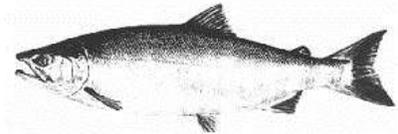


ALASKA DEPARTMENT OF FISH AND GAME DIVISION OF COMMERCIAL FISHERIES NEWS RELEASE



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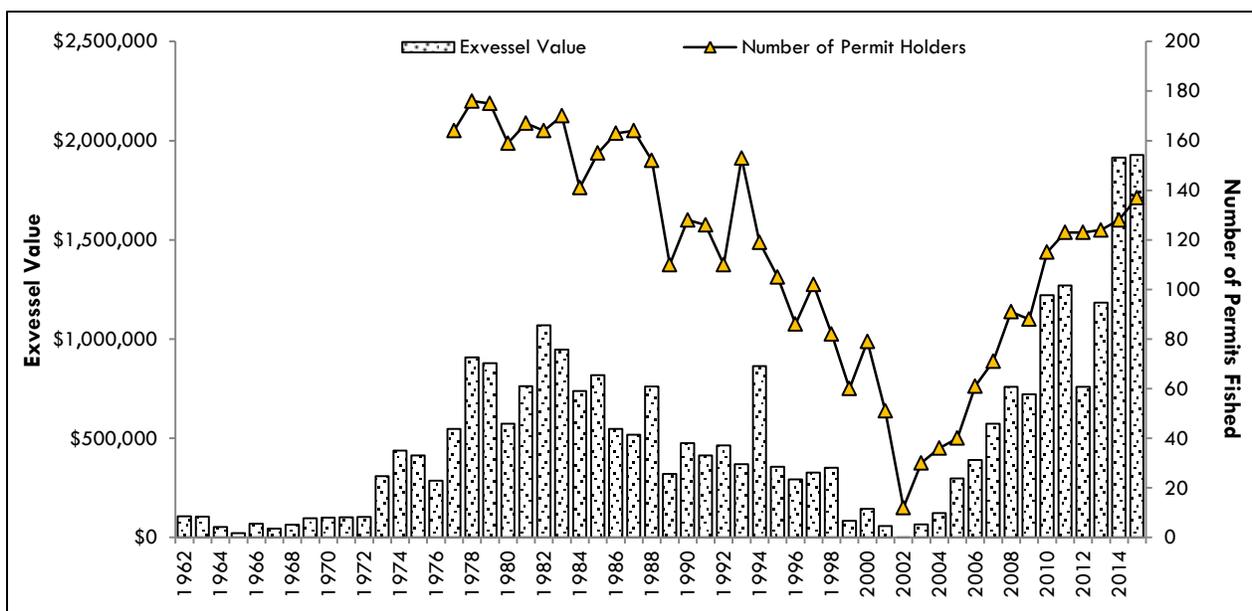
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2015 NORTON SOUND SALMON SEASON SUMMARY

Estimates of harvests, escapements, and exvessel values are preliminary in this 2015 Norton Sound salmon season summary and may change at a later date. The 2015 Norton Sound salmon runs were the best in recent memory. Commercial harvest was the highest in over 30 years for chum salmon and record setting for coho and sockeye salmon. Record sockeye salmon subsistence harvests also occurred in Norton Sound and Port Clarence due to a convergence of intensive fishing effort and coast-wide increase in sockeye salmon abundance bolstered by strong runs of sockeye salmon to the Sinuk and Pilgrim rivers. For odd-numbered years, pink salmon run strength throughout Norton Sound was the strongest since the record odd-year run of 2005. The strong overall salmon runs to Norton Sound coupled with an above average weight of coho salmon led to the highest level of permits fished since 1988 (137 permits) and a record exvessel value (\$1,927,552) (Figure 1).

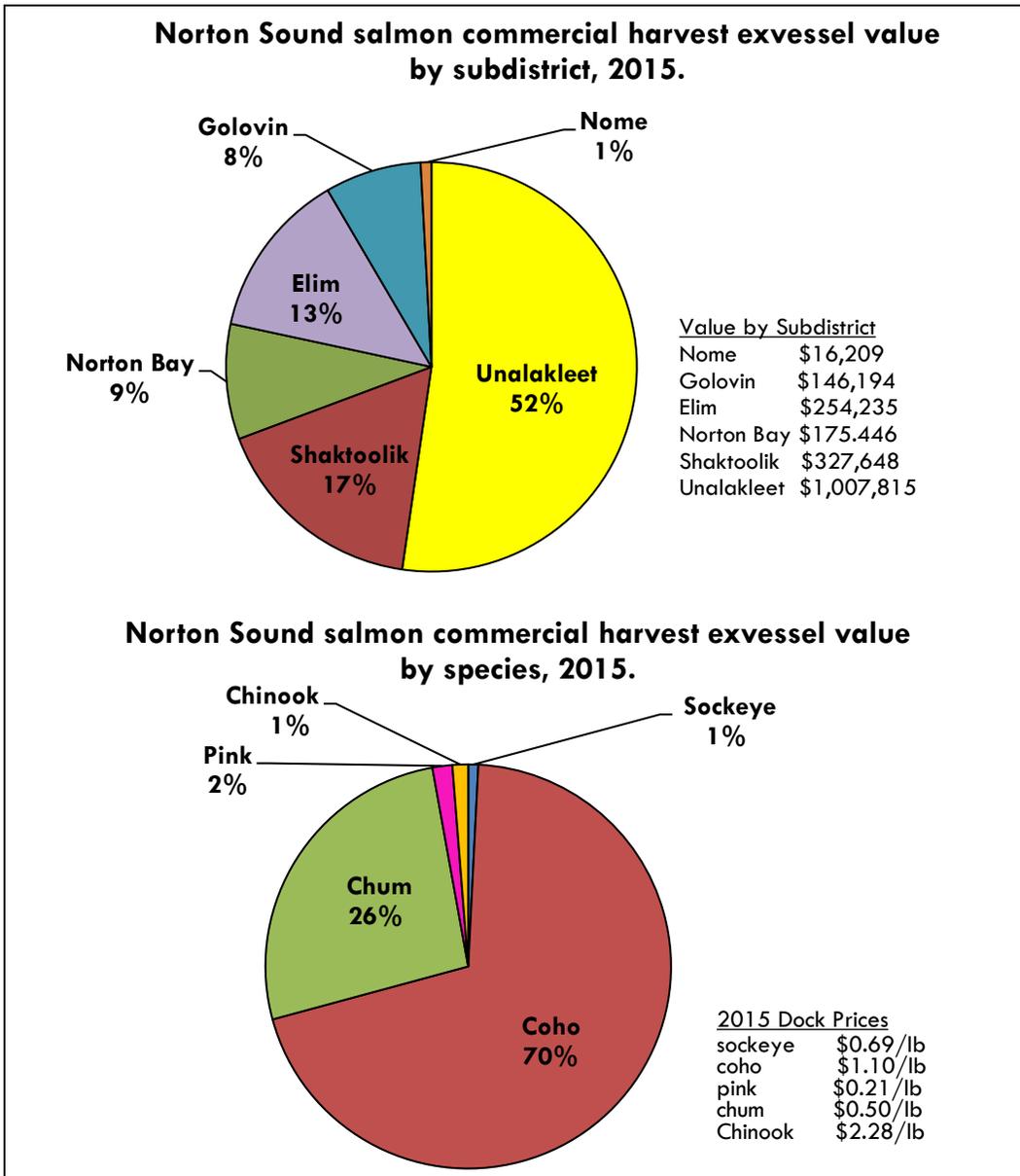
Figure 1.—Commercial salmon fishery exvessel value and number of permits fished, 1962–2015, Norton Sound.



EXVESSEL VALUE

The 2015 exvessel value was 1% greater than the 2014 record value of \$1,915,749 despite significant reductions in dock prices paid for coho, pink and chum salmon. Subdistrict 6, the Unalakleet Subdistrict, accounted for 52% of the overall value, followed by Shaktoolik Subdistrict (Subdistrict 5) at 17%, and Elim Subdistrict (Subdistrict 3) at 13% (Figure 2). Average dock prices per pound by species were \$0.69, \$1.10, \$0.21, \$0.50, and \$2.28 per pound for sockeye, coho, pink, chum, and Chinook salmon, respectively. Coho salmon accounted for 70% of the overall exvessel value and chum salmon comprised 26% of the total value (Figure 2).

Figure 2.—Comparison of commercial fishery exvessel value by fishing subdistrict and salmon species, Norton Sound, 2015.

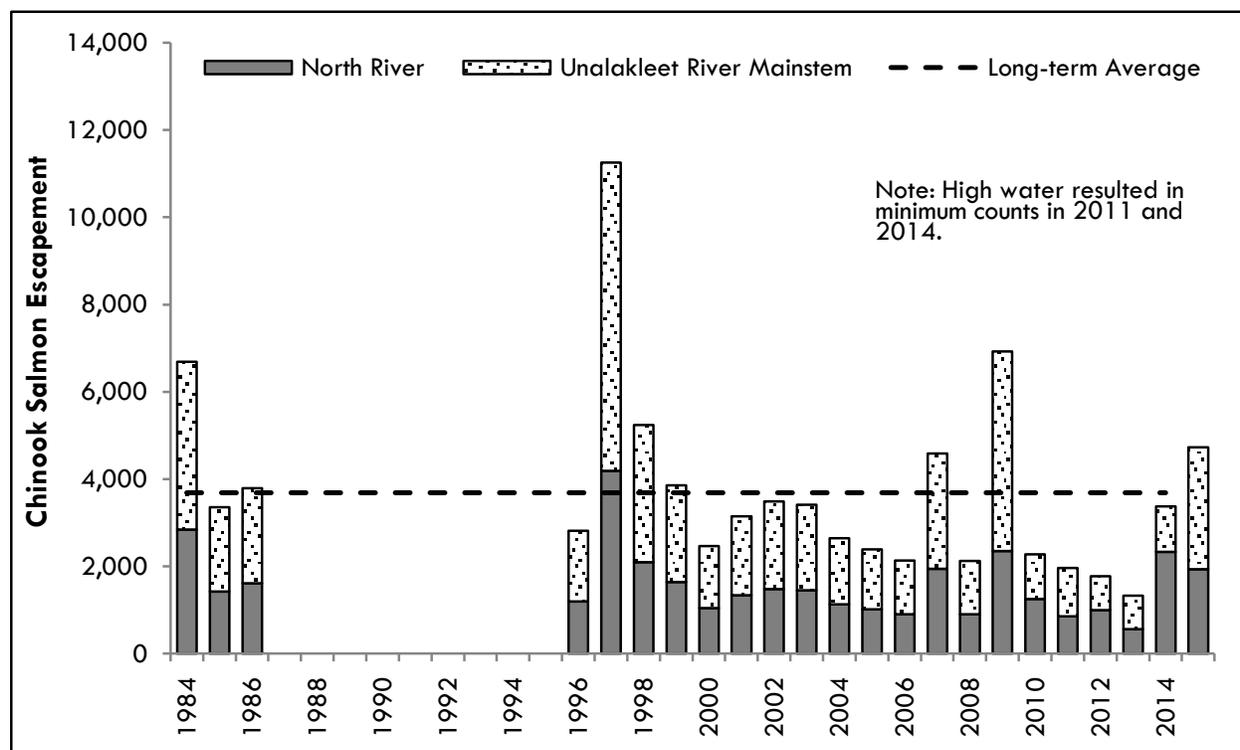


Note: Dock prices paid per pound are located on the bottom right.

or smaller mesh size was incrementally increased beginning in mid-June in Subdistricts 5 and 6. Sport fisheries in Subdistricts 4–6 were closed to the retention of Chinook salmon throughout the season. Pre-emptive restrictions coupled with a slightly better than forecasted run of Chinook salmon resulted in escapement goals being achieved for the second consecutive season. Unexpectedly, normal Chinook salmon run timing patterns occurred in most systems in 2015 presumably as a result of low precipitation and warm temperatures which led to prolonged milling phases in the coastal waters and lower reaches of rivers.

Chinook salmon escapements to Norton Bay and Shaktoolik Subdistricts as indexed by the Inglutalik River and Shaktoolik River tower/sonar projects were 1,416 and 595 Chinook salmon, respectively. The Shaktoolik River count is considered incomplete as the aerial survey index (581 Chinook salmon) was nearly as much as the tower/sonar aggregate count estimate. By comparison, the Inglutalik River aerial survey represented approximately 50% of the tower count under similar viewing conditions. It is possible that there were species apportionment/identification problems at Shaktoolik River during the Chinook salmon run resulting from the very large odd-year pink salmon run and its concurrent migration timing. Estimated escapements from the Unalakleet River mainstem and its major Chinook salmon tributary, North River, were 2,789 and 1,938 fish, respectively; estimated drainagewide escapement was 4,727 Chinook salmon (Figure 4). The 2015 Chinook salmon drainagewide escapement estimate was 28% above the long-term (1984–1986, and 1996–2014) average drainagewide escapement estimate of 3,684 Chinook salmon.

Figure 4.—Annual estimated Chinook salmon North River and Unalakleet River mainstem escapement compared to the long-term average, 1984–1986 and 1996–2015, Unalakleet River drainage, Norton Sound.



Note: prior to 2010, mainstem contributions to the drainagewide were estimated using North River tower counts expanded by proportional abundance estimates based on radiotelemetry investigations.

Northern Norton Sound Subdistricts 2 (Golovin) and 3 (Elim) also experienced improved Chinook salmon runs in 2015 based on incidental commercial catch and escapement indices. For example, in the Golovin Subdistrict an estimated 2,274 Chinook salmon were enumerated in 2015, which was 138% above the 2014 passage estimate of 954 Chinook salmon. To the east in the Elim Subdistrict, an estimated 318 Chinook salmon were counted at the Kwiniuk River tower in 2015, a 25% reduction from the 2014 estimate of 429 Chinook salmon. However, this level of escapement was still within the tower-based escapement goal range of 300–550 for the second year in a row. Additionally, the Tubutulik River aerial survey count of 874 Chinook salmon was the largest since 1998. It appeared that a greater proportion of the 2015 Elim Subdistrict Chinook salmon run was harvested in subsistence and commercial fisheries. The 558 Chinook salmon incidentally harvested in the Elim Subdistrict commercial chum salmon fishery was the largest Chinook salmon commercial catch since 1997, and 452% above last year's harvest of 101 Chinook salmon. It is possible that the increase in incidental harvest of Chinook salmon in 2015 was a product of more overlap in timing of Chinook salmon runs and the directed chum salmon commercial fishery.

CHUM SALMON

2015 Chum Salmon Run Outlook and Commercial Harvest Summary

The 2015 forecasted commercial chum salmon harvest range was 70,000–100,000 fish. As in previous years, southern Norton Sound subdistricts were expected to account for the majority of the commercial harvest with over half the fleet residing in those communities. However, northern Norton Sound subdistricts were expected to see an increase in chum salmon harvests in 2015 based on a high percentage of 4-year olds from the 2010 brood year observed in 2014. Additionally, department biologists anticipated good numbers of 4-year old chum salmon originating from the 2011 brood year. Average runs of chum salmon were forecasted for Subdistricts 4–6 and above average runs were anticipated for the northern Norton Sound Subdistricts 2 and 3, the Golovin and Elim Subdistricts. Norton Sound Subdistrict 1, the Nome Subdistrict, was expected to have an above average run of chum salmon for the 6th consecutive season that would easily provide for subsistence uses as well as directed commercial chum salmon fishing opportunities for the third consecutive season.

Table 1 summarizes the 2015 commercial chum salmon harvest by subdistrict compared to historical average harvests. Overall, commercial harvest of chum salmon in Norton Sound in 2015 was 153,039 fish, which ranks 11th highest in 55 years of commercial salmon harvests and was the largest chum salmon harvest recorded since the record 1983 season. The 2015 season also marked the 5th time in the last 6 years in which harvest of chum salmon eclipsed 100,000 fish. In addition, this year's harvest was 20% above the long-term average harvest of 90,271 chum salmon and accounted for approximately \$528,000 or 27% of the 2015 exvessel value (Figure 2). Although chum salmon harvests were above average, commercial harvest could have easily exceeded 200,000 fish without jeopardizing subsistence needs or achieving escapement goals in 2015. However, a later than desired start to commercial fishing in the Golovin, Elim, and Norton Bay Subdistricts, coupled with Chinook salmon conservation measures, and limited tendering and processing capacity precluded more efficient utilization of harvestable surpluses. It was particularly apparent that the Golovin Subdistrict fishery began after the first pulse of chum salmon had already entered the lower Fish River drainage. In hindsight, short index periods conducted earlier in this subdistrict would have provided for a larger harvest.

Table 1.—The 2015 chum salmon harvest (numbers of fish) by subdistrict compared to the recent 5-year (2010–2014) and long-term (1961–2014) historical average harvests, Norton Sound District.

Norton Sound Subdistrict	2015 Chum Salmon Harvest	Recent 5-Year Average Harvest	Long-term Average Harvest	Rank
Subdistrict 1 (Nome)	4,861	NA	4,836	14
Subdistrict 2 (Golovin)	17,772	11,550	22,631	27
Subdistrict 3 (Elim)	39,709	13,641	16,969	10
Northern Norton Sound	62,342	25,191	42,519	19
Subdistrict 4 (Norton Bay)	24,558	14,288	5,244	2
Subdistrict 5 (Shaktoolik)	26,722	27,747	17,242	12
Subdistrict 6 (Unalakleet)	39,417	35,988	26,150	10
Southern Norton Sound	90,697	78,022	48,539	6
Norton Sound Total	153,039	103,505	90,271	11

Note: Long-term average harvests for Golovin, Elim, and Norton Bay Subdistricts are from 1962-2014 and from 1964–2014 for the Nome Subdistrict. Recent 5-year average harvest unavailable for the Nome Subdistrict as commercial fishing did not occur until 2013.

The southern Norton Sound (Subdistricts 4–6) harvest (90,697 fish) accounted for 60% of the total harvest, and was 16% and 87% above the recent 5-year and long-term average southern Norton Sound chum salmon harvests, respectively. As expected, the Subdistricts 2 and 3 commercial harvests of chum salmon did increase substantially from the previous two years. A total of 17,772 and 39,709 chum salmon were harvested in the Golovin and Elim Subdistricts, respectively this season (Table 1). Whereas the Golovin Subdistrict commercial harvest of chum salmon was only 79% of the long-term average harvest of 22,631 chum salmon, the Elim Subdistrict harvest of chum salmon in 2015 was 135% above the long-term average harvest of 16,969 chum salmon. Moreover, the total northern Norton Sound harvest of 62,342 chum salmon was 147% and 47% above recent 5-year and long-term average harvest levels, respectively.

Another strong Nome Subdistrict chum salmon run resulted in commercial chum salmon fishing opportunity in Nome Subdistrict (Subdistrict 1) for the third consecutive season. As expected, interest in the fishery was limited due to only a vestige of original Nome area permit holders maintaining active permits. However, unlike the previous two seasons, the department provided periods of longer duration and scheduled more openings on the weekends to allow fishermen with regular jobs to fish periods in their entirety. The more liberal schedule with 48-hour weekend openings in conjunction with the strong run led to the 14th best commercial harvest (4,861 fish) of chum salmon in the Nome Subdistrict despite only 3 permit holders making deliveries (Table 1). Nome Subdistrict-based permit holders also harvested 3 Chinook, 93 sockeye, 13 coho, and 553 pink salmon during the directed chum salmon fishery.

Chum Salmon Escapements

Chum salmon escapements in the major Norton Sound index systems and escapement goals are shown in Table 2. As with Chinook salmon, chum salmon run timing was forecasted to be earlier than average, but actual observed run timing patterns of chum salmon ranged from normal to later than average in most major river systems. As with Chinook salmon, later than

anticipated run timing was presumably due to a combination of low river levels, higher than normal water temperatures in freshwater, and relatively cool nearshore coastal waters. Only the Eldorado River chum salmon run exhibited slightly earlier than average run timing in 2015.

Six of the eight established Norton Sound chum salmon escapement goals were evaluated and achieved in 2015. Only the Niukluk River tower-based and Old Woman/Upper Unalakleet River index area SEGs were unable to be assessed in 2015. The Niukluk River tower has not been operated since 2012 and the Old Woman/Unalakleet River SEG has been sporadically evaluated over the years due to difficult survey conditions. For the second consecutive season, an enumeration tower project was operated on the Fish River lower mainstem near the village of White Mountain. This project has provided estimates of Fish River salmon escapement in lieu of the Niukluk River tower project.

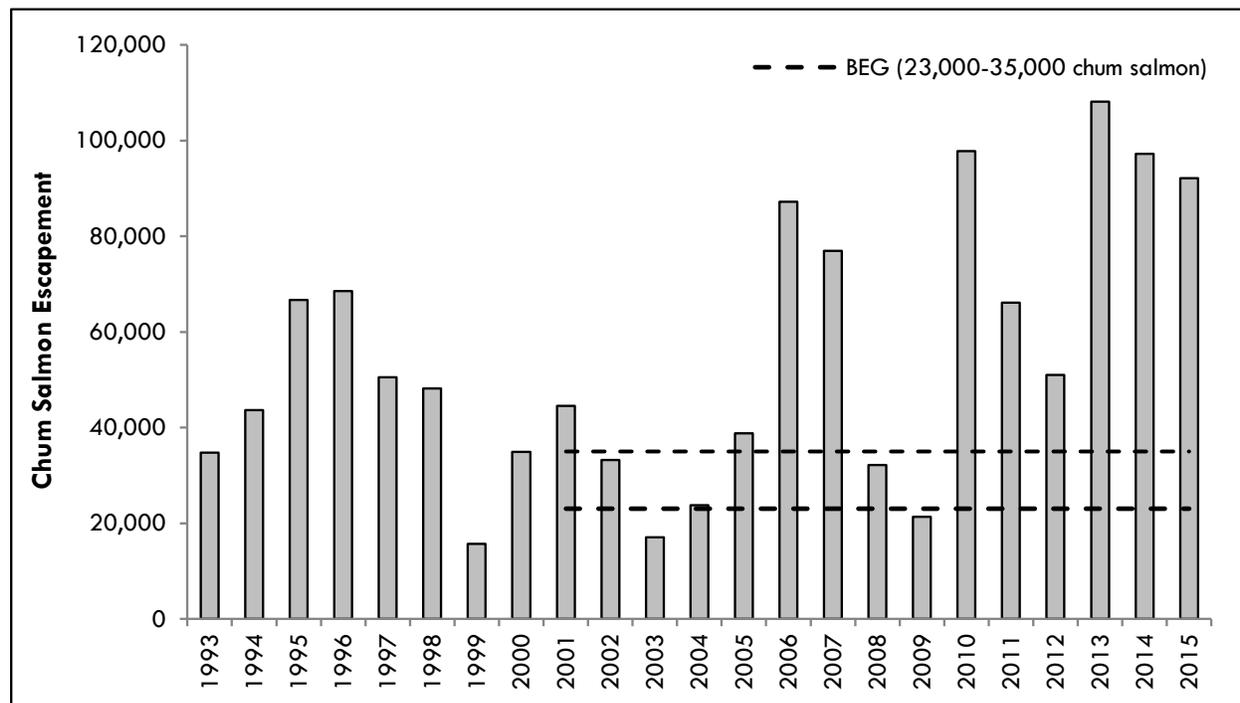
Table 2.—Chum salmon expanded aerial survey, apportioned sonar, counting tower, and weir escapement estimates from Norton Sound index rivers compared to established escapement goals, 2015.

Index System	2015		Escapement Goal
	Escapement	Enumeration Method	
Pilgrim River	41,121	Weir	
Bonanza River	13,212	Expanded Aerial Survey	
Eldorado River	25,560	Weir	SEG (6,000-9,200)
Flambeau River	12,011	Expanded Aerial Survey	
Nome River	6,194	Weir	SEG (2,900-4,300)
Sinuk River	29,643	Expanded Aerial Survey	
Snake River	4,370	Weir	SEG (1,600-2,500)
Solomon River	1,128	Weir	
Nome Subdistrict	92,118	Combined Weir and Aerial	BEG (23,000-35,000)
Fish River	144,294	Tower	
Kwiniuk River	37,831	Tower	OEG (11,500-23,000)
Tubutulik River	12,714	Expanded Aerial Survey	OEG (9,200–18,400)
Inglutalik River	73,138	Tower	
Shaktoolik River	25,023	Sonar/Tower	
North River	22,773	Tower	
Unalakleet River	97,885	Weir	

Estimated Nome Subdistrict-wide escapement was 92,118 chum salmon, which represents the 6th consecutive season escapement exceeded the upper end of the subdistrict-wide biological escapement goal (BEG) range of 23,000–35,000 chum salmon (Table 2; Figure 5). Subdistrict-wide chum salmon escapements have been within the range or exceeded the range 87% of the time since 2001 and the 2015 estimate represents the 10th time in 15 years in which escapement has surpassed the upper bound of the range. Snake (4,370 chum salmon) and Nome (6,194 chum salmon) rivers escapements also exceeded their respective escapement goal ranges this season (Table 2). As was expected, the larger eastern Nome Subdistrict river systems (Bonanza, Eldorado, Flambeau rivers) comprised the majority (55%) of the overall escapement, although the Sinuk River located in the western half of the subdistrict contributed the most of any river (32%) to the overall Nome Subdistrict escapement (Table 2).

Abundance of chum salmon in the Nome Subdistrict was sufficient to provide for escapement needs and maintain harvestable surpluses for six consecutive seasons. As a result, the department will be recommending to the Alaska Board of Fisheries that Nome Subdistrict chum salmon’s designation as a stock of yield concern be discontinued.

Figure 5.—Annual estimated Nome Subdistrict chum salmon escapement compared to the subdistrict-wide biological escapement goal range (23,000–35,000 chum salmon), 1993–2015, Norton Sound District.

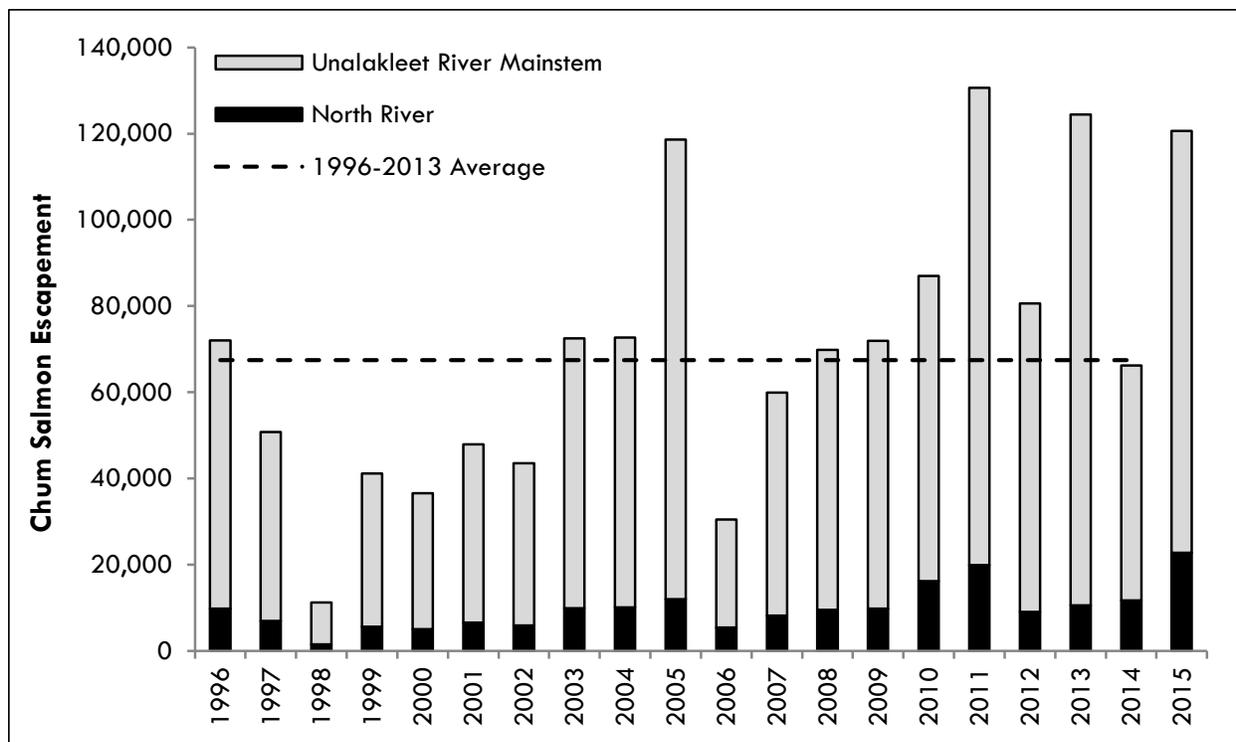


Previous radiotelemetry studies have shown that approximately one third of the chum salmon entering the Fish River spawn in the Niukluk River. Therefore, considering 144,294 chum salmon were counted at the Fish River tower, the estimated Niukluk River chum salmon passage in 2015 was approximately 48,000 fish and well above the Niukluk River tower-based SEG lower bound goal of 23,000 chum salmon. Chum salmon escapement in the Elim Subdistrict as indexed by the Kwiniuk River was 37,831 chum salmon, which was above the upper bound of the tower-based OEG range of 11,500–23,000 for the second consecutive season. At the nearby Tubutulik River, a successful spawning ground aerial survey flown on July 27 resulted in an expanded aerial survey estimate of 12,714 chum salmon, which was within the OEG range of 9,200–18,400 chum salmon.

Chum salmon escapements in southern Norton Sound river drainages were above average for the sixth consecutive season. The Shaktoolik River tower/sonar count of 25,023 chum salmon represented a 35% decline from the previous season when 38,483 chum salmon were counted. The Inglutalik River tower count of 73,138 chum salmon was the largest since the project’s inception in 2011. The North River counting tower and Unalakleet River mainstem weir escapement estimates were 22,773 and 97,885 chum salmon, respectively (Table 2). The 2015 North River chum salmon estimate set a record and the Unalakleet River mainstem estimate was the 4th highest on record. The estimated Unalakleet River drainagewide chum salmon escapement of 120,658 chum salmon (based on aggregate tower and weir counts) was 88%

above the long-term (1996–2013) average drainagewide escapement of 67,473 chum salmon and the third highest estimate on record (Figure 6).

Figure 6.—Annual estimated drainagewide chum salmon escapement compared to the 1996-2013 average escapement, 1996-2015, Unalakleet River, Norton Sound.



In the Port Clarence Area, chum salmon runs as indexed by the Pilgrim River floating weir project were well above average in 2015. Escapement of Pilgrim River chum salmon was 41,121 fish, the 4th best on record, and 44% above the previous 10-year (2005–2014) average count of 28,665 chum salmon (Table 2).

PINK SALMON

2015 Pink Salmon Run Outlook and Commercial Harvest Summary

Pink salmon runs have historically been large enough to support commercial harvests in the hundreds of thousands but usually only in even-numbered years. Generally, abundance of pink salmon in odd years is sufficient to provide for escapement needs, subsistence harvests, and a limited amount of commercial harvest, generally purchased as bait to support the local crab and halibut fishing fleets. Since the early 1980s, odd-numbered year pink salmon runs to Norton Sound have been magnitudes smaller, except for the anomalously large pink salmon runs observed in 2005. Although not as large as the record run of 2005, pink salmon runs were much larger than other odd-year runs observed since 2005.

The department expected the pink salmon run to be average for an odd-numbered year with a forecasted harvest range between 25,000–75,000 fish, contingent upon directed pink salmon openings. There was limited market interest in odd-year pink salmon and no directed pink salmon commercial periods occurred in 2015. However, above average odd-year abundance of pink salmon led to very large incidental harvests of pink salmon in the directed chum salmon

fishery to the extent that pink salmon harvest was near the upper end of the forecasted harvest range.

Table 3 summarizes the 2015 commercial pink salmon harvest by subdistrict compared to historical average harvest levels for odd-numbered years. Overall pink salmon commercial harvest was 64,497 fish, the 7th highest in 26 odd-numbered year harvests, and 60% above the long-term (1965–2013) odd-year average harvest of 40,287 fish. Southern Norton Sound accounted for 90% of the overall harvest in 2015 and the Norton Bay Subdistrict harvest of 11,898 pink salmon was a record for odd years.

Table 3.–The 2015 pink salmon harvest (numbers of fish) by subdistrict compared to long-term (1965-2013) historical odd-year average harvests, Norton Sound District.

Norton Sound Subdistrict	2015 Pink Salmon Harvest	Long-term (1965-2013) Odd-Year Harvest	Odd Year Rank
Subdistrict 1 (Nome)	553	506	4
Subdistrict 2 (Golovin)	1,270	7,851	14
Subdistrict 3 (Elim)	4,586	5,119	7
Northern Norton Sound	6,409	13,476	10
Subdistrict 4 (Norton Bay)	11,898	900	1
Subdistrict 5 (Shaktoolik)	13,918	9,329	5
Subdistrict 6 (Unalakleet)	32,272	16,582	6
Southern Norton Sound	58,088	26,811	5
Norton Sound Total	64,497	40,287	7

Pink Salmon Escapements in 2015

In 2015, complete pink salmon escapement estimates were obtained for 10 rivers with ground-based escapement projects (Table 4). Additionally, pink salmon spawning ground aerial surveys were successfully flown of the Bonanza, Sinuk, and Tubutulik Rivers in 2015 (Table 4). All established pink salmon escapement goals were easily exceeded. Pink salmon escapements in nearly all major salmon producing drainages throughout Norton Sound were well above average for odd-numbered years, and for all years in some cases. Northern Norton Sound experienced the strongest pink salmon run since the record-breaking 2005 season and southern Norton Sound had the largest pink salmon escapements since 2007.

The Nome River weir passage estimate of 76,522 pink salmon was 432% above the 2003–2013 (excluding 2005) odd-year average passage estimate of 14,361 pink salmon. Snake River weir had its highest odd-year passage estimate with 16,919 pink salmon. At the Kwiniuk River tower, an estimated 102,942 pink salmon were counted, the 4th largest pink salmon count for odd years. At the Unalakleet River weir project, a record high of 1.6 million pink salmon were enumerated, which was also 37% above the high even-year estimate of 1.18 million pink salmon in 2014. North River tower saw its highest pink salmon escapement since the 2007 season. The Inglutalik River tower estimate of 1,047,973 pink salmon was double the previous record escapement of 494,099 pink salmon counted during the project’s inaugural season. Despite being a partial

estimate, Shaktoolik tower/sonar pink salmon passage in 2015 (407,063 fish) was 3% above last season's even year count of 395,182 pink salmon.

Table 4.—Pink salmon aerial survey, sonar, counting tower, and weir escapement estimates from Norton Sound index rivers compared to established escapement goals, 2015.

Index System	2015 Escapement	Enumeration Method	Escapement Goal
Bonanza River	10,500	Aerial Survey	
Eldorado River	1,483	Weir	
Kwiniuk River	102,942	Tower	SEG (\geq 8,400)
Tubutulik River	16,495	Aerial Survey	
Fish River	215,994	Tower	
Nome River	76,522	Weir	Odd-Year SEG (\geq 3,200)
Inglutalik River	1,047,973	Tower	
North River	463,092	Tower	SEG (\geq 25,000)
Pilgrim River	2,807	Weir	
Shaktoolik River	407,063	Sonar/Tower	
Sinuk River	115,000	Aerial Survey	
Snake River	16,919	Weir	
Solomon River	18,764	Weir	
Unalakleet River	1,616,042	Weir	

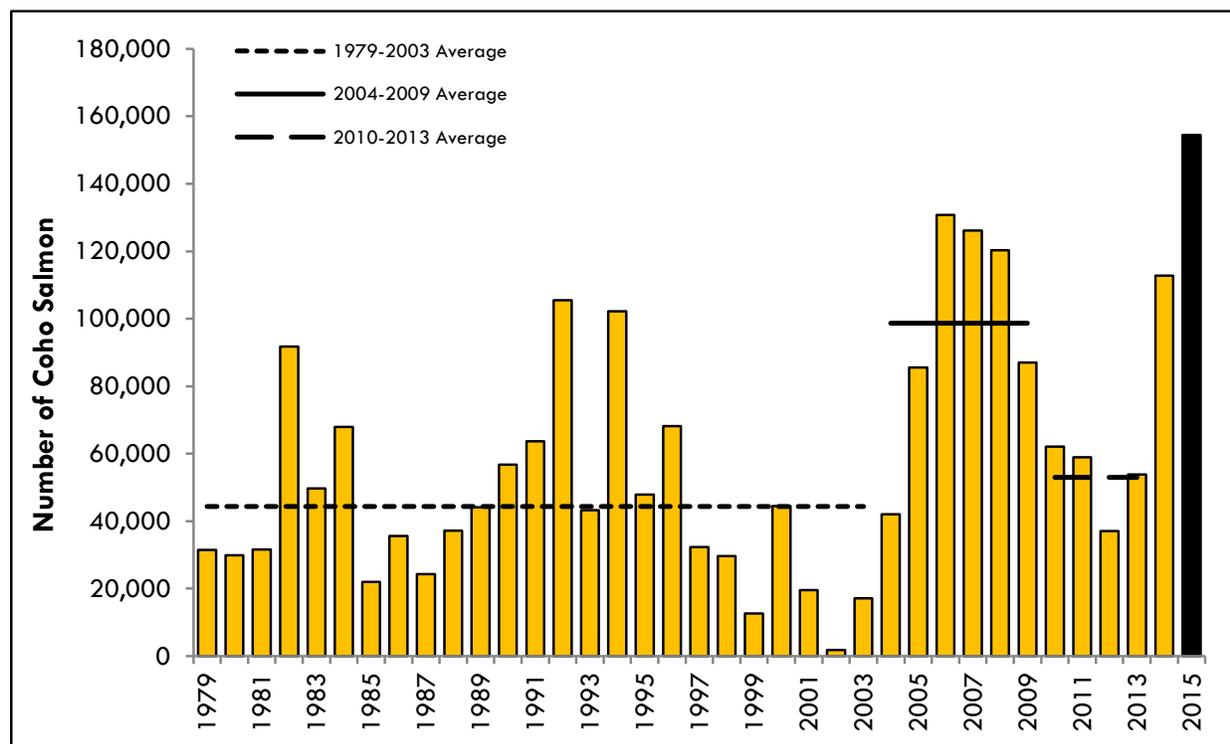
COHO SALMON

2015 Coho Salmon Run Outlook and Commercial Harvest Summary

The 2015 coho salmon run was forecasted to be average with an anticipated commercial harvest ranging from 60,000–90,000 fish. As in previous years, the majority of commercial coho salmon harvests were expected to occur in Subdistricts 5 and 6 because of relatively large runs compared to northern Norton Sound. Historically northern Norton Sound has accounted for 4–25% of the Norton Sound coho salmon harvest since commercial coho salmon fishing reopened in the Elim Subdistrict in 2007 and the Golovin Subdistrict in 2008.

Low coho salmon harvests characterized the commercial fishery from 1961–1978. Coho salmon were harvested more aggressively for commercial purposes beginning with the 1979 season. Beginning in the mid-2000s, coho salmon fisheries became the most valuable contributor to exvessel value in Norton Sound. From 1979–2003, the average commercial coho salmon harvest was 44,394 fish and harvests ranged from a low of 1,759 fish in 2002 to a high of 105,418 fish in 1992 (Figure 7). The 2004–2009 seasons represent a period of record coho salmon productivity for most areas except for Subdistrict 2, which had below average years in 2004 and 2005. During this timeframe, commercial coho salmon harvests averaged 98,639 fish, an average bolstered by the three largest coho salmon harvests on record (2006–2008) (Figure 7). Productivity of coho salmon returned to near pre-2004 levels from 2010–2013 with harvests averaging 52,684 fish, but began to increase again beginning with the 2014 season (Figure 7).

Figure 7.—Annual commercial coho salmon harvest (numbers of fish) compared to 1979–2003, 2004–2009, and 2010–2013 average harvests, Norton Sound District, 1979–2015.



Directed coho salmon periods occurred in all subdistricts except for the Nome Subdistrict beginning in early August. Subdistricts 2–6 were on commercial fishing schedules of two 48-hour periods per week beginning in mid-August when escapement and inriver subsistence uses were projected to be achieved.

Coho salmon migration upstream was likely delayed in several river drainages by the warm, unseasonably dry weather during the first two weeks of August. Slow early August escapement counts of coho salmon were initially concerning to fishery managers despite above average to near record commercial catch statistics in most subdistricts. However, inclement weather began during the third week of August, which in turn led to improved passage estimates of coho salmon and more definitive projections of escapement.

Norton Sound commercial coho salmon harvests for the 2015 season are summarized in Table 5. The 2015 overall commercial coho salmon harvest in Norton Sound was 154,487 fish, which surpassed the previous 2006 season's record harvest of 130,808 coho salmon by 18% (Figure 7). As expected, Unalakleet Subdistrict permit holders harvested the majority (66%) of the coho salmon harvest and southern Norton Sound Subdistricts accounted for 89% (136,717 fish) of the overall harvest. In 55 years of commercial salmon harvests, 2015 harvests of coho salmon ranked 5th, 2nd, and 4th highest in the Golovin, Elim, and Shaktoolik Subdistricts, respectively (Table 5). Record harvests occurred in the Norton Bay (9,709 fish) and Unalakleet Subdistrict (101,783 fish).

Table 5.—The 2015 coho salmon harvest (numbers of fish) by subdistrict compared to long-term (1979-2014) and 2010–2014 average harvests, Norton Sound District.

Norton Sound Subdistrict	2015 Coho Salmon Harvest	2010-2014 Average Harvest	Long-Term Average Harvest	Rank
Subdistrict 1 (Nome)	13	NA	NA	NA
Subdistrict 2 (Golovnin Bay)	3,627	3,307	1,230	5
Subdistrict 3 (Elim)	14,130	8,626	3,048	1
Northern Norton Sound	17,770	11,941	4,441	2
Subdistrict 4 (Norton Bay)	9,709	5,173	1,000	1
Subdistrict 5 (Shaktoolik)	25,225	12,341	11,494	4
Subdistrict 6 (Unalakleet)	101,783	35,466	39,318	1
Southern Norton Sound	136,717	52,981	51,812	1
Norton Sound Total	154,487	64,922	56,253	1

2015 Coho Salmon Escapements

Reasonably complete estimates of coho salmon escapement were obtained from the Nome, Snake, and Kwiniuk River enumeration projects with high water events only precluding counting operations for 5 days in late August. Successful spawning ground aerial surveys were also flown in mid-September of the Bonanza and Sinuk Rivers in the Nome Subdistrict. To the east in the Fish River drainage, high water events were more persistent and resulted in only a partial tower count of coho salmon; late August and early September rains also prevented the department from conducting an aerial survey of the Niukluk River and Ophir River tributary. Suboptimal viewing conditions also led Norton Sound Economic Development Corporation (NSEDC) to suspend counting operations in late August at the Inglutalik, Shaktoolik, and North River counting projects. At the Unalakleet River weir, counting operations were concluded on August 15 due to funding constraints. As a result, all estimates of southern Norton Sound coho salmon escapements should be considered incomplete, partial estimates.

Escapement estimates of coho salmon collected during the 2015 season are summarized in Table 6. Except for the Bonanza River aerial survey count, escapement indices of coho salmon were below average throughout northern Norton Sound, although historical averages include record escapement indices from the mid-2000s. With these record years excluded from the average, northern Norton Sound coho salmon runs in 2015 would be characterized as near average, and adequate to provide for escapement needs and reasonable subsistence harvest opportunities. The 2015 Nome River weir count of 2,459 coho salmon was 75% below the 2001–2014 average of 3,258 coho salmon. Similarly, Snake River's count of 1,559 coho salmon was 23% below the historical average count of 2,026 coho salmon, and the 2015 Kwiniuk River tower count was 27% below historical average levels. Fish River's count of 14,202, while incomplete, does indicate the Niukluk River component of the escapement approximated the midpoint of the tower-based SEG range of 2,400–7,200 coho salmon.

Comparisons with southern Norton Sound coho salmon historical average escapements were less equivocal, with counts that were clearly above the historical average, at least based on partial counts when project operations were terminated either due to flood events or lack of funding. In Norton Bay Subdistrict, the partial Inglutalik River tower count of 9,636 coho salmon was 120%

above the previous high count of 4,373 coho salmon observed in 2013 and the Shaktoolik River coho salmon sonar estimate was 11,025 fish. Unalakleet River weir cumulative passage on the last day of counts was 40,964 coho salmon, which was 53% above the cumulative count enumerated by August 15 in 2014.

Table 5.—Coho salmon aerial survey, sonar, counting tower, and weir escapement estimates from Norton Sound index rivers compared to historical averages and established escapement goals, Norton Sound-Port Clarence Area, 2015.

Index System	2015 Escapement	Enumeration Method	Historical Average	Escapement Goal
Bonanza River	1,705	Aerial Survey	1,516	
Sinuk River	1,280	Aerial Survey	1,360	
Kwiniuk River	7,151	Tower	9,736	Aerial Survey SEG (650-1,300)
Fish River	14,202	Tower	NA ^a	
Niukluk River/Ophir Creek	No Survey	No Survey	NA	
Nome River	2,459	Weir	3,258	
North River	7,350	Tower	11,056	Aerial Survey SEG (550-1,100)
Pilgrim River	296	Weir	570 ^{b,c}	
Shaktoolik River	11,025	Tower/Sonar	NA ^a	
Snake River	1,559	Weir	2,026 ^c	
Unalakleet River	40,964	Weir	NA ^b	

Note: unless stated otherwise, all historical averages are from 2001–2014, excluding 2012.

^a Minimum count because of high water suspending counts during a portion of the run.

^b Minimum count because project only counts a portion of run before being pulled.

^c Snake River historical average is from 2001–2014, excluding 2009, 2011, and 2012. Pilgrim River average is from 2003–2014, excluding 2012.

2015 SOCKEYE SALMON RUN

2015 Sockeye Salmon Run Outlook and Fishery Summary

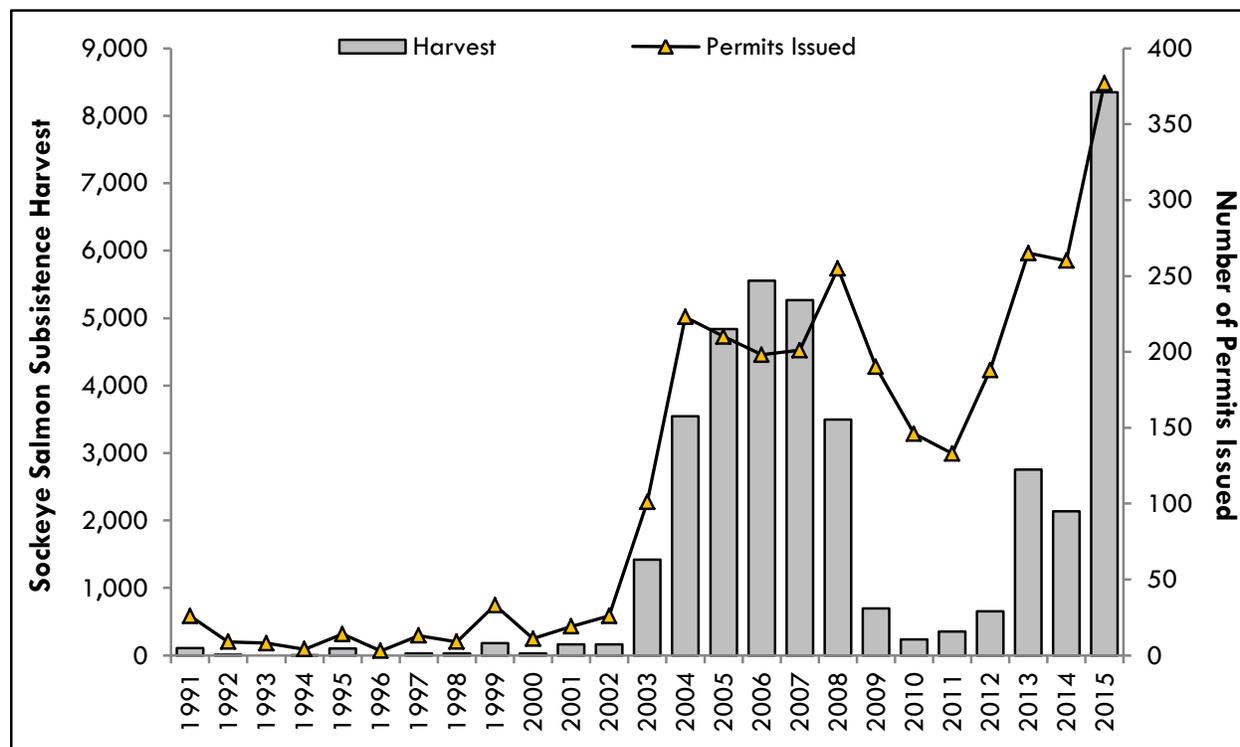
Glacial Lake, in the northwestern portion of the Nome Subdistrict, and Salmon Lake which empties into the Pilgrim River in the Port Clarence District, support the northernmost sockeye salmon populations of significant size in North America. Escapements of sockeye salmon into Glacial and Salmon Lakes are monitored via weir projects to inform management of sockeye salmon fisheries in the Nome Subdistrict and Port Clarence District.

For the 8th consecutive season, a commercial fishery for sockeye salmon was not expected to occur in the Port Clarence District. In addition, a Pilgrim River subsistence fishery closure was possible based on a significant portion of the run projected to originate from the 2009 and 2010 brood years, the two lowest escapements on record. To the surprise of many in the region, the 2015 Norton Sound and Port Clarence sockeye salmon run greatly exceeded all preseason expectations. Abundance of sockeye salmon was strong from Unalakleet to Port Clarence based on all indices of escapement and harvests. Harvests of sockeye salmon in directed chum salmon marine subsistence and commercial fisheries throughout Norton Sound were unprecedented. Sockeye salmon runs in two major lake systems were also the largest observed since the mid-2000s. Above average sockeye salmon run abundance resulted in large harvestable surpluses which ultimately led to waiving Pilgrim River sockeye salmon household subsistence harvest

limits on July 17. Strong production in terms of actual numbers of fish from the 2009 and 2010 brood years in spite of depressed spawning escapements observed during those years was arguably one of the biggest surprises this season. The 2009 (27%) and 2010 (51%) brood years comprised 78% of the 2015 Salmon Lake sockeye salmon run and was further bolstered by 4-year olds returning from the 2011 brood year which accounted for the remaining 22% of the run.

Preliminary subsistence harvest based on the 377 permits issued for the Pilgrim River is 8,350 sockeye salmon (Figure 8). The number of permits issued in 2015 eclipsed the previous record set in 2013 by 42%, and the 2015 subsistence sockeye salmon harvest was 50% above the previous Pilgrim River record harvest of 5,556 sockeyes taken in 2006 (Figure 8). Harvest data for the Port Clarence District are unavailable at the time of this writing. However, the overall sockeye salmon harvest in Port Clarence including Pilgrim River will likely greatly exceed 10,000 sockeye salmon after all permit data are collected from the communities of Teller and Brevig Mission. Subsistence harvest data from other subdistricts have not been fully collected as of yet, but verbal and preliminary permit data from subsistence fishermen clearly indicate that marine harvests of sockeye salmon were much higher than those normally encountered in Norton Sound.

Figure 8.—Annual subsistence sockeye salmon harvest compared to number of permits issued, Pilgrim River, Port Clarence, 1991-2015.

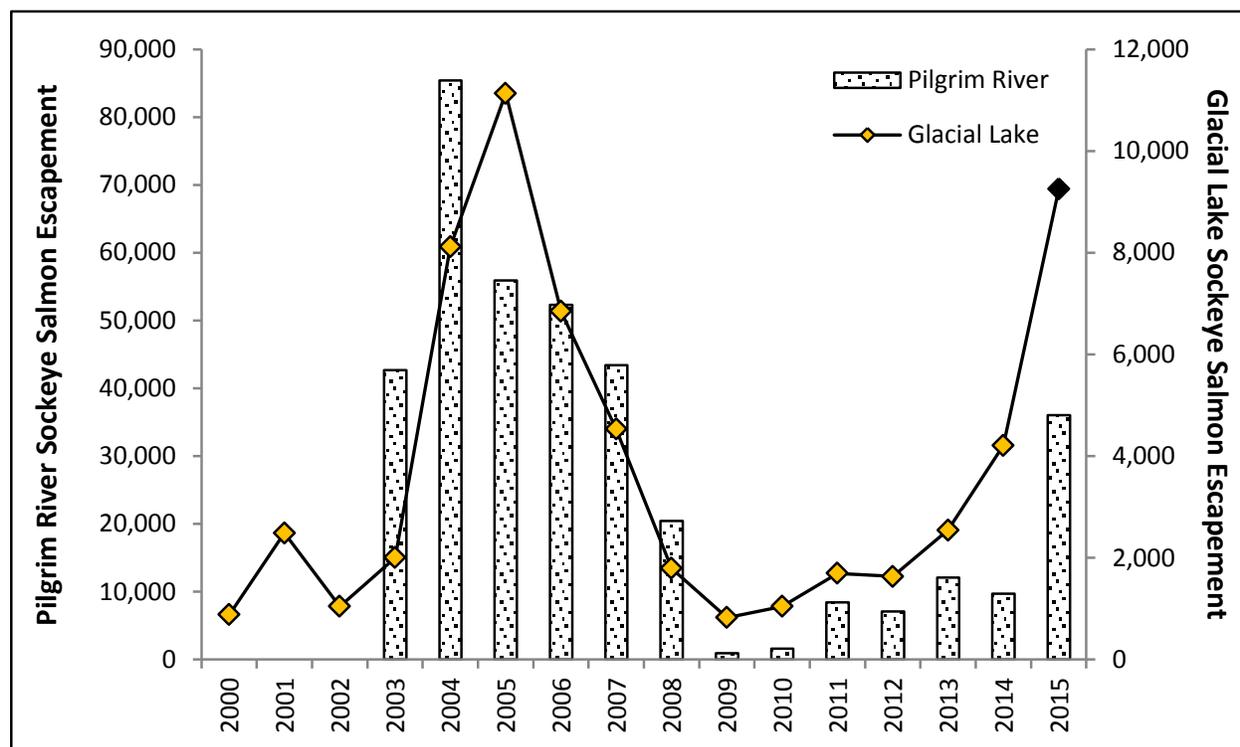


2015 Sockeye Salmon Escapements

In 2015, an estimated 9,257 sockeye salmon were enumerated at Glacial Lake weir and 36,052 sockeye salmon were enumerated at the Pilgrim River weir (Figure 9). The 2015 Glacial Lake weir count was the second best ever, but was actually on record setting trajectory before video monitoring equipment was rendered inoperable for the remainder of the season on July 12. July 12 is the historical average midpoint passage date for sockeye salmon at Glacial Lake weir.

Despite being a partial count, the 2015 estimate at Glacial Lake was 119% above the 2014 estimate of 4,211 sockeye salmon. Passage of sockeye salmon at Pilgrim River weir in 2015 was 270% above the 2014 weir count of 12,130 sockeye salmon (Figure 9). A total of 989 sockeye salmon were counted at Unalakleet River weir which was well above the previous high count of 245 sockeye observed in 2012. The 2015 season signifies the 5th consecutive season in which the Grand Central River/Salmon Lake aerial survey SEG range (4,000–8,000 fish) has been achieved or exceeded as indexed by a July 26 aerial survey count of 10,530 sockeye salmon. Glacial Lake’s aerial survey SEG range of 800–1,600 sockeye was also exceeded when 1,819 sockeye salmon were observed via an aerial survey on July 19, well before the peak of spawning.

Figure 9.—Annual sockeye salmon escapement at Glacial Lake (2000-2015) and the Pilgrim River (2003-2015) weirs, Norton Sound-Port Clarence Area.



Note: The 2015 Glacial Lake count is a partial estimate and only includes counts through July 12, the historic midpoint passage date.

ACKNOWLEDGEMENTS

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