

PROPOSAL 101 and 103

March 2022

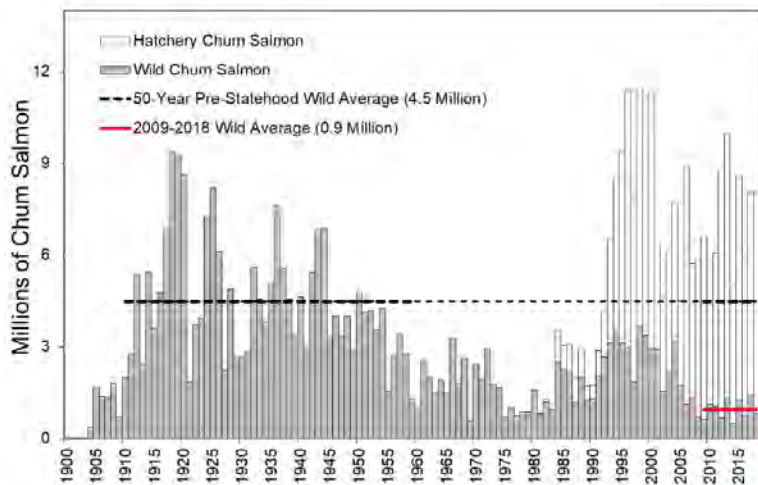
What is the acceptable or unacceptable stray rate in Index streams?

Hatchery straying from a new remote release site in West Crawfish NE Arm is accurately explained in **ADFG Special Publication No. 20-10, Chum Salmon Stock Status and Escapement Goals in Southeast Alaska through 2019;**

BOF Meeting Documents - Additional Reports.

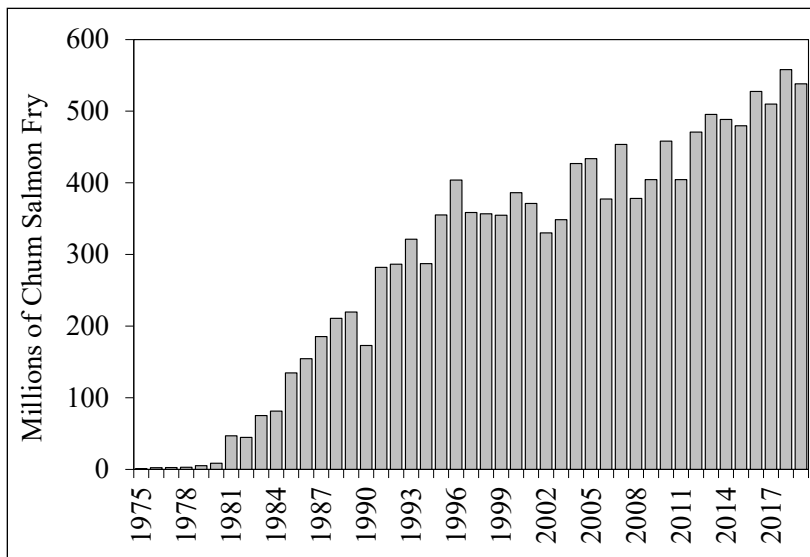
West Crawfish is a definitive example of shift in a wild index stream **after** careful sampling for the Alaska Hatchery Research Project (AHRP) that became inundated with hatchery strays compromising the results of this expensive AHRP.

Is SEAK supplementing or supplanting Alaska’s Wild Fish Priority?



Wild and hatchery
chum harvest
Both go down↓

Figure 1.–Annual common property harvest of chum salmon in Southeast Alaska from 1900 to 2018 showing estimated harvests of both hatchery-produced and wild chum salmon.



...as hatchery
releases
go up↑

Figure 1.–Number of hatchery-produced chum salmon fry released annually in Southeast Alaska, 1975-2019

Please do not allow complacency to jeopardize wild fish priority in Alaska.

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Without question, Economy for fishing families is celebrated. However, economy is only **one of three** negotiated Private Non-Profit responsibilities mandated to provide balance of the Hatchery Act Intent.¹

1. ECONOMY;
2. ECOLOGY;
3. GENETICS

Please consult page 17, **Northern Southeast Outside Summer-run chum salmon**, in referenced Special Publication No. 20-10 to clarify this shift that affected three wild chum streams. Two of which are SEG index streams designed to protect wild stocks. Please require careful follow through without complacency, to reconcile the Alaska Hatchery Research Project.

Mark Tag Lab data from sampling is stored here:

<https://mtalab.adfg.alaska.gov/OTO/reports/MarkSummary.aspx>

Year	ADF&G Stream Number	Stream Name	Sample Date	Otoliths Analyzed	Not Marked	Marked	% Marked
2018	113-32-005	West Crawfish NE Arm Head	8/27/2018	92	35	57	62%
2018	113-32-005	West Crawfish NE Arm Head	9/28/2018	87	1	86	99%
2019	113-32-005	West Crawfish NE Arm Head	8/27/2019	63	58	5	8%
2019	113-32-005	West Crawfish NE Arm Head	9/4/2019	95	6	89	94%
2019	113-32-004	West Crawfish North Arm NE	8/29/2019	95	16	79	83%
2019	113-32-004	West Crawfish North Arm NE	9/5/2019	96	7	89	93%
2019	113-22-015	Whale Bay Great Arm Head	8/19/2019	29	29	0	0%
2019	113-22-015	Whale Bay Great Arm Head	8/28/2019	69	26	43	62%

Table 4.–Proportions of stray hatchery chum salmon from samples collected in select streams in the Northern Southeast Outside Subregion of Southeast Alaska in 2018 and 2019.

2020 and 2020 were not sampled.

Wild chum assessment is complicated by straying Hatchery chum straying.

1. *“Increased straying of hatchery chum salmon into streams in the Northern Southeast Outside Subregion from a new release site at Crawfish Inlet has*

¹ **PNP Hatchery Act** Section 1. INTENT. It is the intent of this Act to authorize the private ownership of salmon hatcheries by qualified nonprofit corporations for the purpose of contributing, by artificial means, to the rehabilitation of the state's depleted and depressed salmon fishery. The program shall be operated without adversely affecting natural stocks of fish in the state and under a policy of management which allows reasonable segregation of returning hatchery-reared salmon from naturally occurring stocks.

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complicated the assessment of wild chum salmon in that subregion and additional sampling is needed to determine the variation and geographic extent of straying from the new release site.”

Genetic diversity component compromised by death by a thousand cuts to reproductive isolation

2. *“Reproductive isolation between summer-run and fall-run chum salmon is an important component of the genetic diversity of this species” (Phelps et al. 1994).”*

Over 10,000 hatchery fish overwhelmed West Crawfish index stream

3. *“Large numbers of Crawfish Inlet hatchery chum salmon entered West Crawfish Inlet in 2018 and 2019 rather than returning directly to the release site in Crawfish Inlet, which raised concerns about straying of hatchery fish into nearby wild stock streams.”*

Prior to 2018 relatively low proportions of hatchery fish in NSE Outer Subregion

4. *“Otolith sampling conducted at the West Crawfish NE Arm Head index stream prior to 2018 showed relatively low proportions of stray hatchery fish (maximum 4.2% in 2008; Piston and Heintl 2012), as did the Northern Southeast Outside Subregion index as a whole (<2%; Piston and Heintl 2012).”*

Then...2019 and 2020 swelled to extremely high proportions of hatchery strays

5. *“In 2018, otolith samples collected from carcasses at West Crawfish NE Arm Head (Figure 6) on 27 August, which would represent the timing of spawning for the wild stock, were 62% hatchery origin (Table 4).”*

99% fall run hatchery origin digging up wild spring run wild chum redds

6. Additional samples were collected on 28 September after it was noticed that large numbers of chum salmon were still present in the stream and these were found to be 99% hatchery origin.

Sampling expanded and found further concern

7. In 2019, otolith sampling was expanded to include West Crawfish NE Arm Head, West Crawfish North Arm NE (non-index stream), and Whale Bay Great Arm Head, which is an index stream located approximately 60 km southeast of the Crawfish Inlet release site (Table 4).

Hatchery fall-run chum salmon overlapped wild spring-run chums during timing of spawning and digging up summer-run wild redds

8. Otolith samples collected from carcasses at West Crawfish NE Arm Head on 27

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August and 4 September 2019, **which would represent the timing of spawning for the wild stock**, were 8% and 94% hatchery origin, respectively. Samples collected at West Crawfish North Arm NE on 29 August and 5 September 2019 were **83% and 93% hatchery origin**, respectively. Finally, samples collected at Whale Bay Great Arm Head on 19 August and 28 August 2019 were 0% and 62% hatchery origin, respectively.

Year	ADF&G Stream Number	Stream Name	Sample Date	Otoliths Analyzed	Not Marked	Marked	% Marked
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Table 4.—Proportions of stray hatchery chum salmon from samples collected in select streams in the Northern Southeast Outside Subregion of Southeast Alaska in 2018 and 2019.

What stray rate is acceptable or not acceptable? How far is straying expanding? How is this affecting accuracy of Escapement Goals? Do allocation plans have any words to protect wild fish priority?

Please consult [HATCHERY CHUM SALMON STRAYING](#) page 32

In 2018 and 2019, large numbers of hatchery chum salmon from the first returns to the new Crawfish Inlet release site entered adjacent West Crawfish Inlet, where they overlap in run timing with and vastly outnumber wild fish. Major increases of stray Crawfish Inlet hatchery fish in two of the nine Northern Southeast Outside Subregion index streams (West Crawfish NE Arm Head, Whale Bay Great Arm Head; Table 4; Figure 22) present challenges for monitoring wild stock escapements and assessing escapement goal performance as required by the sustainable salmon fisheries policy. Historically, peak survey counts in those two index streams accounted for an average 36% of the total subregion escapement index; thus, the overall proportion of stray hatchery fish in the subregion index has likely increased significantly. The high proportion of stray hatchery fish in Whale Bay Great Arm Head (Table 4), approximately 60 km from the Crawfish Inlet release site, indicates that additional sampling is required to determine the full extent of straying. This is particularly true for chum salmon index streams immediately north of Sitka Sound (e.g.,

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Kalinin Cove Head; Figure 22) that have not been sampled previously for the presence of hatchery origin chum salmon. Given these changes, the department will need to consider how to best assess escapements in the

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Northern Southeast Outside Subregion. This could include removing chum salmon index streams from index, which would greatly reduce the geographic coverage, or reevaluate how wild chum salmon escapements in the subregion are monitored.

Although the hatchery chum salmon released at Crawfish Inlet (from Nakwasina River broodstock; Figure 22) have later run timing than wild stock chum salmon in West Crawfish Inlet and Whale Arm

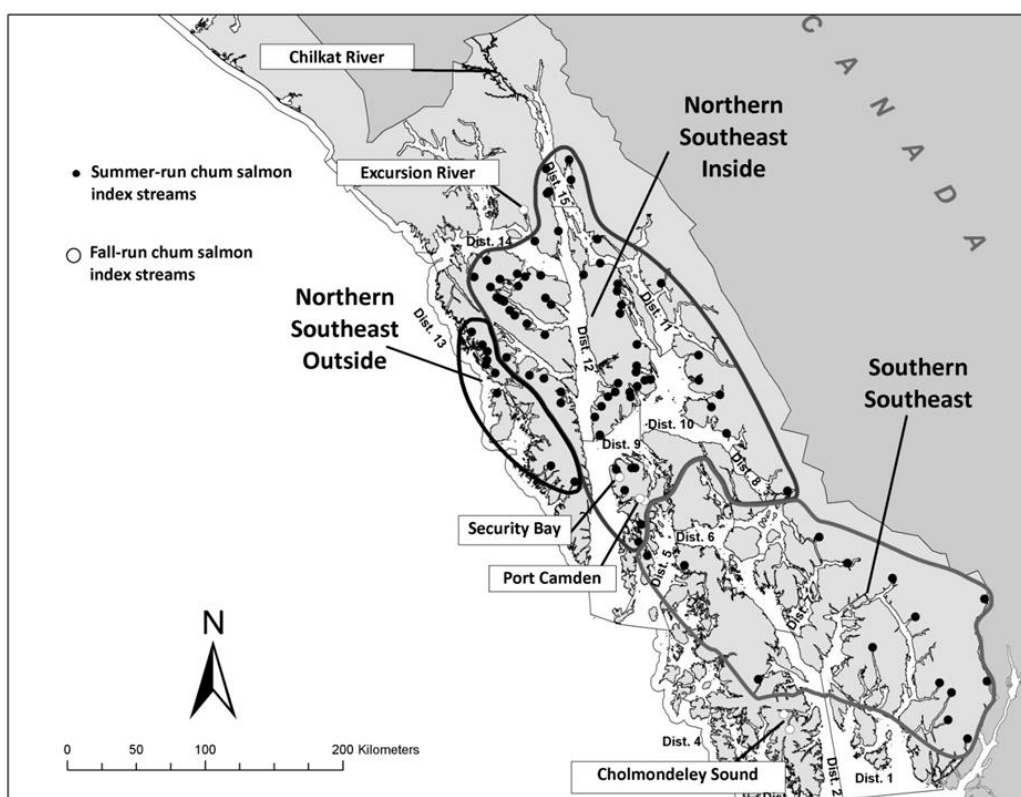


Figure 2.—Locations of ADF&G chum salmon index streams and summer chum salmon stock groups in Southeast Alaska.

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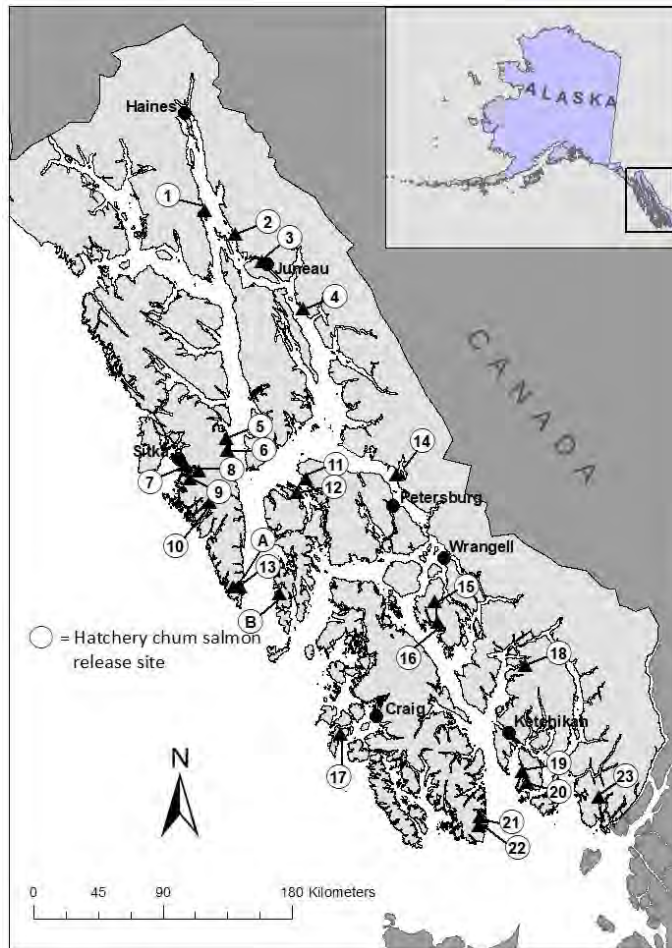


Figure 3.—Map of Southeast Alaska showing major towns and current hatchery chum salmon release sites. Hatchery release sites and operators are represented by numbered circles: 1) Boat Harbor (DIPAC), 2) Amalga Harbor (DIPAC), 3) Gastineau Channel (DIPAC), 4) Limestone Inlet (DIPAC), 5) Kasnyku Bay (NSRAA), 6) Takatz Bay (NSRAA), 7) Crescent Bay (Sitka Sound Science Center), 8) Bear Cove (NSRAA), 9) Deep Inlet (NSRAA), 10) Crawfish Inlet (NSRAA), 11) Kake (NSRAA), 12) Southeast Cove (NSRAA), 13) Port Armstrong (Armstrong-Keta Inc.), 14) Thomas Bay (NSRAA), 15) Anita Bay (SSRAA), 16) Burnett Inlet (SSRAA), 17) Port Asumcion (SSRAA), 18) Neets Bay (SSRAA), 19) Chester Bay (Metlakatla Indian Community), 20) Tamgas Harbor (Metlakatla Indian Community), 21) Kendrick Bay (SSRAA), 22) McLean Arm (SSRAA), and 23) Nakat Inlet (SSRAA). Two recently approved release sites have not had a chum salmon release as of 2019: A) Port Lucy (Armstrong-Keta Inc.) and B) Port Malmesbury (NSRAA).

Please uphold Wild Fish Priority in Alaska. Complacency or subjective ideologies is no response when we have an opportunity to answer further questions affecting results of the Alaska Hatchery Research Project.

Sincerely,
Nancy Hillstrand
Pioneer Alaskan Fisheries Inc.