

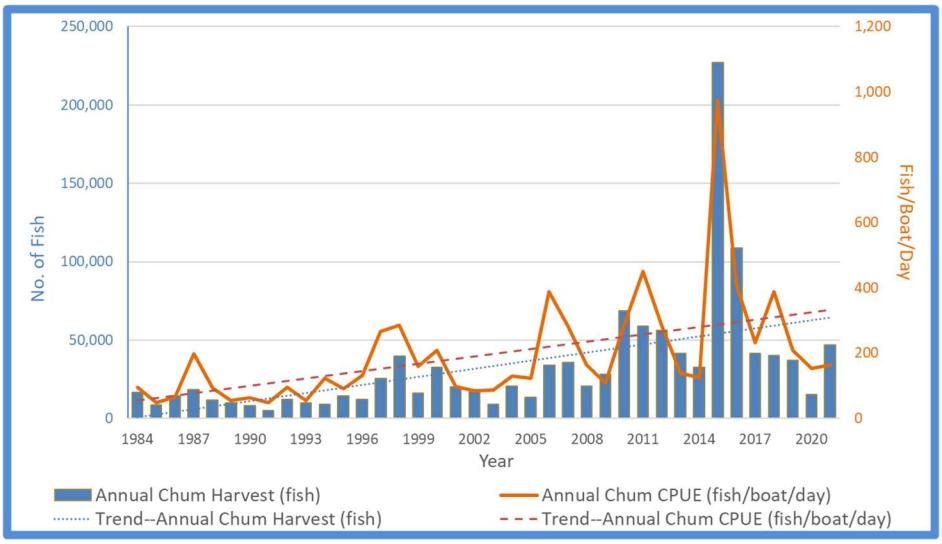

Figure 30. The Annette Islands Reserve purse seine fleet's chum harvest and season catch-per-unit-effort (CPUE) from 1984 to 2021, illustrating the trend for both. The total chum catch is reflected in the bars and refers to the blue scale on the left. CPUE is denoted by the orange line and refers to the scale on the right.

Table 21. The purse seine fleet's chum salmon catch and catch-per-unit-effort (CPUE), in 2021, by statistical week and management period, compared with the fleet's average chum salmon catch and CPUE over the previous 10 seasons (2011–2010) and the previous 37 seasons (1984–2020).

		Catch			Catch-per-unit-effort		
Mgmt. Period	Stat Week	2021	10-Yr Avg (2011-2020)	All-Yr Avg (1984-2020)	2021	10-Yr Avg (2011-2020)	All-Yr Avg (1984-2020)
ESMP	26		3,482	1,870		376.1	260.8
	27	1,144	4,094	1,952	176.0	296.6	212.6
	28	3,987	11,715	5,170	215.5	558.9	331.8
	29	13,532	12,383	5,287	400.9	595.5	346.9
	Total	18,663	30,629	12,293	317.7	537.1	294.6
SMP	30	10,067	12,539	5,352	285.6	487.0	274.8
	31	5,296	10,387	4,200	171.4	374.2	205.9
	32	4,898	4,322	2,267	115.2	177.2	110.2
	33	2,449	3,415	1,783	69.0	155.7	87.3
	34	2,680	2,578	1,889	56.4	111.7	90.3
	35	2,062	1,825	2,068	73.0	141.7	132.6
	Total	27,452	34,701	16,990	124.8	261.0	149.5
FMP	36	866	586	1,339	96.2	294.7	197.1
	37		1,308	1,415		331.1	247.9
	38	57	200	977	57.0	115.0	176.6
	39		42	495		61.7	92.9
	40		9	186		12.7	41.1
	Total	923	687	3,052	92.3	178.4	170.2
Season Total		47,038	65,880	32,169	163.0	336.9	194.9

harvest was delivered during the SMP, which, over the previous 10 seasons, has made up about 53% of the fleet's annual chum catch. Purse seining was open in only two weeks, or a total of three days, in the FMP, with only 923 chum being delivered, which was 134% of the 10-year average, but less than 30% of the 37-year average. Catches during the FMP accounted for only two percent of the seiners' chum harvest in 2021. Over the previous 10 seasons, chum delivered during the FMP made up an average of only one percent of the seiners' total chum harvest. However, when viewed across the 37 previous seasons, the seiners' FMP chum harvest has made up an average of nearly 10% of their total chum harvest. During the period from 1984 through 1998, seiners caught an average of 39% of their annual chum harvest during the FMP. The decline in the FMP's share of the annual chum catch is almost certainly the result of both local hatcheries' vastly

increased summer chum production, as well as a substantial decline in both natural and hatchery-produced fall chum.

Less than two percent of the purse seine fleet's total 2021 harvest was made up of chum salmon, while in an average year (2011–2020), chum have account for about seven percent of the fleet's harvest. The fleet's chum salmon harvest was below the 10-year average during six weeks of the seiners' 11-week season, and below the 37-year average in five of those weeks (Figure 31). The fleet's chum harvest peaked in SW#29, the final week of the ESMP, when 13,532 chum were delivered, which was 109% of week's 10-year average, and 256% of the 37-year average.

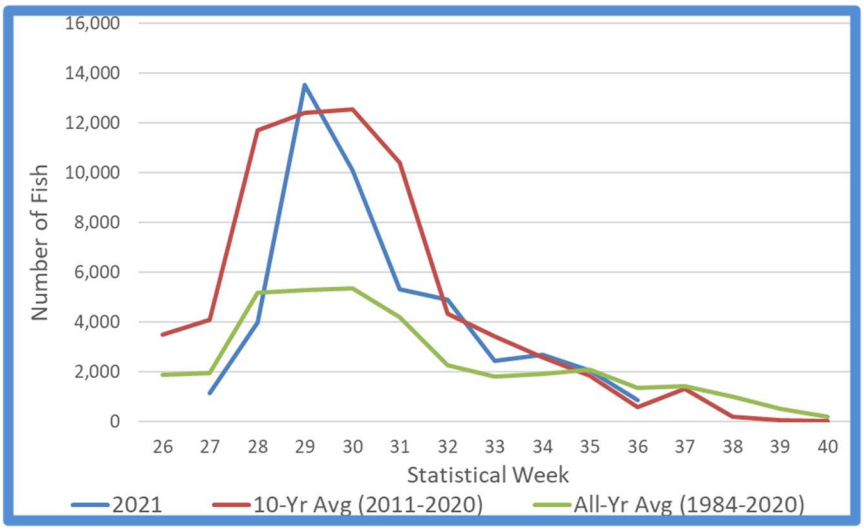

Figure 31. Purse seine chum salmon catch, by statistical week, in 2021, compared with the average chum catch over the previous 10 years (2011–2020) and the previous 37 years (1984–2020).

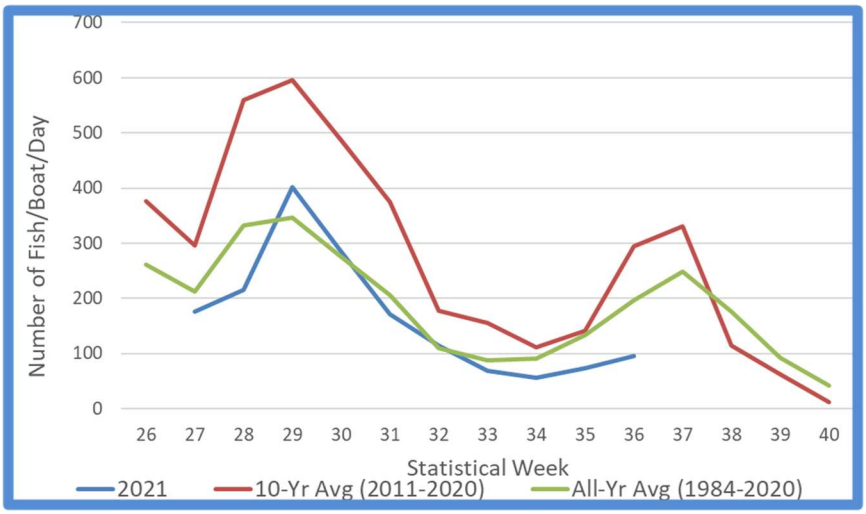

Figure 32. Purse seine chum salmon catch-per-unit-effort (CPUE), in 2021, by statistical week, compared with average chum CPUE over the previous 10 years (2011–2020) and the previous 37 years (1984–2020).

For the season, the purse seine fleet caught chum salmon at the rate of 163 fish/boat/day. It was the fleet's 16th highest season chum CPUE since 1984, but was only 48% of the 10-year average CPUE, or 84% of the 37-year average. The purse seine chum CPUE was below the 10-year average in every week of the 2021 season (Figure 32). However, the fleet's chum CPUE was above the 37-year average in SW#29, #30, and #32. The fleet's chum CPUE peaked in SW#29, which is consistent with the average peak (10- and 37-year average).

Purse seiners caught chum at the rate of 318 fish/boat/day during the 2021 ESMP, which was 59% of average chum CPUE over the previous 10 seasons, and 108% of the 37-year average. During the 2021 SMP, seiners' chum CPUE was

125 fish/boat/day, which was 48% of the 10-year average, or 84% of the 37-year average. The fleet's chum CPUE was also well below the 10-year average in all five weeks of the seiners' 2021 SMP. Purse seining was only open for three days during the 2021 FMP, but they only managed to catch 92 chum/boat/day during the period, which was less than 52% of the 10-year average and 54% of the 37-year average. Seiners' chum CPUE was below average in both weeks that days were scheduled for the seine fleet during the 2021 FMP.

For the 2021 purse seine season, chum deliveries were valued at $421,405, or less than 12% of the value of the purse seine season, the second most valuable species to the purse seine fleet for the 2021 season. Nearly 56% of the value of the fleet's chum harvests in 2021 was delivered during the SMP, with the ESMP adding 42%, and the FMP accounting for two percent.

Sockeye Salmon—Purse seiners delivered 12,685 sockeye salmon during the 2021 season, which was about 118% of the 10-year average (2011—2020), or nearly 138% of the average since 1984 (1984—2020). It was the fleet's twelfth largest sockeye harvest in the 38 seasons these records have been maintained (Figure 33). Sockeye made up much less than one percent of the 2021 season's purse seine harvest, while in an average season (10- and 37-year), sockeye have accounted for slightly more than one percent of the purse seine harvest. The purse seine fleet delivered more than 81% of the Reserve's 2021 season's total sockeye harvest.

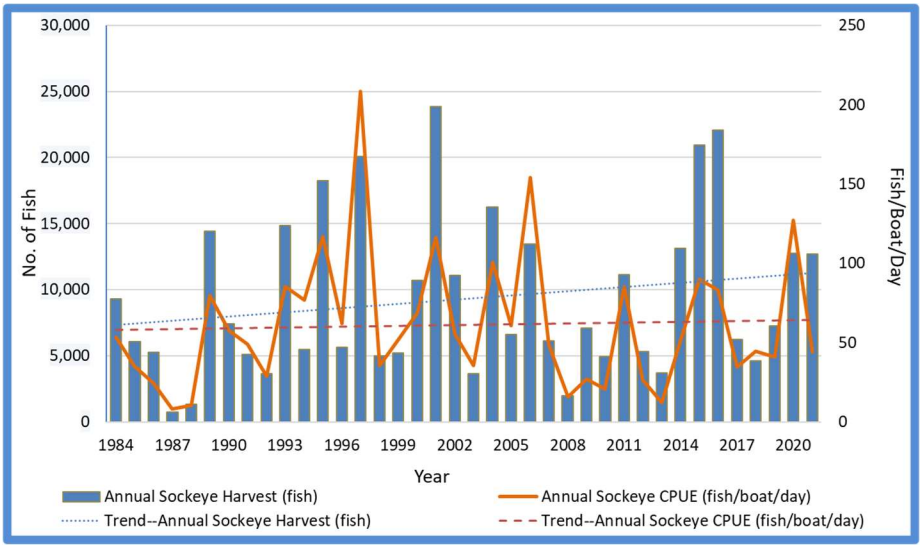

Figure 33. The Annette Islands Reserve purse seine fleet's sockeye harvest and season catch-per-unit-effort (CPUE) from 1984 to 2021, illustrating the trend for both. The total sockeye catch is reflected in the bars and refers to the blue scale on the left. CPUE is denoted by the orange line and refers to the scale on the right.

The purse seiners' sockeye catches were below average for the first two weeks (SW#27 and SW#28) of the 2021 season (Figure 34), but were above average in seven of the next eight weeks (SW#29--SW#30, and SW#32—SW#36). The fleet's sockeye catches peaked in SW#32, consistent with the timing of 10- and 37-year average peak. More than 49% of the purse seiners' 2021 sockeye harvest was delivered during the two-week period from SW#32 to SW#33.

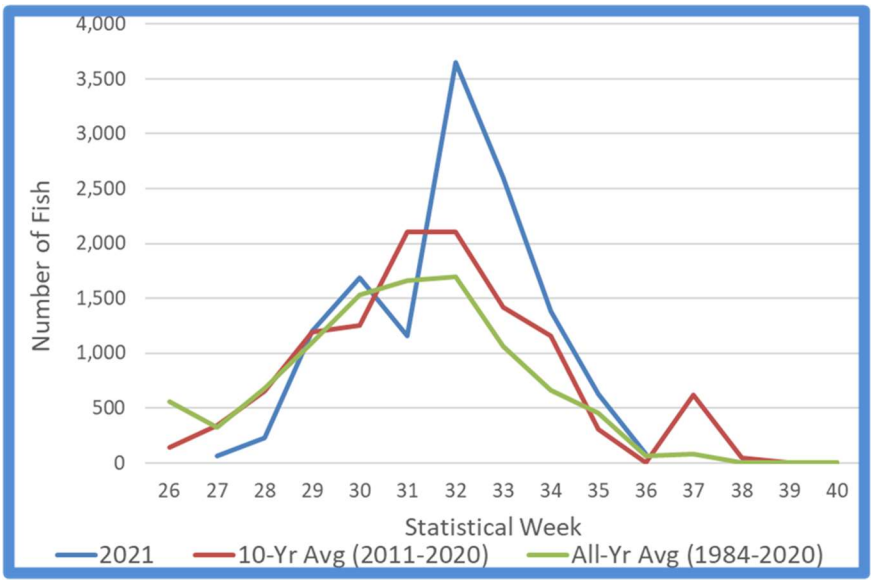

Figure 34. Purse seine sockeye salmon catch, in 2021, by statistical week, compared with the average sockeye catch over the previous 10 seasons (2011–2020) and the previous 37 seasons (1984–2020).

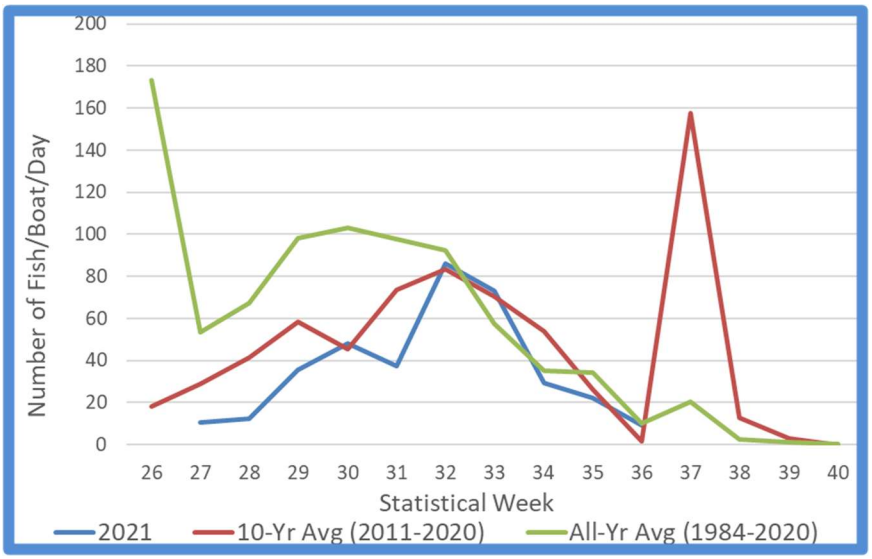

Figure 35. Purse seine sockeye salmon catch-per-unit-effort (CPUE) by statistical week, in 2021, compared with average sockeye CPUE over the previous 10 years (2011–2020) and previous 37 seasons (1984–2020).

The purse seine fleet's sockeye CPUE also peaked in SW#32 (Figure 35), when sockeye were harvested at the rate of 86 fish/boat/day, which was 103% of the 10-year average, and 93% of the 37-year average for the week (Table 22). For the season, the purse seine fleet caught sockeye at the rate of 44 fish/boat/day, which was about 74% of the 10-year average, and 71% of the 37-year average. It was the 24th highest season sockeye CPUE the purse seine fleet has seen since 1984. The fleet's sockeye CPUE was above the 10-year average in only three weeks of the nine-week period from SW#27 through SW#35, the period during which the vast majority of the sockeye are caught.

Less than 12% of the purse seine sockeye harvest in 2021 was delivered during the ESMP, well below the 21% of the catch the period has averaged since 2011, and the average of 24% since 1984. Seiners harvested 1,493 sockeye during the 2021 ESMP, which was 65% of the 10-year average, or 68% of the average over the previous 37 seasons. Purse seiners caught sockeye at the rate of 25 fish/boat/day during the ESMP, or 54% of the 10-year average and 32% of the 37-year average.

Table 22. The purse seine fleet's sockeye salmon catch and catch-per-unit-effort (CPUE), in 2021, by statistical week and management period, compared with the fleet's average sockeye salmon catch and CPUE over the previous 10 seasons (2011–2020) and the previous 37 seasons (1984–2020).

		Catch			Catch-per-unit-effort		
Mgmt. Period	Stat Week	2021	10-Yr Avg (2011-2020)	All-Yr Avg (1984-2020)	2021	10-Yr Avg (2011-2020)	All-Yr Avg (1984-2020)
ESMP	26		143	563		18.0	173.2
	27	67	341	322	10.3	29.0	53.3
	28	226	657	679	12.2	41.6	67.4
	29	1,200	1,190	1,096	35.6	58.2	97.9
	Total	1,493	2,289	2,193	25.4	47.0	79.8
SMP	30	1,690	1,253	1,528	47.9	45.4	102.9
	31	1,154	2,105	1,659	37.3	73.7	97.6
	32	3,652	2,101	1,695	85.9	83.5	92.4
	33	2,596	1,420	1,064	73.1	70.3	57.2
	34	1,387	1,156	662	29.2	53.9	35.0
	35	630	309	458	22.3	26.0	34.3
	Total	11,109	8,282	6,920	50.5	66.3	69.3
FMP	36	83	3	63	9.2	1.5	10.0
	37		622	83		157.5	20.5
	38	0	43	7	0.0	12.9	2.3
	39		2	1		3.1	0.9
	40		0	1		0.0	0.1
	Total	83	180	99	8.3	26.4	8.7
Season Total		12,685	10,714	9,207	43.9	59.6	61.7

Nearly 88% of the purse seine fleet's 2021 sockeye harvest was delivered during the SMP. Over the previous 10 seasons, the SMP has accounted for an average of 77% of seiners' total sockeye harvest. The 11,109 sockeye the fleet delivered in the SMP was 134% of the 10-year average, and 161% of the 37-year average. Purse seiners caught sockeye at the rate of 51 fish/boat/day during the 2021 SMP, with the peak CPUE occurring in SW#32 when the fleet landed 86 sockeye/boat/day.

Sockeye catches normally decline rapidly as the fishery enters the FMP. Over the previous 10 seasons, less than two percent of the seiners' average sockeye harvest was delivered during the FMP. In 2021, seiners delivered only 83 sockeye during the FMP, and all of those were harvested in SW#36, the first week of the FMP. Seiners caught sockeye at the rate of eight fish/boat/day during the 2021 FMP, which was about 31% of the 10-year average.

The value of the purse seine fleet's 2021 sockeye catch was $116,877. More than 87% of that value was delivered during the SMP, with the ESMP adding 12%, and the FMP accounting for less than one percent. Sockeye deliveries made up a little more than three percent of the value of the purse seiners' 2021 season.

Coho Salmon—The purse seine fleet harvested only 9,734 coho for the 2021 season. Still, the seiners' 2021 coho catch was 170% of the 10-year average, and 136% of the 37-year average. The seiners' 2021 season coho catch ranked ninth out of the 38 seasons for which data exists (Table 23 and Figure 36). It was a welcome change from the three previous seasons when seiners delivered three of the six smallest coho harvests since 1984. Purse seining was only open for three days during the 2021 FMP, a period that, in an average season (2011–2020), yields nearly 18% of the seiners' total coho catch (Figure 37). Over the previous 37 seasons, an average of more than 52% of the total coho catch was delivered during the FMP. During the 2021 season, coho caught during the FMP made up 14% of seiners' total coho catch. Coho made up much less than one percent of the purse seine harvest for the 2021 season, although, even in

Table 23. The purse seine fleet's coho catch and catch-per-unit-effort (CPUE), in 2021, by statistical week and management period, compared with the fleet's average coho catch and CPUE over the previous 10 seasons (2011–2020) and the previous 37 seasons (1984–2020).

		Catch			Catch-per-unit-effort		
Mgmt. Period	Stat Week	2021	10-Yr Avg (2011-2020)	All-Yr Avg (1984-2020)	2021	10-Yr Avg (2011-2020)	All-Yr Avg (1984-2020)
ESMP	26	0	109	93	#DIV/0!	11.8	20.0
	27	116	184	122	17.8	18.4	19.2
	28	377	346	214	20.4	20.9	19.1
	29	1,242	513	279	36.8	24.7	23.2
	Total	1,735	1,119	610	29.5	21.3	19.6
SMP	30	1,274	562	331	36.1	20.6	19.8
	31	688	724	560	22.3	26.4	29.2
	32	850	593	417	20.0	22.3	19.9
	33	851	689	508	24.0	28.4	23.8
	34	1,332	744	620	28.0	28.0	30.4
	35	1,646	607	859	58.3	51.0	54.5
	Total	6,641	3,797	3,002	30.2	27.3	26.6
FMP	36	1,048	52	769	116.4	34.9	108.2
	37		1,416	1,272		358.4	256.2
	38	310	526	1,101	310.0	518.7	305.5
	39		352	1,225		309.4	292.8
	40		114	739		86.3	231.5
	41		93	679		93.0	326.4
	42		0	576		0.0	255.0
	Total	1,358	999	3,757	135.8	212.2	220.4
Season Total		9,734	5,715	7,167	33.7	28.5	48.3

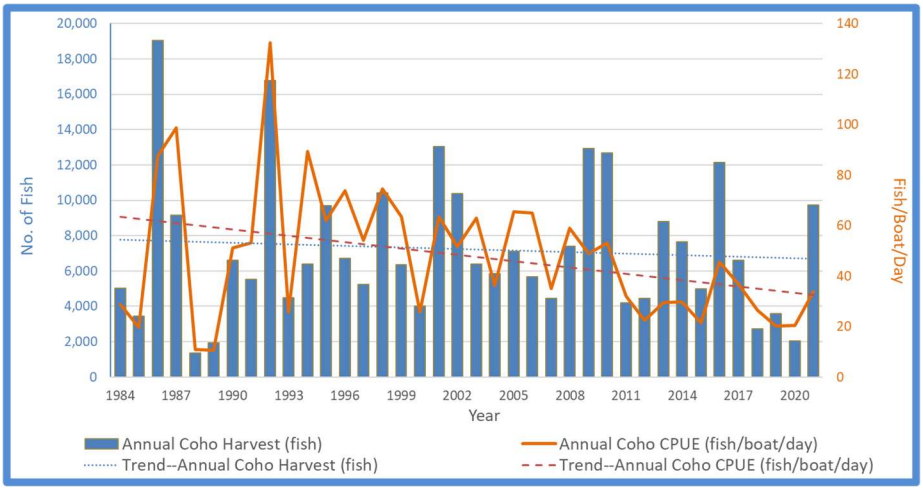

Figure 36. The Annette Islands Reserve purse seine fleet's coho harvest and season catch-per-unit-effort (CPUE) from 1984 to 2021, illustrating the trend for both. The total coho catch is reflected in the bars and refers to the blue scale on the left. CPUE is denoted by the orange line and refers to the scale on the right.

an average season (10- and 37-year), coho make up less than one percent of the purse seine annual harvest.

The seiners' coho catch was above, or near, the seiners' 10-and 37-year average catch during the period from SW#28 through SW#36, before dropping well below average during the single day of fishing in SW#38. The 2021 season's peak purse seine coho catches occurred in SW#35, while the fleet's average (10- and 37-year) coho peak has occurred in SW#37 (seining was closed in SW#37 of 2021). The Tamgas Creek Hatchery's returning coho are most abundant on the Reserve during the FMP (SW#36 through season closure).

For the 2021 season, the purse seine fleet caught coho at the rate of about 34 fish/boat/day, or about 118% of average coho CPUE over the previous 10 seasons, but only 70% of the 37-year average. Seiner's 2021 season coho CPUE ranked 24th out of the 38 seasons since 1984. While coho deliveries peaked in SW#35, the fleet's 2021 coho CPUE peaked in SW#38 (Figure 38) when the single vessel fishing caught coho at the rate of 310

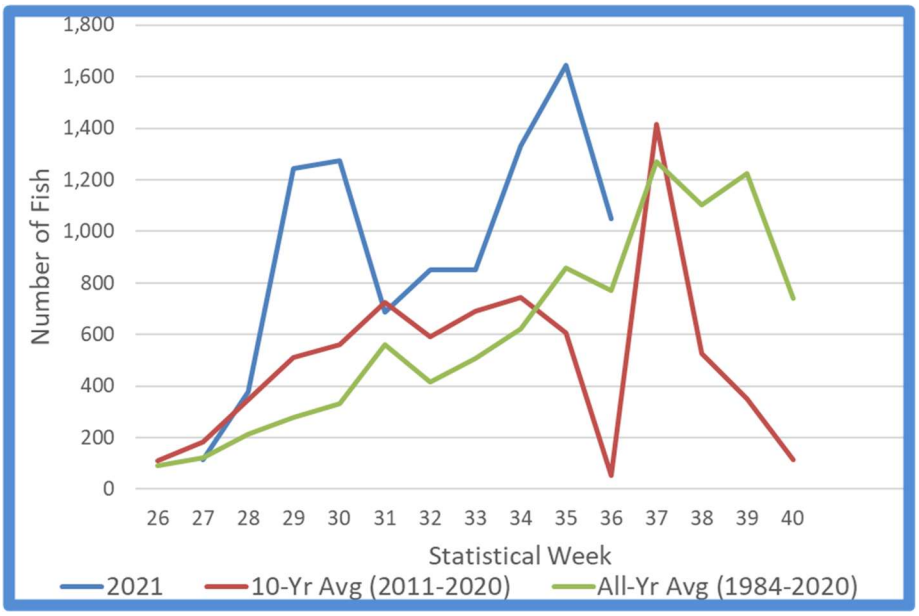

Figure 37. Purse seine coho salmon catch in 2021 by statistical week, compared with the average coho catch over the previous 10 seasons (2011–2020) and the previous 37 seasons (1984–2020).

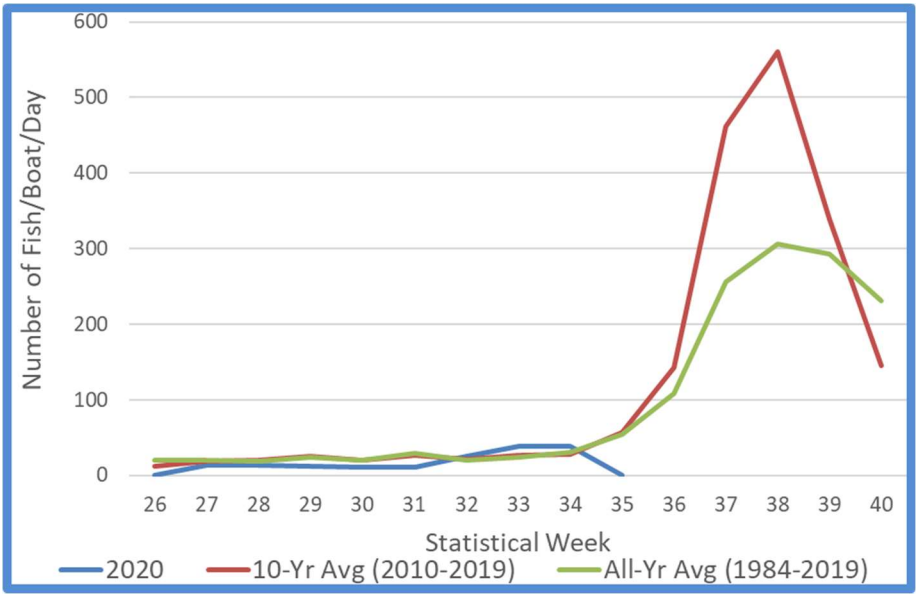

Figure 38. Purse seine coho salmon catch-per-unit-effort (CPUE) in 2021, by statistical week, compared with the average coho CPUE over the previous 10 seasons (2011–2020) and the previous 37 seasons (1984–2020).

fish/boat/day, which was less than 60% of the 10-year average CPUE for the week, but 102% of the 37-year average.

The ESMP yielded about 18% of the purse seiners' season coho catch, while over the previous 10 seasons, an average of nearly 20% of the seiners' coho were delivered in that period. Over the previous 37 seasons, the ESMP coho catch has accounted for an average of less than nine percent of the fleet's total coho harvest. More than 68% of the 2021 purse seine season's coho harvest was delivered during the Summer Management Period (SMP), slightly greater than the 66% of the coho harvest the SMP has yielded, on average, over the previous 10 seasons, but considerably more than the 42% that has been averaged since 1984. Purse seiners caught coho at the rate of 30 fish/boat/day during the SMP, which was 111% of the SMP's 10-year average (2011—2020), or 113% of the 37-year average (1984—2020). There were only three days of seining scheduled in the 2021 FMP, and the fleet's catch during that period (1,358) accounted for less than 14% of the seiners' total coho catch. Over the previous 10

seasons, seiners have caught an average of nearly 18% of their coho harvest during the FMP, while over the previous 37 seasons, the FMP has seen seiners deliver more than 52% of their total coho harvest. Seiners caught coho at the rate of nearly 136 fish/boat/day during the 2021 FMP, which was only 64% of the 10-year average, and less than 62% of the 37-year average.

The value of the seine fleet's 2021 coho harvest was $43,400, accounting for about one percent of the total value of the purse seine season. Ten percent of that value was delivered during the ESMP, 69% was taken from the SMP, and less than 22% came from FMP coho harvests. Coho were the fourth-most valuable species to the seiners' 2021 season.

King Salmon—King salmon do not typically comprise a substantial portion of the purse seine harvest, and the 412 king salmon harvested by the fleet in 2021 made up much less than one percent of both the fleet's total harvest and season's total value (Table 24 and Figure 39). The fleet harvested 27% of the king salmon taken in the Reserve's commercial fisheries in 2021, the eighth largest king salmon harvest by the fleet since 1984, 112% of the 10-year average, and 164% of the 37-year average (Figure 40).

Table 24. The purse seine fleet's king salmon catch, in 2021, by statistical week and management period, compared with the fleet's average king catch over the previous 10 seasons (2011–2020) and the previous 37 seasons (1984–2020).

		Catch			Catch-per-unit-effort		
Mgmt. Period	Stat Week	2021	10-Yr Avg (2011-2020)	All-Yr Avg (1984-2020)	2021	10-Yr Avg (2011-2020)	All-Yr Avg (1984-2020)
ESMP	26		72	67		12.3	16.0
	27	53	80	56	8.2	10.6	12.3
	28	197	73	97	10.6	4.4	12.4
	29	84	65	36	2.5	3.6	2.4
	Total	334	268	199	5.7	5.3	6.6
SMP	30	21	39	24	0.6	1.6	1.3
	31	5	36	14	0.2	1.6	0.7
	32	28	15	8	0.7	0.7	0.4
	33	2	7	3	0.1	0.4	0.2
	34	22	4	2	0.5	0.2	0.1
	35	0	0	0	0.0	0.0	0.0
	Total	78	102	51	0.4	0.9	0.5
Season Total		412	369	251	1.4	2.1	1.5

The fleet's peak king salmon harvest occurred in SW#28, the fourth week of the ESMP, and the second week of the seine season. The fleet delivered 197 kings in that week, more than 48% of the fleet's king harvest for the season, 271% of the week's 10-year average, and 202% of the 37-year average. More than 81% of the purse seine fleet's 2021 king harvest was delivered during the ESMP, with the remaining 19% coming from the Summer Management Period. For the season, seiners caught king salmon at the rate of a little more than one fish/boat/day, or nearly 69% of the fleet's average king CPUE over the previous 10 seasons (2011—2020). The purse seine fleet did not deliver any king salmon after SW#34, but in an average season, the fleet averages much less than one king salmon during the Fall Management Period.

The value of the purse seine fleet's king salmon deliveries in 2021 was $14,004. More than 77% ($10,831) of that value was delivered during the ESMP, with the remaining 23% coming from the SMP ($3,175). King salmon were the fifth most valuable species to the seiners' 2021 season.

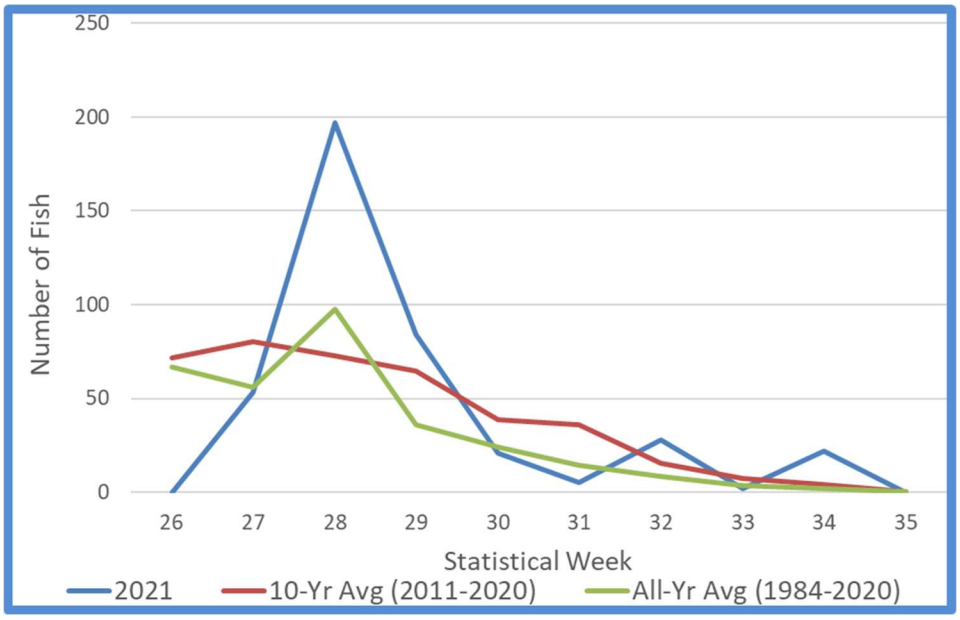

Figure 39. Purse seine king salmon catch, in 2021, by statistical week, compared with the average king catch over the previous 10 seasons (2011–2020) and the previous 37 seasons (1984–2020).

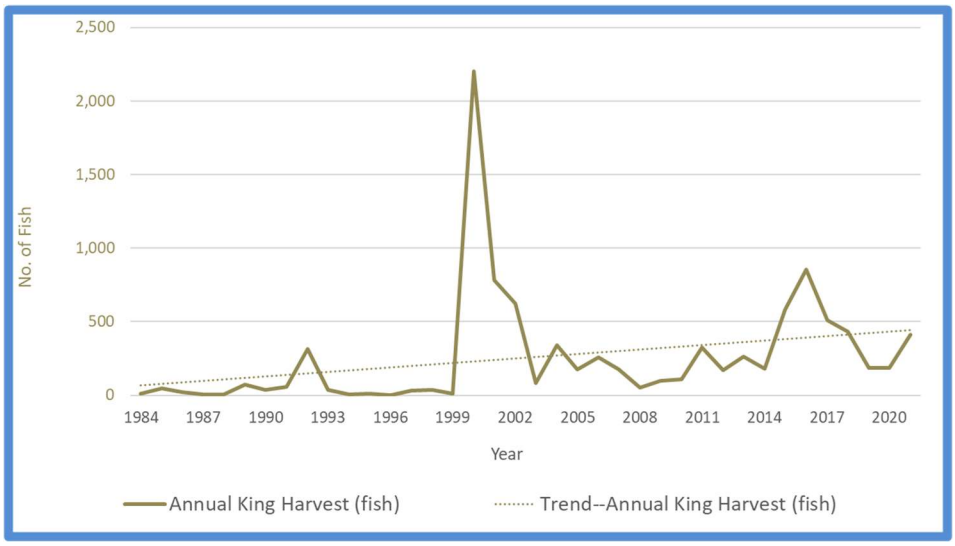

Figure 40. The purse seine fleet's annual king salmon harvest (1984–2021, with trendline.

Troll Fishery

The Reserve's troll fleet is mostly comprised of vessels that are entirely devoted to the net fisheries, primarily gillnet, once that season opens. As a result, trolling effort is typically greatest during the weeks prior to SW#24, the week gillnetting has often opened and the first week of the ESMP. However, depending on early catch rates in the gillnet fishery, some gillnetters may choose to troll through the early weeks of the ESMP. Because so much of the troll effort occurs early in the season, in most seasons,

king salmon have comprised a substantial portion of the trollers' total annual harvest, and in most seasons, most of that catch has been delivered prior to SW#26 (Table 25).

Table 25. The Annette Islands Reserve 2021 troll catch, by statistical week and species. Average vessel earnings is calculated by summing the weekly average earnings.

Mgmt. Period	Stat. Week	2021 Troll Catch								
		King	Sockeye	Coho	Pink	Chum	Total	Value	Vessels	$/Vessel
Preseason	1	0	0	0	0	0	0	$0	0	--
	2	0	0	0	0	0	0	$0	0	--
	3	0	0	0	0	0	0	$0	0	--
	4	0	0	0	0	0	0	$0	0	--
	5	0	0	0	0	0	0	$0	0	--
	6	3	0	0	0	0	3	$305	1	$305
	7	10	0	0	0	0	10	$1,071	1	$1,071
	8	0	0	0	0	0	0	$0	0	--
	9	5	0	0	0	0	5	$461	1	$461
	10	0	0	0	0	0	0	$0	0	--
	11	0	0	0	0	0	0	$0	0	--
	12	0	0	0	0	0	0	$0	0	--
	13	0	0	0	0	0	0	$0	0	--
	14	0	0	0	0	0	0	$0	0	--
	15	0	0	0	0	0	0	$0	0	--
	16	6	0	0	0	0	6	$900	1	$900
	17	13	0	0	0	0	13	$1,828	1	$1,828
	18	4	0	0	0	0	4	$731	1	$731
	19	28	0	0	0	0	28	$3,671	1	$3,671
	20	52	0	0	0	0	52	$5,828	2	$2,914
	21	23	0	0	0	0	23	$2,718	4	$679
	22	15	0	0	0	0	15	$2,288	3	$763
	23	22	0	0	0	0	22	$2,510	1	$2,510
	Total	**181**	**0**	**0**	**0**	**0**	**181**	**$22,308**		**$15,831**
ESMP	24	32	0	0	0	0	32	$3,969	1	$3,969
	25	30	0	0	0	0	30	$3,809	1	$3,809
	26	12	0	2	0	0	14	$1,329	2	$664
	27	13	0	9	116	0	138	$1,205	2	$602
	28	3	0	0	0	0	3	$245	1	$245
	29	4	0	7	1,039	10	1,060	$1,801	2	$901
	Total	**94**	**0**	**18**	**1,155**	**10**	**1,277**	**$12,358**		**$10,191**
SMP	30	1	2	67	1,139	21	1,230	$2,502	1	$2,502
	31	0	0	0	0	0	0	$0	0	--
	32	0	0	0	0	0	0	$0	0	--
	33	7	0	434	134	1	576	$8,113	5	$1,623
	34	13	0	662	301	2	978	$13,079	10	$1,308
	35	2	0	134	0	0	136	$2,676	6	$446
	Total	**23**	**2**	**1,297**	**1,574**	**24**	**2,920**	**$26,370**		**$5,878**
FMP	36	0	1	58	10	0	69	$1,028	3	$343
	37	1	0	14	0	0	15	$300	1	$300
	38	0	0	0	0	0	0	$0	0	--
	39	0	0	0	0	0	0	$0	0	--
	40	0	0	0	0	0	0	$0	0	--
	Total	**1**	**1**	**72**	**10**	**0**	**84**	**$1,328**		**$643**
Season Total		**299**	**3**	**1,387**	**2,739**	**34**	**4,462**	**$62,365**	**7**	**$32,543**

In 2020, the Covid-19 pandemic thoroughly disrupted the Preseason Troll Management Period (PTMP), by denying Reserve trollers access to fish-buying markets. The Covid-19 pandemic was still raging through the 2021 season's PTMP, but was much less disruptive, in part because of an effective vaccine. For the 2021 season, the earliest troll delivery occurred in SW#6, with additional deliveries in SW#7 and SW#9. There was at least one troll delivery in 11 weeks of the 23-week PTMP in 2021.

A total of 13 vessels made troll deliveries in 2021. However, only the 2021 season's SW#34 saw as many as seven vessels make troll deliveries. From the 2021 season's SW#1 through SW#40, there was an average of one vessel making a troll delivery each week. In 10 of those weeks, only one vessel delivered troll-caught salmon. There were no troll deliveries after SW#36.

For the 2021 season, trollers delivered 299 king salmon, the tenth-largest king salmon harvest by the trollers in the 38 years these records have been maintained. Nearly 61% (181) of the troll fleet's king salmon harvest was delivered during the PTMP (prior to SW#24), a decline from the 286 kings that trollers have averaged during that period

over the previous five seasons (2016—2020), but 120% of the 10-year average (2011—2020). As usual, only king salmon were delivered during the PTMP, or prior to SW#24.

During the ESMP, trollers delivered 94 king salmon, or about 31% of the total number of troll-caught kings for the 2021 season, and 137% of the average of 69 kings that trollers have delivered over the previous 10 seasons (2011—2020). Trollers also delivered 1,155 pinks, 10 chum, and seven coho during the ESMP. Over the previous 10 seasons, the ESMP has seen trollers deliver an average of 78 coho, 30 chum, and 55 pink salmon.

Trollers delivered 23 kings during the 2021 Summer Management Period (SMP). The SMP rarely sees large numbers of troll-caught king salmon delivered, averaging less than six per season since 2011. The SMP has also seen an average of 160 coho. three chum, 33 pinks, and much less than one sockeye salmon delivered by trollers over the previous 10 seasons (2011—2020). In addition to the king deliveries, during the 2021 SMP, trollers also delivered 1,297 coho, 24 chum, two sockeye, and 1,574 pink salmon.

Only 84 troll-caught salmon were delivered during the 2021 Fall Management Period (FMP), including one king salmon, 72 coho, one sockeye, and 10 pink salmon. Over the previous 10 seasons, the FMP has seen troll deliveries include an average of less than one king, 58 coho, and one chum (2011—2020).

For the 2021 season, the 299 king salmon delivered by trollers accounted for 19% of the Reserve's total king salmon harvest. The 2021 season's troll deliveries also included 1,387 coho, 2.739 pinks, 34 chum, and three sockeye salmon. Over the previous 10 seasons, trollers have delivered an average of 226 kings, 295 coho, 27 chum, 67 pink, and much less than one sockeye salmon.

Although 13 vessels made troll deliveries in 2021, three of those vessels made only a single delivery during the season. The total value of the 2021 troll season was $62,065. The sum of the average values of the weekly troll deliveries was $28,574. Calculating average troll earnings by dividing total value by the number of vessels to make troll deliveries yields an average value of $4,797. King salmon deliveries accounted for nearly 56% ($34,707) of the value of the 2021 troll season, while coho added about 39% ($24,070), and the value of pink deliveries accounted for five percent ($3,335). Preseason troll deliveries, all of which were kings, were valued at $22,308, or about 36% of the value of 2021 troll deliveries. Since 2011, the value of the Reserve's troll deliveries has averaged $28,706, with preseason troll deliveries accounting for an average of about 42% of that value.

Port Chester Terminal Harvest Area

Harvest--There was only a single opening of the Port Chester Terminal Harvest Area (PCTHA) fishery in 2021, a 12-hour opening for the gillnet fleet on August 4, in SW#32. That opening targeted returning adult chum that had been released from netpens located near the old ferry terminal. Thirty vessels participated in the opening, delivering

a total 11,706 salmon. That catch included 11,544 chum, 145 pinks, 15 coho, and one king salmon (Table 26).

Table 26. Summary of the harvest during the one-day (12-hour) opening of the PCTHA, on August 4, 2021. This opening was for gillnet. There was no seine opening in the PCTHA in 2021.

	Species					
	King	Sockeye	Coho	Pink	Chum	Totals
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

Nearly 99% of the salmon harvested during the 2021 season's single opening of the PCTHA fishery were chum. Pink salmon made up slightly more than one percent of that harvest. Overall, the incidental harvest rate (percent non-targeted species) was less than 1.4%. It is also possible that some portion of the coho harvested during this opening were adults returning from the experimental Melanson Lake coho grow-out program, as Melanson Creek is in close proximity to the site of the Port Chester netpens.

Fishing effort was estimated at about 21 boat-days, yielding an all-species CPUE of 557 fish/boat/day, and a chum CPUE of nearly 550 fish/boat/day. The value of this one-day opening of the PCTHA was $94,548, with an average vessel making about $3,050.

Typically, terminal area openings are alternated between the gillnet and purse seine fleets. However, following the one-day gillnet opening, an assessment of the number of chum remaining in the area concluded that there weren't enough remaining to justify another opening in the PCTHA, and the fishery was closed.

Releases--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 2021, TCH released 10 million chum fry, 1.622 million coho smolts, and 284,400 king smolts from the Port Chester netpens. The chum fry will return as adults during the period from 2023 through 2026. The coho will return as adults in the fall of 2022. The Chinook smolts will return as adults over the period from 2022 through 2025. Reliable marine survival data, as well as other key data, are not available for the years prior to 2019, so it was not possible to develop a forecast of the returns from these releases.

Melanson Lake serves as a release site for coho in excess of the rearing capacity at TCH. Over the period from November to December, 2020, 1.17 million coho pre-smolts were released in Melanson Lake. Those fish out-migrated later that spring (2021), and surviving adults will return in the fall of 2022, at approximately the same time as the coho released from the Port Chester netpen program. However, to date, the survival rates observed in the Melanson Lake coho program have been quite poor.

Spawning Escapement

Surveys for estimating spawning escapement have been conducted on Annette Island every year since 1983. In 2021, these surveys began in SW#34 (week beginning August 15) and continued for about seven weeks, through SW#41 (week beginning September 26). The Department routinely monitors 10 Reserve streams, which, collectively, are known as index streams. These streams are selected such that each of the Reserve's regions (northwest, northeast, southeast, and southwest) are represented. These streams are thought to be representative of escapement to other Reserve streams. In addition to the 10 index streams an additional nine streams are monitored on a three-year rotational basis. Three of these streams are added to the index streams each season, so that 13 streams are monitored each season (Table 27).

Table 27. The Annette Islands Reserve index streams for the 2021 season, and the nine streams that are added to the list of index streams on a three-year rotational basis. Three of the rotational streams are added to the list of index streams each season, as reflected below. The "year 1" streams were added to the index streams in 2021.

Index Streams	3-Year Rotational Streams	
Cowboy Creek	Year 1	Campbell Creek
Crab Creek		Colby Creek
Gillnet Creek		Melanson Creek
Hospital Creek	Year 2	Annette Inn Creek
Kwain Creek		Beaver Creek
Annette Point Creek		Powerhouse Creek
Moss Point Creek	Year 3	Cascade Creek
Nadzaheen Creek		David Creek
Hemlock Creek		Japan Bay Creek
Upper Trout Lake Creeks		

Note: The Upper Trout Lake Creeks (North and South forks) are surveyed only for the presence of sockeye and coho. A barrier at the mouth of Tain Creek, which drains Trout Lake, is impassable by pink and chum salmon.

Two, or more, surveyors participated in each stream survey, counting both live and dead fish, by species. As in previous seasons, the 2021 Salmon Management Plan called for each of the index streams to be surveyed at least once every two weeks. At that time of the year, weather conditions often constrain survey efforts, with strong winds frequently limiting access to streams that require boat travel, and heavy rain limiting visibility. That was the case during the latter part of the 2021 season's escapement monitoring effort. Beginning in SW#38 (the week of September 12), persistent strong winds and unusually heavy rainfall limited stream survey efforts for much of the remainder of the 2021 salmon season. Access to streams that required boat travel was quite limited during most of that period, but the most difficult impediment was the streams' extremely high water levels and the resulting limitations on visibility. For much of the second half of September, water level in the larger streams was too high for foot surveys (overtopping waders), and limited visibility reduced both the surveyors' ability to develop escapement estimates, as well as their ability to distinguish between species. Consequently, the goal of surveying each index system at least once every two weeks was not achieved during the second half of September, a period during which some of the Reserve's streams see peak pink and chum escapement. As a result, actual escapement may be greater than reported in the following discussion.

In streams where there was sufficient escapement data (where the goal of conducting an escapement survey every two weeks was achieved), weekly counts of pink and chum spawners were converted to estimates of total escapement by using the assumption that fish remain in the streams for about two weeks, which is consistent with the ranges of residence time reported by Dangel and Jones (1988). Although the spawner surveys did not cover all the salmon-producing streams on the Reserve, they cover the largest-producing ones. In 2021, the surveys covered streams accounting for 94% of the estimated pink salmon spawning habitat on the Reserve.

Overall, pink salmon escapement to Reserve streams was exceptional, with estimated total escapement greatly exceeding previous record-high estimates in most streams. All of the 2021 season's index streams substantially exceeded both the 10- and 37-year averages for those streams, as well their estimated habitat-based escapement potential. Of the 2021 season's 11 pink salmon index streams, only Campbell Creek saw pink salmon escapement fall short of average escapement and the streams' escapement goals (Table 28). All of the Reserve's chum-producing streams saw chum salmon escapement fall well short of the habitat-based chum escapement potential, and only chum returns to Annette Point Creek and Kwain Creek exceeded average escapement (10- and 37-year) to those streams (Table 29).

Table 28. Estimates of pink salmon escapement to the Reserve's pink salmon index streams for the 2021 season, compared to average pink escapement (10- and 37-year); escapement during the 2019 parent season; as well as estimated habitat-based escapement potential.

Pink Index System	2021 Peak Escapement	Estimated Total 2021 Escapement	All-Year Avg. Peak (1984 - 2020)	10-Year Avg. Peak (2011 - 2020)	Estimated Escapement Potential	2019 Peak Escapement (Brood Year)
Annette Point	122,102	122,102	13,858	16,157	5,340	25,537
Campbell	2,837	2,837	3,282	3,165	13,000	
Colby	761	1,174	896	310	400	27
Cowboy	6,427	6,427	1,262	726	861	377
Crab	40,830	42,237	13,703	13,933	25,000	7,222
Gillnet	22,442	22,442	3,137	2,298	2,600	4,892
Hemlock	44,600	48,857	8,657	6,141	11,435	2,372
Hospital	2,805	3,327	759	517	1,000	596
Kwain	12,480	12,912	4,579	4,427	8,752	5,111
Moss Point	32,103	35,549	4,285	5,886	5,250	16,523
Nadzaheen	127,634	127,884	40,321	41,584	54,200	41,272
Total	415,021	425,748	94,739	95,144	127,838	103,929

Pink Salmon

The Reserve saw record-high pink salmon escapement in 2021. In fact, an estimated 425,748 pink salmon returned to the index streams listed in Table 28, which was more than double the previous record-high (1995) estimate of pink escapement to those streams. In that season, an estimated 204,405 pink salmon returned to those streams. When expanded across the streams that weren't surveyed, it is estimated that a total of 454,850 pink salmon spawned on the Reserve in 2021. The 2021 season saw record-

high pink escapement established in eight of the 11 pink salmon index streams, and in several of those systems, pink escapement was more than double the previous record-high estimate. All of the pink index systems saw pink escapement exceed average escapement over the previous 10 seasons, and all greatly surpassed the pink escapement counts in 2019, the brood year for the 2021 pink salmon return. Only Campbell Creek and Colby Creek saw pink escapement fall short of the 37-year average to those streams, although, in the case of Campbell Creek, only a single survey was conducted, and it likely missed peak escapement to that stream. The 2021 season's pink escapement estimate was more than four times greater than the escapement estimate of the 2019 parent year, 103,929 fish (Figure 41). The 2021 pink escapement estimate was more than three times greater than the sum of the estimated, habitat-based escapement potential of the 2021 season's pink salmon index streams (Biggs, 1982).

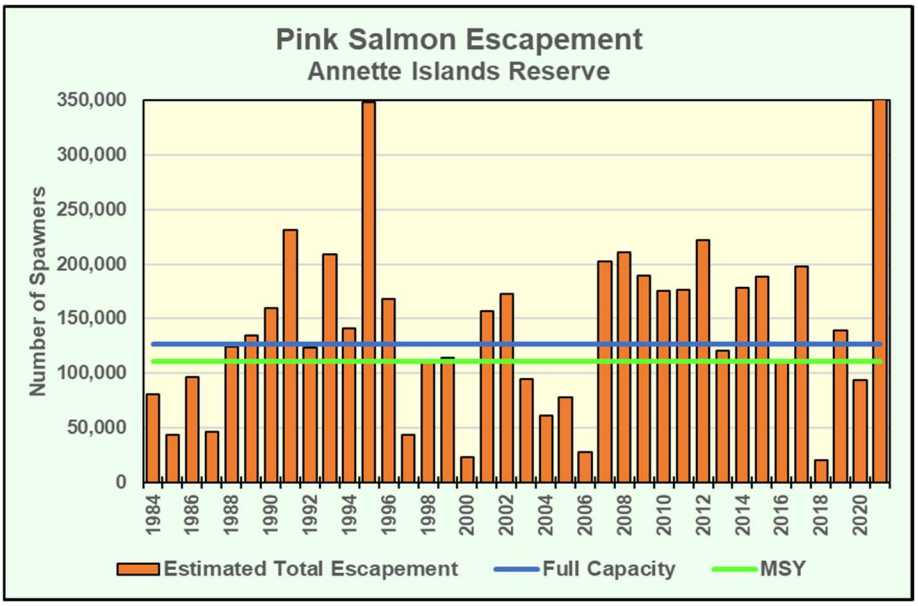

Figure 41. Annual pink salmon escapement to the Annette Islands Reserve's streams (1983 – 2021).

In the following, examples of pink salmon escapement to representative streams located in various areas of the Reserve are provided:

- The peak count at Nadzaheen Creek, located in the northeastern portion of the Reserve, surveyed on September 2, 2021 (SW#36), was 127,634 pink salmon. However, because of the difficult weather conditions previously described, that ended up being the last survey of the Creek in 2021, although the average peak (10- and 37-year) has occurred two weeks later, in SW#38. Still, the 2021 pink salmon estimate was the highest ever recorded on Nadzaheen. It was 147% of the previous record-high estimate, which occurred in 1995, and more than 235% of the stream's estimated, habitat-based escapement potential, 54,200 fish. Nadzaheen Creek is the Reserve's most productive pink salmon system, and in an average season (1984–2020), has seen a peak pink salmon count of 40,321 fish. In 2019, the parent year for the 2021 pink salmon return, the peak survey estimated the return of 41,272 pinks to Nadzaheen Creek.
- The peak count at Hemlock Creek, located in northern Port Chester, was 44,600 pink salmon, was obtained on September 9, 2021, in SW#35. In an average season (10- and 37-year), the peak pink salmon count has been recorded in the period from SW#39 to SW#40. The 2021 season's peak count was the largest

ever observed in the Creek, by far, and more than 246% of the previous record-high count, 18,110 pinks, which was recorded in 1991. In total, 48,857 pink salmon are estimated to have spawned in Hemlock Creek in 2021. The 2021 peak count was 726% of the Creek's 10-year average (6.141), 515% of the 37-year average (8,657), and 390% of the estimated, habitat-based escapement potential (11,435). In 2019, the parent year for the Creek's pink return, the peak survey found an estimated 2,372 pinks.

- Gillnet Creek is located on the southwestern portion of the Reserve, and is one of the Reserve streams most vulnerable to the effects of fishing pressure. Only one survey was conducted at Gillnet Creek in 2021. That survey, conducted on September 8, in SW#37, found an estimated 22,442 pink salmon. That count was 228% of the previous record-high count, 9,909 pinks, recorded in 1994, 977% of the 10-year average peak count (2,298), 715% of the 37-year average (3,137), and 863% of the estimated, habitat-based escapement potential (2,600). During the parent year for the 2021 pink return, the peak pink count was 4,892 fish. On average (10- and 37-year), Gillnet Creek's peak pink counts have been recorded during the period fromSW#40 through SW#42.
- Crab Creek has been one of the more resilient streams on the reserve, sustaining spawning even during the low water conditions that have often been observed during the early portion of the pink salmon returns. The peak pink salmon count at Crab Creek was obtained on September 1, 2021, in SW#36, with an estimated 40,830 pinks observed, the largest count ever recorded on the Creek. The peak pink count observed in 2021 was 138% of the previous record-high count, 29,648 fish, recorded in 2014, 293% of the 10-year average peak count (13,933), 298% of the 37-year average (13,703), and 163% of the estimated, habitat-based escapement potential (25,000). In the 2019 parent year for the 2021 pink return, the peak survey found only 7,222 pinks. In an average season (10- and 37-year), the peak pink count is normally observed in SW#40.
- Moss Point Creek, which is located on the southern end of Annette Island, south of the airport, at the western entrance to Tamgas Harbor. A survey conducted on September 8, in SW#37, found an estimated 32,103 pinks, the peak pink count on the Creek in 2021, and the largest number of pinks ever observed in the Creek. It is estimated that a total of 35,549 pink salmon returned to Moss Point Creek in 2021. The 2021 season's peak count was 194% of the previous record-high count (16,523) which was recorded in 2019, the parent year for the 2021 pink salmon return. The 2021 peak count was 545% of the average peak count over the previous 10 seasons (5,886), 749% of the 37-year average (4,285), and 611% of the estimated, habitat-based escapement potential (5,250). In an average season, the peak pink salmon count on Moss Point Creek has been observed in the period from SW#38 to SW#40.
- The 2021 season's single survey of Annette Point Creek, conducted on August 27, in SW#35, found an estimated 122,102 pink salmon, which was the greatest number of pinks ever observed in the Creek, by far. In fact, the 2021 count was 374% of the previous record-high count, 32,674 fish, recorded in 1995. The 2021 season's peak pink count on Annette Point Creek was 756% of the 10-year average (16,157), 881% of the 37-year average (13,858), and 2,287% of the

estimated, habitat-based escapement potential (5,340). During the 2019 season, the parent year for the 2021 pink return, the peak survey of Annette Point Creek found 25.537 pinks. In an average season (10- and 37-year), the peak pink counts on Annette Point Creek have been observed in SW#37.

- Cowboy Creek is located in the northwestern area of the Reserve. Prior to the 2021 season, the Creek had seen poor pink salmon returns over the previous six seasons, averaging only 146 pinks over that period. However, in 2021, the peak pink count at Cowboy Creek, recorded on September 9, in SW#37, was 6,427 fish, which was the largest pink count ever recorded in the Creek. The 2021 count was 206% of the previous record-high count, 3,126 fish, recorded in 1995, 886% of the 10-year average peak count, 509 of the 37-year average, and 747% of the Creek's estimated, habitat-based escapement potential. In an average season (10- and 37-year), the peak pink count has been observed in SW#37 on Cowboy Creek.

Fall Chum Salmon

For the ninth consecutive season, considerably fewer than 1,000 chum returned to Reserve streams in 2021. A total of 448 chum are estimated to have returned to the Reserve's chum index streams in 2021 (Table 29), a decline from chum escapement in the previous two seasons. The sum of the peak chum counts in the nine chum index systems was 383 fish. Over the previous 37 seasons, the sum of the peak chum counts has averaged 1,367 fish, but over the previous 10 seasons, it has declined to an average of 512 chum per season. Since 1984, only six seasons have seen a lower peak count than in 2021. Estimated total chum escapement to the chum index streams was only nine percent of the systems' estimated chum escapement potential, 4,796 fish (Figure 42). The Reserve's estimated habitat-based chum spawning potential (all Reserve streams), is 5,054 fish (Biggs, 1982). However, Reserve streams have not seen that many chum return since 2008, when 5,798 chum are estimated to have returned to Reserve streams.

Table 29. Estimates of chum salmon escapement to the Reserve's chum salmon index streams for the 2021 season, compared to average chum escapement, as well as estimated habitat-based chum escapement potential.

Chum Index System	2021 Peak Chum Escapement	Estimated Total 2021 Escapement	All-Year Average Peak (1984-2020)	10-Year Average Peak (2011-2020)	Estimated Escapement Potential
Annette Point	144	144	50	39	350
Campbell	3	3	1	0	760
Cowboy	5	5	1	0	6
Crab	13	22	435	161	1,260
Gillnet	0	0	19	6	170
Hemlock	3	4	204	62	340
Kwain	197	251	33	66	710
Moss Point	0	0	7	4	200
Nadzaheen	18	19	617	174	1,000
Total	383	448	1,367	512	4,796

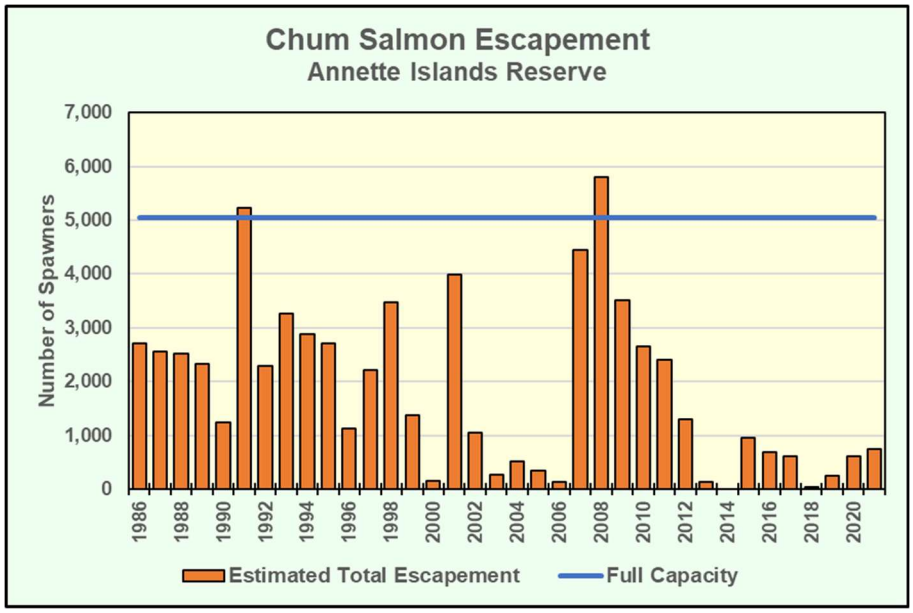

Figure 42. Annual chum salmon escapement to the Annette Islands Reserve's index streams (1984 – 2021).

Of the Reserve's primary chum streams (Annette Point, Crab, Hemlock, Kwain, and Nadzaheen), only Kwain Creek and Annette Point Creek saw chum salmon escapement reach, or exceed, average levels in 2021. In fact, 341 of the 383 chum observed in the Reserve's chum index systems in 2021 came from those two streams. None of the primary chum systems saw close to 50% of the estimated habitat-based escapement potential. The weather and instream conditions previously described, which precluded surveys of the larger systems after SW#37, likely meant that peak chum escapement was missed in 2021. As a result, actual escapement is likely greater than estimated here. Over the previous 37 seasons, average peak chum escapement in most of the Reserve's chum-producing streams has been observed in SW#39 and SW#40.

The following are examples of chum escapement to the Reserve's largest chum salmon index streams, which were selected to be representative of the several habitat types on the Reserve:

- The peak count of the Nadzaheen Creek chum return was only 18 fish in 2021, the third-lowest peak count the Creek has seen since 1984. A total of only 19 chum are estimated to have returned to the Creek in 2021. Since 1984, the Nadzaheen Creek's annual peak chum count has averaged 617 fish, although that average has declined substantially from averages observed during the 1980s and 1990s. To illustrate, for the period from 1984 through 1995, Nadzaheen's average peak chum count was 1,104 fish. Since that time, the Creek's average peak chum count has declined to 440 fish. More recently, over the most recent seven seasons (2015-2021), Nadzaheen Creek's peak chum count has averaged 134 fish. Based upon available habitat, it is estimated the Creek's chum escapement potential is 1,000 fish. Over the previous 37 seasons, the peak chum count at Nadzaheen has been observed in SW#40.
- Peak chum survey counts at Crab Creek have averaged 435 fish over the previous 37 seasons. Based on spawning habitat potential, it is estimated that the Creek could support as many as 1,260 spawning chum salmon. However, in 2021, Crab Creek's total chum return was estimated at 22 fish. The 13 chum salmon observed

during the 2021 peak survey was the second-fewest ever observed during a season's peak survey, surpassing only the peak count in 2018, and replacing the 2020 season's peak survey, 20 chum, as the second-smallest peak count ever recorded at Crab Creek. Over the previous 10 seasons, the peak chum count has averaged 161 chum; over the last five seasons, it has averaged only 25 chum. Since 1984, Crab Creek's peak chum count has been observed, on average, in SW#40.

- Hemlock Creek has seen an average peak chum survey count of 204 fish over the previous 37 seasons. However, only three chum were observed in Hemlock during the 2021 season's peak survey, and the Creek's total chum return was estimated at four fish. Over the previous 10 seasons, an average of only 62 chum have been observed in the Creek's peak survey, and over the last five seasons, the average has declined to 23 fish. The estimated spawning potential of Hemlock Creek, which was based upon available habitat, is 354 chum. However, Hemlock Creek's chum escapement has not approached that many fish since 2011, when 302 chum were observed in the season's peak survey. The average peak count in Hemlock Creek as been observed in the period from SW#38 to SW#40 (1984—2020).
- Annette Point Creek is one of the Reserve's most pristine creeks. It is estimated that the Creek's habitat-based chum spawning potential is 350 fish. However, peak chum survey counts have averaged only 50 fish since 1984. That average has declined to only 39 fish over the previous 10 seasons. However, in 2021, the peak chum count on Annette Point Creek, conducted on August 27, in SW#35, was 144 fish, the most chum observed in the Creek since 1986. Over the previous 37 seasons, the average peak chum count at Annette Point Creek has been observed during the period from SW#38 to SW#41.

It is important to note that the native chum salmon spawning in Annette Island streams are fall-run chum, generally returning after mid-August. In an average season (1983—2020), about 95% of local natural chum escapement has occurred after SW#34. By contrast, in recent seasons, the commercial chum catch has been largely comprised of hatchery-produced summer-run chum which, in the commercial harvest, are most abundant during the early part of the salmon season. There are no natural summer-run chum stocks on the Reserve. In 2021, less than five percent of the chum salmon caught on the Reserve were harvested during the Fall Management Period (SW#36 to season closure).

Sockeye

The Reserve's sole sockeye-producing system is Trout Lake (there is a remnant Kokanee population in Tamgas Lake). Multiple surveys are conducted each year of the tributaries draining into Upper Trout Lake, where all sockeye spawning occurs. The peak escapement count in 2021 was 106 sockeye, all of which were in South Upper Trout Lake Creek. Total estimated escapement was 267 spawners, a substantial improvement on the 23 sockeye that were estimated to have returned in 2020, but only 52% of the 2019 season's estimate (516). Over the previous 10 seasons (2011—2020), the Trout Lake peak sockeye count has averaged 324 fish, while estimated total

sockeye escapement has averaged 366 fish (Table 43). The system's habitat-based spawning potential is estimated at more than 2,200 sockeye.

Through the 1990's and well into the 2000's, the system saw very poor sockeye escapement. In some years, in fact, the peak sockeye count was reduced to fewer than 10 fish. In 2007, the Community initiated a sockeye recovery project, which included lake fertilization and fry supplementation. Unfortunately, broodstock could not be secured to supplement sockeye production for a full brood cycle, meaning that sockeye supplementation was possible in only two seasons. However, lake fertilization has been continued, including in 2021, a continuation of the effort to promote increased primary production and restoration of the Lake's sockeye population.

Prior to the supplementation effort, sockeye escapement was entirely confined to the North Upper Trout Lake Creek. Following supplementation, however, surveys have found sockeye in only the South Upper Trout Lake Creek. Since both creeks have substantial high-quality spawning substrate, it is not clear why recent years' returns have been confined to South Upper Trout Lake Creek. The north fork of that Creek has substantial production potential, but it appears that the natural stock of that fork has been extirpated. With respect to the south fork, it is clear that gaps remain in the sockeye restoration effort, which was likely a function of the incomplete supplementation effort.

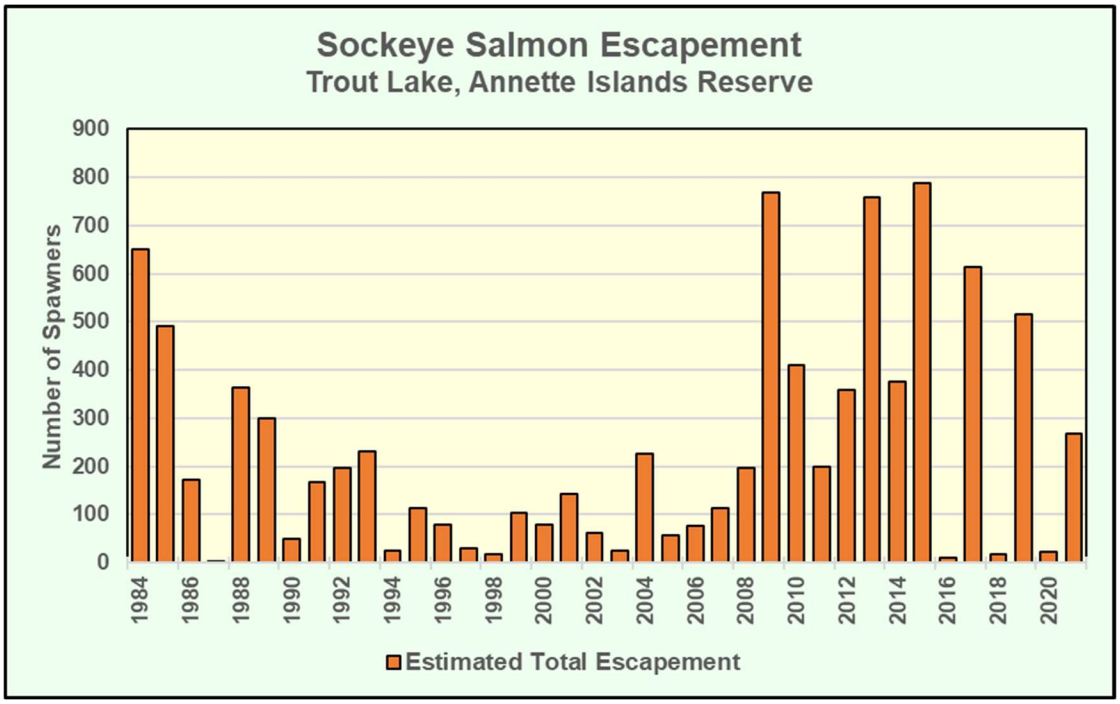

Figure 43. Estimated total sockeye escapement to Upper Trout Lake streams, by year, 1984 – 2021.

Discussion

Achieving the Goals and Objectives

The goal for management of the Reserve's fish and wildlife resources is:

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

- Maximize the economic benefit of fish and wildlife resources to the Metlakatla Indian Community;
- Ensure the sustainability of fish and wildlife resources; and,
- Minimize:
  adverse environmental consequences
  adverse impacts to fish and wildlife resources

The objectives for the Annette Islands Reserve Commercial Salmon Fishery, which the Council, Annette Islands Reserve, has adopted as the means by which the goals stated above will be achieved, are contained in Title 25 Code of Federal Regulations Part 251. They are:

- **Conservation:** Achieve spawning escapement needs, imposing any requirements reasonable and necessary for conservation.
- **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.
- **Community Maintenance:** Promote the federal purpose in the establishment and maintenance of the Metlakatla Indian Reservation, by providing income to individuals and the Community.

This section evaluates and discusses how well the salmon fishery met those objectives in 2021.

Conservation

The 2021 season saw exceptionally strong overall pink salmon escapement to Reserve streams. Most of the Reserve's index streams saw pink escapement substantially exceed both average escapement, as well as their estimated, habitat-based escapement potential. The sum of the 2021 season's peak survey counts of the Reserve's 11 index streams was more than 400% of both the 10- and the 37-year average. The estimate of total pink escapement to the index streams was 333% of their estimated, habitat-based escapement potential. Nadzaheen Creek, the Reserve's most productive pink salmon system, saw nearly 317% of the pink escapement it has averaged since 1984. Estimated total pink escapement to Crab Creek, which has averaged 20,217 per year over the previous 10 seasons, was 42,237 fish, or 209% of the Creek's 10-year average. Of the 2021 season's 11 pink salmon index streams, only Colby Creek and Campbell Creek saw escapement fall short of average escapement, and the single survey of the latter may have missed the escapement peak. In fact, pink escapement to most of the pink index streams was at record-high levels. The sum of

the index systems' peak survey counts was more than four times greater than the sum of peak escapements in the 2019 parent year.

Although the Reserve's 2021 pink salmon escapement was at record-high levels, chum salmon escapement was well below both the 10- and 37-year averages. The sum of the peak count on the 2021 season's nine chum index streams was 383 fish, well below the 1,367 chum that have been averaged since 1984. Chum escapement to Kwain Creek and Annette Point Creek were exceptions, as both exceeded both their 10- and 37-year averages, but Crab Creek, Nadzaheen Creek, and Hemlock Creek all saw chum escapement fall well short of even recent averages, which were well short of both their 37-year averages and their estimated, habitat-based escapement potential. However, local escapement was not the only indication of a weak fall chum return. Since 1984, only three seasons have seen fewer chum delivered during the Fall Management Period (SW#36 to season closure), a period during which the fishery harvests fall chum, than in 2021. In fact, the chum salmon harvested during the Fall Management Period, a period during which fall chum produced by the Tamgas Creek Hatchery formerly comprised a substantial portion of the catch, accounted for less than five percent of the Reserve's total chum harvest.

Of particular concern were the peak chum counts on the Reserve's three major chum-producing streams, Crab, Nadzaheen, and Hemlock Creeks. In combination, those creeks were estimated to have seen a total of 45 chum return in 2021, although their combined estimated, habitat-based escapement potential is 2,600 chum. However, it is also important to consider that weather an instream conditions precluded surveys for a three-week period after SW#37. Over the previous 37 seasons, most of the Reserve's chum-producing streams see chum escapement peak, on average, during the period from SW#38 through SW#40. As a result, it is likely that actual chum escapement was greater than estimated in this report.

As prescribed by the 2021 Salmon Management Plan, the conservation needs of the salmon resources were considered by the Fishery Management Board (FMB) throughout the season, and there were a number of management decisions that were driven by conservation concerns. To illustrate, the purse seine fishery was open for only three days during the 2021 season's FMP, a period that, since 1984, has seen an average of eight days of purse seining. There was only one purse seine delivery after SW#36. The gillnet fleet was open for a total of 17 days during the FMP (SW#36—SW#40), nearly five days fewer than the fleet has averaged since 1984. Once local escapement began developing, area closures were expanded to protect chum escapement to Nadzaheen Creek and Crab Creek. Only 5,776 chum were harvested by Reserve fisheries during the 2021 season's FMP, the fourth fewest chum the fleet has harvested during that period since 1984.

In summary, while Reserve pink salmon escapement was exceptional, chum escapement continues to be concerning, although, with the poor chum catches observed during the FMP, fall chum escapement does not appear to be a concern limited to only Reserve streams.

Sharing

In evaluating this objective, the management team used three measures of sharing:

- comparison of fishing schedules between the Reserve fishery and that in adjacent State-managed waters;
- proportion of the District 101 salmon catch taken in the Reserve fishery;
- and fish per boat on the Reserve compared with fish per boat in the District 101.

Fishing Schedules

Gillnetting was open for 65 days on the Reserve, one day less than the 66 days the District 101Tree Point gillnet fishery was open. The Reserve's gillnet fishery opened in SW#25, while the Tree Point gillnet fishery opened in SW#26. Both fisheries fished through SW#40. During the FMP (SW#36—SW#40), the period during which most of the Reserve's chum salmon escapement occurs, the Reserve's gillnet fishery was open for 17 days, while the Tree Point fishery was open for 21 days.

Purse seining was open on the Reserve for 33 days in 2021, 2 days more than purse seining was open in District 101 (31). The Community's purse seine fishery was first opened in SW#27 in 2021, with two days of fishing scheduled in that week. The first District 101 purse seine opening was in SW#28. With local pink salmon escapement developing into an above-average season, the FMB also scheduled two days of purse seining in SW#36, and one day in SW#38, while the District 101 purse seine fishery was open for four days in SW#36, but closed for the season after that week. The Reserve's one-day purse seine opening in SW#38 was intended to target coho produced by Tamgas Creek Hatchery. However, only one vessel fished during that 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 District 101 purse seine fishery and the Reserve's purse seine fishery.

Comparison of the District 101 Salmon Catch with the Reserve's Salmon Harvest

Evaluating the sharing objective in this manner introduces an element 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 Reserve 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 and 2018, 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. Nonetheless, the Department has tracked, in-season, the State and Reserve salmon harvests in District 101, 102, 103, and 104. Table 30 summarizes the results of a comparison of the Reserve's share of the District 101 harvest, by gear and species, with the share taken by State-permitted vessels during the 2021 season.

Table 30. A comparison of the Annette Islands Reserve fisheries' share of the District 101 salmon harvest in 2021, by gear and species.

	Purse Seine		Gillnet		Dist. 101 Total	
	AIR	State	Air	State	Air	State
King	100.0%	0.0%	30.6%	69.4%	40.7%	59.3%
Sockeye	11.8%	88.2%	12.0%	88.0%	12.3%	87.7%
Coho	14.2%	85.8%	23.1%	76.9%	20.0%	80.0%
Pink	19.7%	80.3%	46.8%	53.2%	22.8%	77.2%
Chum	18.6%	81.4%	30.1%	69.9%	25.7%	74.3%
Total	19.6%	80.4%	36.2%	63.8%	22.8%	77.2%

NOTE: Sharing estimates do not include troll data.

Reserve fisheries are estimated to have harvested less than 23% of the salmon harvested in the District 101 net fisheries during the 2021 season. That estimate is based on the Reserve's final harvest estimates and the Alaska Department of Fish and Game's (ADF&G) weekly preliminary estimates of the District 101 harvest, excluding troll deliveries. At the time this report was prepared, DFW had not managed to access final estimates of ADF&G's District 101 harvest in 2021. Since 2010, the Reserve's salmon fisheries have harvested an average of less than 25% of the District 101 harvest, with that share ranging from a low of 16.8% in 2013, to a high of 45.6%, in 2011.

Based on ADF&G's preliminary estimates of the harvest in the State's 2021 District 101 net fisheries, Reserve seiners are estimated to have delivered about 22% of the District 101 purse seine harvest, slightly greater than the 20% the fleet has averaged since 2010. The Reserve's gillnet fleet it estimated to have harvested 39% of the 2021 District 101 gillnet harvest, which is slightly less than the 40% the Reserve's gillnet fleet has averaged of the District 101 gillnet harvest.

Catch per Boat

In this measure, the sum of the average vessel's catch in each week provides a measure of an average vessel's season harvest, and a basis for comparing the average catch-per-boat on the Reserve with the catch-per-boat in District 101. The data used for this calculation were taken from ADF&G's fishery announcements, which include a preliminary catch estimate from the previous opening. Since this measure is not based on final harvest data, it is only intended to provide a comparison, by gear, of the relative impact of a vessel fishing on the Reserve with a vessel fishing off the Reserve in District 101. The actual catch-per-boat would be based on final harvest numbers, but since

corresponding effort data (number of vessels) are not available for each opening, an estimate of average catch-per-boat based on final harvest data was not calculated.

In 2021, Annette Island gillnetters averaged 6,504 fish per vessel for the season, while, in the District 101 Tree Point Gillnet Fishery, the average vessel is estimated to have harvested 10,956 fish of all species (Table 31). In this comparison, Tree Point gillnetters caught an average of 4,451 fish more salmon (68% more) than Reserve gillnetters

Table 31. Estimated average catch-per-boat, by area, gear, and species, during the 2021 season. Data for State-permitted vessels' harvest are preliminary and were taken from ADF&G's in-season fishery announcements.

	Purse Seine					Gillnet	
	AIR	101	102	103*	104	Tree Pt.	AIR
King	43	0	0	8	89	60	39
sockeye	1,045	3,106	2,885	1,421	14,369	622	94
coho	1,355	2,192	2,784	1,651	3,113	1,702	569
pink	216,604	296,321	293,960	152,433	231,712	3,393	3,729
chum	3,905	5,241	17,998	9,928	5,717	5,180	2,073
Total	222,953	306,860	317,627	165,442	255,000	10,956	6,504

*Dist. 3 values exclude data from openings with only a single boat fishing

Among the seiners, the Reserve's fleet took an average of 222,953 salmon per boat in 2021, while an average State-permitted seiner took about 306,860 salmon in District 101, a difference of 83,907 fish, or 38% more than an average Reserve seiner.

Community Maintenance

The Reserve's salmon fisheries are a key component of the federal purpose for the Reserve. In addition to the income earned directly by Community fishers, the Reserve's fisheries encourage the development of a variety of support services.

The ex-vessel value of the Reserve's 2021 commercial salmon fisheries was $4,715,019, the Reserve's most valuable salmon season since 2013. The purse seine fleet's deliveries were valued at $3,459,960 in 2021, the second most valuable purse seine season since 1990. The purse seine fleet's earnings accounted for about 73% of the total value of the Reserve's 2021 commercial salmon fisheries. An average purse seine vessel earned about $268,937 (the sum of the average weekly earnings). On average, a day of fishing earned purse seine vessels $11,987.

The gillnet fleet's 2021 deliveries were valued at $1,192,694, with an average gillnetter making about $36,825 (the sum of the weekly average earnings). On average, a day of fishing earned gillnetters about $1,571 during the 2021 season. The gillnet fleet earned additional income during the one-day opening of the Port Chester Terminal Harvest Area. During that 12-hour opening, 30 vessels delivered salmon (more than 98% chum) valued at $94,548, with an average vessel making about $3,050.

By most measures, the 2021 commercial salmon fishery was successful from an economic, or federal purpose, perspective. However, since there was no local

processing, the economic impact was less than it would have been prior to the closure of the fish-processing plant following the 2018 season.

References Cited

Biggs, E.D. 1982. Annette Islands Stream Inventory, Potential Salmon Production Summary. Report prepared for the Metlakatla Indian Community.

Dangel, J.R. and J.D. Jones. 1988. Southeast Alaska Pink Salmon Total Escapement And Stream Life Studies, 1987. Regional Information Report No IJ88-24. Alaska Department of Fish and Game, Division of Commercial Fisheries. Juneau, A1aska.

Appendix A
Fishery Calendar (schedule)

STAT WK	FISHERY TYPE	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
JUN		13	14	15	16	17	18	19
WK#25	Gillnet	12:00 Noon, Sun, to 12:00 Noon, Wed						
	P. Seine						5am-8pm	
	Term/Sub							
JUN		20	21	22	23	24	25	26
WK#26	Gillnet	12:00 Noon, Sun, to 12:00 Noon, Wed						
	P. Seine							
	Term/Sub							
JUN-JUL		27	28	29	30	1	2	3
WK#27	Gillnet	12:00 Noon, Sun, to 12:00 Noon, Wed						
	P. Seine	5am-8pm						
	Term/Sub							
JUL		4	5	6	7	8	9	10
WK#28	Gillnet	12:00 Noon, Sun, to 12:00 Noon, Thu						
	P. Seine		5am-8pm		5am-8pm			
	Term/Sub							
JUL		11	12	13	14	15	16	17
WK#29	Gillnet	12:00 Noon, Sun, to 12:00 Noon, Fri						
	P. Seine	5am-8pm			5am-8pm		5am-8pm	
	Term/Sub							

Legend: Gillnet; Purse Seine; Terminal Area Opening--Gillnet; Subsistence Opening (no purse seine)

Term=Terminal Area fishery opening

Sub=Subsistence opening

Figure 44. The fishing schedule during the 2021 season Early Summer Management Period.

STAT WK	FISHERY TYPE	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
JUL		18	19	20	21	22	23	24
WK#30	Gillnet	12:00 Noon, Sun, to 12:00 Noon, Fri						
	P. Seine		5am-8pm		5am-8pm		5am-8pm	
	Term/Sub							
JUL		25	26	27	28	29	30	31
WK#31	Gillnet	12:00 Noon, Sun, to 12:00 Noon, Fri						
	P. Seine	5am-8pm		5am-8pm			5am-8pm	
	Term/Sub							
AUG		1	2	3	4	5	6	7
WK#32	Gillnet	12:00 Noon, Sun, to 12:00 Noon, Fri						
	P. Seine	5am-8pm		5am-8pm		5:00 am, Thu, to 8:00 pm Fri		
	Term/Sub				6am-6pm			
AUG		8	9	10	11	12	13	14
WK#33	Gillnet	12:00 Noon, Sun, to 12:00 Noon, Fri						
	P. Seine		5:00 am, Mon, to 8:00 pm Tue			5:00 am, Thu, to 8:00 pm Fri		
	Term/Sub							
AUG		15	16	17	18	19	20	21
WK#34	Gillnet	12:00 Noon, Sun, to 12:00 Noon, Fri						
	P. Seine	5:00 am, Sun, to 8:00 pm Mon			5:00 am, Wed, to 8:00 pm Thu			
	Term/Sub							
AUG		22	23	24	25	26	27	28
WK#35	Gillnet	12:00 Noon, Sun, to 12:00 Noon, Fri						
	P. Seine	5:00 am, Sun, to 8:00 pm Tue						
	Term/Sub							

Legend: Gillnet; Purse Seine; Terminal Area Opening--Gillnet; Subsistence Opening (no purse seine)

Term=Terminal Area fishery opening

Sub=Subsistence opening

Figure 45. The fishing schedule during the 2021 season Summer Management Period.

STAT WK	FISHERY TYPE	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
AUG-SEP		28	30	31	1	2	3	4
WK#36	Gillnet	12:00 Noon, Sun, to 12:00 Noon, Thu						
	P. Seine		5am-8pm		5am-8pm			
	Term/Sub							
SEP		5	6	7	8	9	10	11
WK#37	Gillnet	12:00 Noon, Sun, to 12:00 Noon, Wed						
	P. Seine							
	Term/Sub							
SEP		12	13	14	15	19	17	18
WK#38	Gillnet	12:00 Noon, Sun, to 12:00 Noon, Thu						
	P. Seine				6am-9pm			
	Term/Sub							
SEP		19	20	21	22	23	24	25
WK#39	Gillnet	12:00 Noon, Sun, to 12:00 Noon, Wed						
	P. Seine							
	Term/Sub						6am-6pm	
SEP-OCT		26	27	28	29	30	1	2
WK#40	Gillnet	12:00 Noon, Sun, to 12:00 Noon, Wed						
	P. Seine							
	Term/Sub							6am-6pm

Legend: Gillnet; Purse Seine; Terminal Area Opening--Gillnet; Subsistence Opening (no purse seine)

Term=Terminal Area fishery opening

Sub=Subsistence opening

Figure 46. The fishing schedule during the 2021 season Fall Management Period.

Appendix B
Historical Harvest Data

Table 32. Annette Islands Reserve king salmon harvest, by year and gear (1984-2021)

	King									
	GN		PS		Troll		Trap		Total	% of
Year	Fish	% of Total	Fish	% of Total	Fish	% of Total	Fish	% of Total	Fish	Season
1984	88	23%	10	3%	89	23%	196	51%	383	0.02%
1985	224	43%	47	9%	7	1%	249	47%	527	0.03%
1986	98	18%	22	4%	4	1%	434	78%	558	0.03%
1987	517	58%	5	1%	23	3%	343	39%	888	0.17%
1988	582	65%	6	1%	96	11%	214	24%	898	0.08%
1989	373	43%	71	8%	77	9%	338	39%	859	0.03%
1990	534	25%	34	2%	834	39%	722	34%	2,124	0.12%
1991	805	41%	55	3%	1,053	53%	70	4%	1,983	0.18%
1992	448	37%	315	26%	400	33%	35	3%	1,198	0.10%
1993	264	56%	36	8%	134	29%	36	8%	470	0.03%
1994	186	85%	4	2%	29	13%			219	0.03%
1995	121	92%	11	8%	0	0%			132	0.01%
1996	237	97%	0	0%	8	3%			245	0.02%
1997	440	91%	29	6%	15	3%			484	0.07%
1998	263	89%	34	11%	0	0%			297	0.03%
1999	728	98%	10	1%	5	1%			743	0.07%
2000	2,492	53%	2,201	47%	7	0%			4,700	0.43%
2001	3,570	82%	780	18%	0	0%			4,350	0.21%
2002	1,582	72%	625	28%	0	0%			2,207	0.15%
2003	692	89%	83	11%	0	0%			775	0.13%
2004	1,521	80%	338	18%	51	3%			1,910	0.23%
2005	1,146	67%	174	10%	381	22%			1,701	0.28%
2006	491	65%	260	35%	0	0%			751	0.15%
2007	896	74%	176	15%	136	11%			1,208	0.11%
2008	583	85%	52	8%	47	7%			682	0.06%
2009	589	59%	99	10%	304	31%			992	0.06%
2010	688	74%	107	11%	138	15%			933	0.05%
2011	1,243	79%	324	21%	3	0%			1,570	0.14%
2012	1,269	88%	170	12%	2	0%			1,441	0.12%
2013	1,125	78%	263	18%	60	4%			1,448	0.05%
2014	1,145	79%	181	12%	132	9%			1,458	0.07%
2015	1,405	70%	584	29%	15	1%			2,004	0.13%
2016	847	42%	855	42%	331	16%			2,033	0.11%
2017	1,021	52%	509	26%	428	22%			1,958	0.17%
2018	1,128	56%	432	22%	437	22%			1,997	0.39%
2019	445	32%	188	14%	753	54%			1,386	0.10%
2020	561	66%	187	22%	101	12%			849	0.15%
2021	835	54%	412	27%	299	19%			1,546	0.06%
Avg (2011-2020)	1,019	63%	369	23%	226	14%			1,614	0.11%
Avg (1984-2020)	820	63%	251	19%	165	13%			1,307	0.10%
Avg (1994-2020)	978	69%	321	23%	125	9%			1,425	0.11%
Avg (1984-1993)	393	40%	60	6%	272	27%	264	27%	989	0.06%

Table 33. Annette Islands Reserve sockeye salmon harvest, by year and gear (1984-2021)

	Sockeye							% of Season
	GN		PS		Trap		Total	
Year	Fish	% of Total	Fish	% of Total	Fish	% of Total	Fish	
1984	27,495	50.31%	9,320	17.05%	17,836	32.64%	54,651	2.99%
1985	50,213	76.60%	6,094	9.30%	9,242	14.10%	65,549	4.02%
1986	28,331	77.25%	5,267	14.36%	3,078	8.39%	36,676	1.80%
1987	47,282	87.07%	746	1.37%	6,274	11.55%	54,302	10.11%
1988	25,079	81.68%	1,323	4.31%	4,301	14.01%	30,703	2.65%
1989	33,232	65.49%	14,419	28.42%	3,090	6.09%	50,741	1.79%
1990	44,252	70.75%	7,402	11.83%	10,894	17.42%	62,548	3.45%
1991	39,492	87.19%	5,093	11.24%	707	1.56%	45,292	4.04%
1992	56,750	92.02%	3,674	5.96%	1,250	2.03%	61,674	5.11%
1993	76,297	80.01%	14,859	15.58%	4,202	4.41%	95,358	5.51%
1994	35,900	86.75%	5,483	13.25%			41,383	5.81%
1995	37,777	67.43%	18,250	32.57%			56,027	2.54%
1996	22,442	79.90%	5,644	20.10%			28,086	2.71%
1997	20,927	51.06%	20,058	48.94%			40,985	6.13%
1998	11,515	69.70%	5,005	30.30%			16,520	1.49%
1999	16,779	76.31%	5,208	23.69%			21,987	2.14%
2000	11,666	52.18%	10,691	47.82%			22,357	2.03%
2001	16,323	40.65%	23,830	59.35%			40,153	1.90%
2002	19,222	63.39%	11,099	36.61%			30,320	2.06%
2003	3,921	51.96%	3,625	48.04%			7,546	1.30%
2004	15,084	48.12%	16,264	51.88%			31,348	3.75%
2005	6,324	48.97%	6,591	51.03%			12,915	2.15%
2006	8,643	39.10%	13,463	60.90%			22,106	4.41%
2007	13,294	68.53%	6,104	31.47%			19,398	1.82%
2008	3,882	66.42%	1,963	33.58%			5,845	0.52%
2009	7,501	51.44%	7,081	48.56%			14,582	0.92%
2010	9,602	65.96%	4,954	34.04%			14,556	0.80%
2011	17,317	60.84%	11,144	39.16%			28,461	2.61%
2012	16,480	75.68%	5,297	24.32%			21,777	1.85%
2013	7,276	66.39%	3,684	33.61%			10,960	0.37%
2014	8,656	39.73%	13,132	60.27%			21,788	0.99%
2015	6,074	22.46%	20,968	77.54%			27,042	1.80%
2016	5,535	20.03%	22,096	79.97%			27,631	1.49%
2017	5,152	45.35%	6,208	54.65%			11,360	1.00%
2018	1,820	28.33%	4,605	71.67%			6,425	1.27%
2019	2,260	23.70%	7,275	76.30%			9,535	0.70%
2020	917	6.72%	12,731	93.28%			13,648	2.48%
2021	2,950	18.87%	12,685	81.13%			15,635	0.58%
Avg (2011-2020)	7,149	40.02%	10,714	59.98%			17,863	1.25%
Avg (1984-2020)	20,560	61.57%	9,207	29.31%			31,412	2.34%
Avg (1994-2020)	12,307	54.95%	10,091	45.05%			22,398	1.79%
Avg (1984-1993)	42,842	76.85%	6,820	12.23%	6,087	10.92%	55,749	3.51%

Table 34. Annette Islands Reserve coho salmon harvest by year and gear (1984 – 2021).

	Coho									% of Season
	GN		PS		Troll		Trap		Total	
Year	Fish	% of Total	Fish	% of Total	Fish	% of Total	Fish	% of Total	Fish	
1984	11,514	51%	5,021	22%	335	1%	5,754	25%	22,624	1.2%
1985	22,229	76%	3,430	12%	516	2%	3,080	11%	29,255	1.8%
1986	52,793	71%	19,023	26%	941	1%	1,413	2%	74,170	3.6%
1987	22,574	69%	9,172	28%	42	0%	757	2%	32,545	6.1%
1988	7,556	80%	1,372	15%	38	0%	429	5%	9,395	0.8%
1989	21,177	88%	1,927	8%	26	0%	964	4%	24,094	0.9%
1990	26,966	77%	6,590	19%	189	1%	1,448	4%	35,193	1.9%
1991	55,709	89%	5,511	9%	1,308	2%	317	1%	62,845	5.6%
1992	54,552	76%	16,775	23%	142	0%	141	0%	71,610	5.9%
1993	27,409	84%	4,477	14%	13	0%	610	2%	32,509	1.9%
1994	41,620	85%	6,388	13%	857	2%			48,865	6.9%
1995	41,905	81%	9,688	19%	95	0%			51,688	2.3%
1996	33,895	82%	6,721	16%	508	1%			41,124	4.0%
1997	25,456	83%	5,223	17%	111	0%			30,790	4.6%
1998	28,038	73%	10,426	27%	0	0%			38,464	3.5%
1999	42,776	87%	6,369	13%	192	0%			49,337	4.8%
2000	13,760	77%	4,013	23%	0	0%			17,773	1.6%
2001	43,477	77%	13,033	23%	0	0%			56,510	2.7%
2002	56,485	84%	10,380	16%	0	0%			66,865	4.5%
2003	33,057	84%	6,400	16%	0	0%			39,457	6.8%
2004	23,447	76%	5,856	19%	1,690	5%			30,993	3.7%
2005	24,958	70%	7,099	20%	3,386	10%			35,443	5.9%
2006	24,693	81%	5,674	19%	0	0%			30,367	6.1%
2007	28,718	83%	4,434	13%	1,364	4%			34,516	3.2%
2008	40,299	83%	7,410	15%	1,073	2%			48,782	4.3%
2009	29,912	62%	12,913	27%	5,786	12%			48,611	3.1%
2010	74,210	85%	12,691	15%	112	0%			87,013	4.8%
2011	36,817	89%	4,183	10%	448	1%			41,448	3.8%
2012	37,537	89%	4,460	11%	103	0%			42,100	3.6%
2013	42,192	80%	8,794	17%	1,637	3%			52,623	1.8%
2014	44,578	84%	7,646	14%	643	1%			52,867	2.4%
2015	23,660	83%	4,977	17%	15	0%			28,652	1.9%
2016	37,591	76%	12,122	24%	6	0%			49,719	2.7%
2017	31,567	83%	6,607	17%	0	0%			38,174	3.4%
2018	14,488	84%	2,739	16%	6	0%			17,233	3.4%
2019	13,877	79%	3,568	20%	42	0%			17,487	1.3%
2020	5,308	72%	2,050	28%	53	0.72%			7,411	1.3%
2021	14,112	56%	9,734	39%	1,387	5.50%			25,233	0.9%
Avg (2011-2020)	28,762	83%	5,715	17%	295	1%			34,771	2.4%
Avg (1984-2020)	32,346	80%	7,167	17%	586	1%			40,501	3.0%
Avg (1994-2020)	33,123	81%	7,106	18%	671	2%			40,900	3.3%
Avg (1984-1993)	30,248	77%	7,330	18%	355	1%	1,491	4%	39,424	2.5%

Table 35. Annette Islands Reserve pink salmon harvest by year and gear (1984—2021).

	Pink									% of Season
	GN		PS		Troll		Trap		Total	
Year	Fish	% of Total	Fish	% of Total	Fish	% of Total	Fish	% of Total	Fish	
1984	416,260	25%	517,937	32%	91	0%	705,253	43%	1,639,541	89.6%
1985	403,086	28%	547,614	38%	316	0%	495,268	34%	1,446,284	88.7%
1986	507,530	28%	839,069	46%	204	0%	465,882	26%	1,812,685	89.0%
1987	220,865	63%	31,488	9%	29	0%	96,603	28%	348,985	65.0%
1988	343,623	35%	513,237	52%	49	0%	129,840	13%	986,749	85.2%
1989	827,346	31%	1,228,930	46%	1	0%	637,352	24%	2,693,629	95.1%
1990	620,649	38%	504,081	31%	9	0%	502,688	31%	1,627,427	89.8%
1991	295,904	32%	543,012	58%	22	0%	89,841	10%	928,779	82.9%
1992	549,394	57%	352,102	36%	46	0%	66,903	7%	968,445	80.3%
1993	457,003	30%	741,154	49%	106	0%	329,476	22%	1,527,739	88.2%
1994	322,049	67%	161,436	33%	42	0%			483,527	67.9%
1995	774,073	39%	1,189,501	61%	0	0%			1,963,574	89.1%
1996	137,721	16%	704,076	84%	0	0%			841,797	81.1%
1997	132,637	31%	290,251	69%	0	0%			422,888	63.3%
1998	432,247	51%	407,189	49%	0	0%			839,436	75.6%
1999	264,274	31%	589,022	69%	0	0%			853,296	83.2%
2000	177,671	20%	711,147	80%	0	0%			888,818	80.9%
2001	328,139	17%	1,560,799	83%	0	0%			1,888,938	89.3%
2002	307,055	24%	995,769	76%	0	0%			1,302,825	88.6%
2003	88,530	19%	386,813	81%	0	0%			475,343	82.1%
2004	158,894	24%	512,287	76%	123	0%			671,304	80.3%
2005	94,282	19%	399,003	81%	55	0%			493,340	82.0%
2006	115,513	42%	159,563	58%	0	0%			275,076	54.8%
2007	224,449	27%	603,912	73%	141	0%			828,502	77.5%
2008	295,685	32%	623,813	68%	117	0%			919,615	81.6%
2009	112,564	8%	1,274,119	92%	463	0%			1,387,146	87.5%
2010	468,265	33%	946,535	67%	15	0%			1,414,815	77.6%
2011	244,653	34%	472,180	66%	22	0%			716,855	65.7%
2012	278,135	37%	468,589	63%	36	0%			746,760	63.4%
2013	439,646	16%	2,244,288	84%	167	0%			2,684,101	91.6%
2014	465,166	23%	1,524,031	77%	261	0%			1,989,458	90.5%
2015	142,491	18%	649,943	82%	0	0%			792,434	52.8%
2016	280,095	19%	1,183,497	81%	0	0%			1,463,592	78.8%
2017	145,268	17%	724,338	83%	0	0%			869,606	76.8%
2018	122,322	41%	172,682	59%	2	0%			295,006	58.3%
2019	295,477	24%	933,600	76%	22	0%			1,229,099	90.8%
2020	101,683	22%	363,481	78%	161	0%			465,325	84.4%
2021	127,147	5%	2,384,331	95%	####	0%			2,514,217	93.9%
Avg (2011-2020)	251,494	22%	873,663	78%	67	0%			1,125,224	78.7%
Avg (1984-2020)	313,261	28%	704,608	63%	68	0%			1,113,047	82.8%
Avg (1994-2020)	257,370	26%	750,069	74%	60	0%			1,007,499	80.3%
Avg (1984-1993)	464,166	33%	581,862	42%	87	0%	351,911	25%	1,398,026	87.9%

Table 36. Annette Islands Reserve chum salmon harvest by year and gear (1984—2021).

	Chum									% of Season
	GN		PS		Troll		Trap		Total	
Year	Fish	% of Total	Fish	% of Total	Fish	% of Total	Fish	% of Total	Fish	
1984	89,560	80.01%	16,745	14.96%	4	0.00%	5,622	5.02%	111,931	6.12%
1985	78,748	88.84%	8,490	9.58%	11	0.01%	1,395	1.57%	88,644	5.44%
1986	97,272	85.80%	14,287	12.60%	8	0.01%	1,809	1.60%	113,376	5.56%
1987	81,527	81.07%	18,402	18.30%	0	0.00%	633	0.63%	100,562	18.72%
1988	117,276	89.69%	11,875	9.08%	1	0.00%	1,600	1.22%	130,752	11.29%
1989	53,182	82.49%	10,117	15.69%	0	0.00%	1,169	1.81%	64,468	2.27%
1990	75,669	89.33%	8,142	9.61%	0	0.00%	901	1.06%	84,712	4.68%
1991	76,787	93.58%	4,972	6.06%	3	0.00%	292	0.36%	82,054	7.32%
1992	90,281	87.65%	12,218	11.86%	1	0.00%	502	0.49%	103,002	8.54%
1993	64,951	85.46%	9,735	12.81%	0	0.00%	1,313	1.73%	75,999	4.39%
1994	129,137	93.63%	8,785	6.37%	2	0.00%			137,924	19.37%
1995	119,026	89.20%	14,416	10.80%	2	0.00%			133,444	6.05%
1996	114,434	90.52%	11,979	9.48%	4	0.00%			126,417	12.18%
1997	147,526	85.18%	25,677	14.82%	0	0.00%			173,203	25.92%
1998	176,368	81.55%	39,915	18.45%	0	0.00%			216,283	19.47%
1999	83,984	84.05%	15,938	15.95%	0	0.00%			99,922	9.75%
2000	132,708	80.39%	32,377	19.61%	0	0.00%			165,085	15.03%
2001	105,874	84.12%	19,987	15.88%	0	0.00%			125,861	5.95%
2002	51,851	75.40%	16,916	24.60%	0	0.00%			68,767	4.67%
2003	46,578	83.90%	8,936	16.10%	0	0.00%			55,514	9.59%
2004	79,805	79.33%	20,780	20.66%	19	0.02%			100,604	12.03%
2005	44,758	77.06%	13,325	22.94%	2	0.00%			58,085	9.66%
2006	139,368	80.41%	33,954	19.59%	0	0.00%			173,322	34.55%
2007	149,331	80.69%	35,737	19.31%	5	0.00%			185,073	17.32%
2008	131,181	86.32%	20,647	13.59%	149	0.10%			151,977	13.49%
2009	105,134	78.66%	28,348	21.21%	172	0.13%			133,654	8.43%
2010	236,530	77.48%	68,761	22.52%	0	0.00%			305,291	16.75%
2011	244,502	80.61%	58,782	19.38%	26	0.01%			303,310	27.78%
2012	310,263	84.68%	56,122	15.32%	0	0.00%			366,385	31.09%
2013	138,259	76.88%	41,339	22.99%	232	0.13%			179,830	6.14%
2014	99,879	75.51%	32,394	24.49%	8	0.01%			132,281	6.02%
2015	422,109	65.00%	227,254	35.00%	0	0.00%			649,363	43.31%
2016	205,482	65.42%	108,625	34.58%	0	0.00%			314,107	16.91%
2017	170,050	80.32%	41,657	19.68%	0	0.00%			211,707	18.69%
2018	145,348	78.35%	40,153	21.65%	1	0.00%			185,502	36.65%
2019	58,426	61.21%	37,023	38.79%	2	0.00%			95,451	7.05%
2020	48,375	75.79%	15,450	24.21%	1	0.00%			63,826	11.58%
2021	74,286	61.21%	47,038	38.76%	34	0.03%			121,358	4.53%
Avg (2011-2020)	184,269	73.66%	65,880	26.33%	27	0.01%			250,176	17.50%
Avg (1984-2020)	125,988	79.44%	32,169	20.28%	18	0.01%			158,586	11.79%
Avg (1994-2020)	142,085	78.10%	39,825	21.89%	23	0.01%			181,933	14.51%
Avg (1984-1993)	82,525	86.37%	11,498	12.03%	3	0.00%	1,524	1.59%	95,550	6.01%

Table 37. Annette Islands Reserve all-salmon harvest by year and gear (1984–-2021).

	Total										
	King		Sockeye		Coho		Pink		Chum		Total
Year	Fish	% of Total	Fish	% of Total	Fish	% of Total	Fish	% of Total	Fish	% of Total	Fish
1984	383	0.0%	54,651	3.0%	22,624	1.2%	1,639,541	89.6%	111,931	6.1%	1,829,130
1985	527	0.0%	65,549	4.0%	29,255	1.8%	1,446,284	88.7%	88,644	5.4%	1,630,259
1986	558	0.0%	36,676	1.8%	74,170	3.6%	1,812,685	89.0%	113,376	5.6%	2,037,465
1987	888	0.2%	54,302	10.1%	32,545	6.1%	348,985	65.0%	100,562	18.7%	537,282
1988	898	0.1%	30,703	2.7%	9,395	0.8%	986,749	85.2%	130,752	11.3%	1,158,497
1989	859	0.0%	50,741	1.8%	24,094	0.9%	2,693,629	95.1%	64,468	2.3%	2,833,791
1990	2,124	0.1%	62,548	3.5%	35,193	1.9%	1,627,427	89.8%	84,712	4.7%	1,812,004
1991	1,983	0.2%	45,292	4.0%	62,845	5.6%	928,779	82.9%	82,054	7.3%	1,120,953
1992	1,198	0.1%	61,674	5.1%	71,610	5.9%	968,445	80.3%	103,002	8.5%	1,205,929
1993	470	0.0%	95,358	5.5%	32,509	1.9%	1,527,739	88.2%	75,999	4.4%	1,732,075
1994	219	0.0%	41,383	5.8%	48,865	6.9%	483,527	67.9%	137,924	19.4%	711,918
1995	132	0.0%	56,027	2.5%	51,688	2.3%	1,963,574	89.1%	133,444	6.1%	2,204,865
1996	245	0.0%	28,086	2.7%	41,124	4.0%	841,797	81.1%	126,417	12.2%	1,037,669
1997	484	0.1%	40,985	6.1%	30,790	4.6%	422,888	63.3%	173,203	25.9%	668,350
1998	297	0.0%	16,520	1.5%	38,464	3.5%	839,436	75.6%	216,283	19.5%	1,111,001
1999	743	0.1%	21,987	2.1%	49,337	4.8%	853,296	83.2%	99,922	9.7%	1,025,285
2000	4,700	0.4%	22,357	2.0%	17,773	1.6%	888,818	80.9%	165,085	15.0%	1,098,733
2001	4,350	0.2%	40,153	1.9%	56,510	2.7%	1,888,938	89.3%	125,861	5.9%	2,115,812
2002	2,207	0.2%	30,320	2.1%	66,865	4.5%	1,302,825	88.6%	68,767	4.7%	1,470,983
2003	775	0.1%	7,546	1.3%	39,457	6.8%	475,343	82.1%	55,514	9.6%	578,635
2004	1,910	0.2%	31,348	3.7%	30,993	3.7%	671,304	80.3%	100,604	12.0%	836,159
2005	1,701	0.3%	12,915	2.1%	35,443	5.9%	493,340	82.0%	58,085	9.7%	601,484
2006	751	0.1%	22,106	4.4%	30,367	6.1%	275,076	54.8%	173,322	34.6%	501,622
2007	1,208	0.1%	19,398	1.8%	34,516	3.2%	828,502	77.5%	185,073	17.3%	1,068,697
2008	682	0.1%	5,845	0.5%	48,782	4.3%	919,615	81.6%	151,977	13.5%	1,126,901
2009	992	0.1%	14,582	0.9%	48,611	3.1%	1,387,146	87.5%	133,654	8.4%	1,584,985
2010	933	0.1%	14,556	0.8%	87,013	4.8%	1,414,815	77.6%	305,291	16.8%	1,822,607
2011	1,570	0.1%	28,461	2.6%	41,448	3.8%	716,855	65.7%	303,310	27.8%	1,091,644
2012	1,441	0.1%	21,777	1.8%	42,100	3.6%	746,760	63.4%	366,385	31.1%	1,178,463
2013	1,448	0.0%	10,960	0.4%	52,623	1.8%	2,684,101	91.6%	179,830	6.1%	2,928,962
2014	1,458	0.1%	21,788	1.0%	52,867	2.4%	1,989,458	90.5%	132,281	6.0%	2,197,852
2015	2,004	0.1%	27,042	1.8%	28,652	1.9%	792,434	52.8%	649,363	43.3%	1,499,495
2016	2,033	0.1%	27,631	1.5%	49,719	2.7%	1,463,592	78.8%	314,107	16.9%	1,857,082
2017	1,958	0.2%	11,360	1.0%	38,174	3.4%	869,606	76.8%	211,707	18.7%	1,132,805
2018	1,997	0.4%	6,425	1.3%	17,233	3.4%	295,006	58.3%	185,502	36.6%	506,163
2019	1,371	0.1%	9,524	0.7%	17,213	1.3%	1,227,986	90.9%	95,291	7.1%	1,351,385
2020	849	0.2%	13,648	2.5%	7,411	1.3%	465,325	84.4%	63,826	11.6%	551,059
Avg (2010-2019)	1,583	0.1%	18,458	1.2%	45,844	2.9%	1,235,977	78.2%	278,143	17.6%	1,580,006
Avg (1984-2019)	1,318	0.1%	32,544	2.4%	42,104	3.1%	1,128,238	82.5%	163,097	11.9%	1,367,302
Avg (1994-2019)	1,450	0.1%	23,262	1.8%	43,177	3.4%	1,020,322	79.8%	190,116	14.9%	1,278,327
Avg (1984-1993)	989	0.1%	55,749	3.5%	39,424	2.5%	1,398,026	87.9%	95,550	6.0%	1,589,739