2025 ANNUAL MANAGEMENT PLAN
GULKANA HATCHERY I and II
Prince William Sound Aquaculture Corporation

This Annual Management Plan (AMP) is prepared to fulfill the requirements of 5 AAC 40.840. This plan is prepared to guide hatchery operations in accordance with the hatchery permit. The plan must be developed with consideration of the hatchery's production cycle and must organize and guide the hatchery's operations regarding production goals, broodstock management, and harvest management of hatchery-produced salmon. The production cycle begins with adult returns, that lead to egg takes and end with fish releases. Action may be taken outside of the management plan if allowed under the hatchery permit or modified by emergency order. In-season assessments and project alterations by Prince William Sound Aquaculture Corporation (PWSAC) or Alaska Department of Fish and Game (ADF&G) may result in changes to this AMP in order to reach or maintain program objectives. PWSAC will notify the ADF&G private nonprofit (PNP) hatchery program coordinator in a timely manner of any departure from the AMP. The ADF&G PNP coordinator will advise as to whether an amendment, exception report, or other action is warranted. No variation or deviation will be implemented until an AMP amendment has been approved or waived by both the department and PWSAC. This policy applies to all hatchery operations covered under the AMP.

I. OPERATIONAL PLAN

1.1 Egg-take Goals by Species

Sockeye Salmon, Gulkana I: The maximum number of sockeye salmon eggs is 35.0 million. Broodstock requirements are 11,900 females and 7,100 males for a total of 19,000 fish, assuming:
a. 3,300 eggs/female
b. 2:1 female to male spawning ratio, minimum (may be closer to 3:2 depending on male availability)
c. 10% green/over-mature female at rack

Sockeye Salmon, Gulkana II: The maximum number of sockeye salmon eggs is 1.75 million. Broodstock requirements are 650 females and 350 males for a total of 1,000 fish, assuming:
a. 3,300 eggs/female
b. 2:1 female to male spawning ratio
c. 18% green/over-mature female at rack

This year's expected brood at Gulkana I and II are in section 3.3.

1.2 Broodstock Acquisition and Data Reporting

All data associated with egg take and broodstock collection will be provided to the department by November 1 each year. Data will be provided in electronic format (Excel file) and include all the categories presented in the template attached as Table 6. Data to be collected specifically includes

the numbers of green and over-ripe females from the broodstock and associated cost recovery. PWSAC planned egg takes are shown in Table 2 and egg-take schedules are shown in Table 3.

Sockeye Salmon, Gulkana I: August 15–October 15

Sockeye Salmon, Gulkana II: July 25–August 20

1.3 Egg-take Schedule

August 15 to September 5: 0.5–1.0 million/day
September 6 to September 15: 1.0─1.5 million/day
September 16 to October 5: 1.5–2.5 million/day
October 6 to October 15: 1.0–1.5 million/day.

1.4 Egg Transport and Carcass Disposal Plans

Sockeye Salmon, Gulkana I: Eggs taken at Gulkana I (GHI) will be fertilized and water hardened on site. The eggs will be hand-carried approximately 75 yards to one of the 134 tote incubators.

Broodstock carcasses will be either given to residents of the area (for dog food) or will be disposed of in the Gulkana River to ensure adequate nutrient input into Paxson Lake in accordance with Alaska Department of Environmental Conservation (DEC) requirements.

If returns are expected at Summit Lake and/or Pup Lake (Pup Lake is downstream from Crosswind Lake) and insufficient broodstock are available at the GHI facility, a broodstock collection area will be established at the outlet of Summit Lake and/or Pup Lake.

Sockeye Salmon, Gulkana II: Eggs taken for Gulkana II (GHII) will be fertilized and water hardened at GHII from GHII broodstock, then seeded at GHII in one of twelve incubation boxes.

In light of recent low incubation survivals at GHII, a portion or all of the eggs may be incubated at GHI while operations are evaluated to improve survivals. All GHII fry incubated at GHI would be transported back to GHII for release.

Broodstock carcasses will be disposed of in the Gulkana River in accordance with DEC requirements. If an additional broodstock carcass disposal log is required by ADF&G, all disposals will be logged on the carcass disposal form and reported to the department within 30 days after egg-take and disposals are completed.

1.5 Incubation Plans

Hatchery Production Summary

Species	Facility	Green Eggs	Fry Released
Sockeye Salmon	Gulkana I	35,000,000	20,700,000
Sockeye Salmon	Gulkana II	1,750,000	1,300,000

The incubators at GHI are "tote"-style incubators. At GHII, all incubators are "Kitoi"-style incubators. Sockeye salmon survival from green egg to fry release is estimated to be 75%.

All eggs will be incubated at GHI and GHII during 2025.

1.6 Rearing and Release Plans

Sockeye Salmon, Gulkana I: Eggs will hatch in gravel substrate inside stream-side tote incubators. Outmigration from the incubators is volitional, with enumeration by electronic counters. Surviving fry from the 2024 egg-take will be released into Paxson Lake from the GHI site (up to 6 million). As the egg-take goal in 2024 was not met, it is unlikely there will be any fry released into Summit Lake in 2025. Release numbers to Crosswind, Paxson, and Summit lakes are adjusted due to the egg-take shortage. Fry destined for Paxson Lake will be reared for approximately 10–14 days. Fry destined for Crosswind Lake will be reared for approximately 10–14 days until all are accumulated and ice melts on Crosswind for the aerial transport. Any fry released in Summit Lake will be reared approximately two to four weeks, allowing for a more desirable open-water release.

In 2025, the feasibility trial of a late large program on Paxson released fish will continue. A portion of the fry will be held back and reared up to 2 grams in size. It will take an anticipated 8 weeks to reach 2 grams, which means these fish will be released around late July or into August. This will reduce the amount of time in the wild that they are exposed to predation and lake rearing. This should ultimately help to improve overall survivals and aid in meeting return targets.

Sockeye Salmon, Gulkana II: Eggs will hatch in gravel substrate incubators and the resulting fry will be fed prior to release. Outmigration from incubators is volitional, with enumeration by electronic counters. An estimated 1.1 million fry will be released from the 2024 egg take at the site. Fry from GHI may be used to cover a shortfall if the green-to-fry survival is lower than anticipated at the GHII facility to reach the 1.1 million fry release goal.

PWSAC's anticipated 2025 releases are shown in Table 4.

1.7 Fry Transport Methods

Fry from the incubation site will be air dropped at Crosswind Lake by a Thrush aircraft with a 500-gallon, oxygen-supported tank with approximately 1.0 million fry per load. Fry will be transported to Summit Lake in a 300-gallon fish stocking tank with approximately 330,000 fry per load and will be primarily released into Gunn Creek or may be released directly into Summit Lake via boat transports.

1.8 Permitted Capacity

Gulkana Hatchery was issued PNP Hatchery Permit #42 in 2000. It is currently permitted to incubate 36.75 million sockeye salmon eggs.

Fish Transport Permit Summary

FTP Number	Expiration Date	Purpose
SOCKEYE SALMON		
96A-0034	4/30/26	Allows transfer and release of 10 million fry from GHI into Crosswind Lake.
96A-0038	4/30/26	Allows transfer and release of 6 million fry from GHI into Paxson Lake.
96A-0039	4/30/26	Allows transfer and release of 6 million fry from GHI into Summit Lake.
97A-0048	7/17/30	Allows egg take and incubation of 35 million GHI x Gulkana River stock sockeye salmon eggs at the GHI location.
97A-0049	7/17/30	Allows egg take, incubation, and resultant release of 1.75 million GHII x Gulkana River stock sockeye salmon eggs at GHII.
16A-0054	4/30/30	Allows the egg take of 35 million GHI x Gulkana River stock sockeye salmon eggs at the Summit Lake adult weir location. Eggs will be incubated at the GHI location.
16A-0055	4/30/30	Allows the egg take of 35 million GHI x Gulkana River stock sockeye salmon eggs at the Pup Lake adult weir location (downstream from Crosswind Lake). Eggs will be incubated at the GHI location.
20J-1023	8/1/2030	Allows 1.75 million green eggs to be transported from GHII to GHI, incubated and reared over winter at GHI, and transported back to GHII before release.

II. DONOR STOCK MANAGEMENT

The hatchery sockeye salmon runs will be sufficient to meet broodstock goals for 2025 and no donor stock management is anticipated. It is recognized that the broodstock in the brood collection area is a mixture of natural and hatchery-spawned fish. Hatchery escapement is affected by harvest in the commercial, personal use, subsistence and sport fisheries months earlier and ADF&G management and the hatchery operator cannot take mitigative action if a shortfall of broodstock occurs.

2.1 Fish Collection Techniques

Sockeye Salmon, Gulkana I: Fish are captured by dip net and seine at the hatchery site or from adjacent springs. A weir is installed annually at the Summit Lake and Pup Lake (downstream from Crosswind Lake) outlets for otolith mark recovery when hatchery returns are expected at these locations. In the event of a broodstock shortfall, either or both weirs will be used to capture the necessary broodstock.

Sockeye Salmon, Gulkana II: A weir in the Gulkana River, in place July 25th through August 20th, is used to hold fish while dip nets, seines, and snagging gear are used to capture fish from

behind the weir for egg take. Enhanced returns that enter the hatchery site stream are captured by dip net and seine.

III. HATCHERY RETURN MANAGEMENT

PWSAC operates five facilities: Armin F. Koernig Hatchery (AFK), Cannery Creek Hatchery (CCH), Gulkana Hatchery (GH), Main Bay Hatchery (MBH), and Wally Noerenberg Hatchery (WNH). The corporation generates revenues for annual operations from a 2% enhancement tax and from the sale of hatchery-produced salmon returning to the facilities.

In 1997, the PWSAC Board of Directors (BOD) elected to have corporate cost recovery based upon revenue goals specific to the seine and gillnet salmon fisheries rather than a goal of harvesting a fixed percentage of the returning adults. This results in each gear group paying for enhanced production from which they benefit. PWSAC calculates these revenue goals by allocating production costs between the seine-caught and gillnet-caught salmon fisheries.

On March 19, 2025, the PWSAC BOD approved the annual corporate budget for Fiscal Year 2026 detailing potential sources of revenue and expenditures. The pink salmon cost-recovery revenue goal is $10,894,412. The WNH chum and MBH sockeye salmon cost-recovery revenue goals are $3,549,355 and $2,200,000 respectively. Additional revenue may be generated through PWSAC's raceway fish sales during its egg-take full utilization program.

PWSAC uses preseason assumptions for the number of returning fish, price per pound, and average adult weight to calculate the total projected value of the returning hatchery-produced salmon. Based on these assumptions, PWSAC estimates that approximately 20% of the total run will be required to meet the revenue goal in the Fiscal Year 2026 financial plan.

Hatchery escapement means all fish that escape the common property fisheries. Two categories of escapement: (a) the number of brood to meet production objectives; and (b) the number of hatchery-produced fish taken for the hatchery harvest requirement, to be used to pay for the hatchery's reasonable operating and capital costs (5 AAC 40.990(6)).

Pink Salmon Returns: The AFK, CCH, and WNH pink salmon runs will be managed collectively through openings and closures of respective hatchery subdistricts. Managing the enhanced pink salmon runs in aggregate may result in site-specific CPF contribution rates being above or below the approximate target of 82% CPF pink salmon harvest.

WNH Chum and MBH Sockeye Salmon Runs: The WNH chum salmon and MBH sockeye salmon runs will be managed collectively through openings and closures of respective hatchery subdistricts. The collective management will be managed concurrently for the WNH chum and MBH sockeye salmon revenue goal. Managing the returns in aggregate may result in site-specific CPF contribution rates being above or below the approximate targets of 35% and 73% for the WNH chum and MBH sockeye salmon harvest, respectively.

The AFK Hatchery and Port Chalmers remote release chum salmon runs are expected to have a 100% CPF harvest.

Reduction of CPF opportunity in hatchery subdistricts may be necessary to ensure hatchery escapement objectives are met. PWSAC will work closely with local ADF&G management biologists to achieve the seine and gillnet fisheries revenue goals as rapidly as possible to allow for an orderly and consistent CPF.

3.1 Probable Hatchery Fish Migration Routes and Timing

Sockeye salmon stocks from both GHI and GHII coincide with wild stock run timing. The peak enhanced sockeye salmon return coincides with some Copper River Delta and some Upper Copper River wild stocks. Management priority is to sustain wild stock yield and diversity. The harvest of hatchery-produced sockeye salmon is based on the forecasted return and management of wild stocks. Therefore, hatchery stocks will be harvested at the same rate as wild stocks.

Sockeye salmon returns from the three release sites for GHI fry occur throughout the commercial, personal use, subsistence and sport fisheries. Returns from the GHII release site occurs throughout the early and middle segments of wild Copper River stock returns. Each release site has demonstrated somewhat different timing as determined by coded-wire-tag recoveries in the commercial, personal use, and subsistence fisheries and in historical timing data. Gulkana I and II sockeye salmon are intermingled with other stocks of sockeye salmon and other species of salmon to such an extent that no targeted harvest can occur within the various fisheries. However, harvests can occur at the terminal return point of Crosswind Lake.

Harvest management throughout the Copper River drainage is limited to development of daily timing and abundance data for each enhanced stock release group, which, when used in conjunction with natural stock timing data, is designed to protect natural-stock components of the return.

Gulkana sockeye return in two surges, although in recent years, sampling the commercial common property fisheries during early-season statistical weeks has yielded fewer Gulkana marks than in the past. Gulkana sockeye consistently arrive at the hatchery sites in two surges. GHII fish overlap early upriver and Delta wild stocks. GHI returns coincide with the Delta wild stocks and the later component of the upriver wild stocks. Hatchery and Delta stocks are present in the commercial catch from the beginning of the commercial fishing season (mid-May). These fish are possibly milling in the deep waters offshore of the Copper River Delta and are harvested in offshore fisheries. See Figure 1 for a map of the Copper River watershed.

3.2 Special Harvest Area

The Crosswind Special Harvest Area (SHA) was established in accordance with 5 AAC 40.005 and consists of the waters of Dog Creek west of approximately 145°52.83'W long. downstream to a weir located at approximately 62°34.70'N lat., 145°53.7'W long. (Figure 2). All longitude and latitude coordinates are based on the North American Datum of 1983. PWSAC may construct a weir or series of weirs to conduct a cost-recovery harvest. Seines, traps, or dip nets may also be used to harvest cost-recovery fish in the SHA. PWSAC, or the processor with the cost recovery licensing agreement, may harvest sockeye salmon during periods established by emergency order (EO). All other species must be allowed free upstream or downstream passage.

The intent for developing this SHA is to limit the return of surplus hatchery-produced sockeye salmon into Crosswind Lake, provide local economic opportunity, and provide state residents with a source of salmon. There is negligible salmon spawning habitat at Crosswind Lake and no natural production escapement goal has been established. This SHA will prevent most of the returning sockeye from migrating into the system while providing benefits to both PWSAC and state residents.

In order to provide state residents with the opportunity to use excess production from Crosswind Lake, PWSAC, or the processor with the cost recovery licensing agreement, may, at their discretion, give away up to 30 sockeye salmon per household to residents who come to the site and request fish. PWSAC will work with the Divisions of Sport and Commercial Fisheries area management biologists for harvest record requirements as applicable.

If PWSAC is unable to harvest the surplus hatchery-produced sockeye salmon in the SHA, they will, under authority of ADF&G, destroy all sockeye salmon in excess of broodstock and escapement needs. Disposal of these fish is undesirable; however, allowing them to escape into Crosswind Lake beyond those needed for escapement could is also undesirable. Excess destroyed sockeye salmon will be left in the stream below the weir in the SHA.

3.3 Hatchery Returns

Sockeye Salmon, Gulkana I: PWSAC's historical records indicate that >70% of the returning Gulkana adults are 5-year olds. In 2024, the Gulkana Hatchery run was above projected for all age classes. The sibling relationship between 4-year-old fish last year and 5-year-old fish this year indicates expected survivals at all locations.

As a result, PWSAC's anticipated 2025 adult run of GHI stock is 199,400 fish, assuming a survival rate of 1.09% at Paxson and 2.44% at Crosswind (Table 1).

2025 Sockeye Salmon Projected Run Summary

Total Run	Broodstock	CPF Harvest and Escapement
199,400	19,000	180,400
% of Total	**10%**	**90%**

Sockeye Salmon Projected Run, Age-Composition Summary

Nursery Lake	BY	Fry Released	Anticipated Fry-Adult Survival	Anticipated Total BY Return	Return Age	2025 Projected Run	% of Total
Crosswind Lake	2020	6,306,358	3.12%	196,798	Age-5	143,000	98%
	2021	578,709	2.27%	13,160	Age-4	1,000	2%
					Total	**144,000**	**100.0%**
Paxson Lake	2020	4,757,837	1.34%	63,811	Age-5	46,600	84%
	2021	7,805,550	0.43%	33,301	Age-4	8,800	16%
					Total	**55,400**	**100.0%**
Summit Lake	2020	0	NA	0	Age-5	0	0%
	2021	0	NA	0	Age-4	0	0%
					Total	**0**	**0%**

Historical average return age composition: 72% age-5 and 28% age-4.

Sockeye Salmon, Gulkana II: PWSAC's anticipated 2025 adult run of GHII stock is 17,400 fish, assuming a 1.46% fry to adult survival (Table 1).

2025 Sockeye Salmon Projected Return Summary

Total Run	Broodstock	CPF Harvest and Escapement
17,400	1,000	16,400
% of Total	**6%**	**94%**

Sockeye Salmon Projected Run, Age-Composition Summary

Nursery Lake	BY	Fry Released	Anticipated Fry-Adult Survival	Anticipated Total BY Return	Return Age	2025 Projected Run	% of Total
Paxson Lake	2020	1,162,869	1.58%	18,325	Age-5	13,900	80%
	2021	1,307,304	1.10%	14,369	Age-4	3,500	20%
					Total	**17,400**	**100.0%**

Historical average return age composition: 75% age-5 and 25% age-4.

3.4 Separation of Brood and Sales Fish

Crosswind Lake (Pup Lake weir) is both a brood collection area and an SHA. Since PWSAC began operating the Gulkana Hatchery in 1995, facility operation and capital costs have been met through the 2% enhancement tax and through cost recovery revenues made by the sale of MBH sockeye salmon and WNH chum salmon. In an effort to avoid excess fish entering Crosswind Lake, a special harvest area (SHA) has been designated to allow for cost recovery harvest. No directed management is required to meet the adult return objectives.

3.5 Cost Recovery of Hatchery Fish

No cost recovery harvest will occur in the Copper River District due to the mixed-stock fishery. Cost recovery harvest in the Crosswind Lake SHA has not occurred since 1999 and is not anticipated to occur this year.

3.6 Special Management Strategies

Mixed-stock, mixed-species management occurs in the commercial, sport, personal use, and subsistence fisheries. Common property harvest rates cannot be increased due to the potential to overharvest natural stocks. Commercial harvest interception of 60% and the personal use and subsistence combined interception rate of 18% are anticipated. Since hatchery-produced fish may be able to withstand a higher harvest rate than wild stocks, the upriver harvest rate for returns to the hatchery may differ from downriver exploitation rate.

3.6.1 On and Off-Station Returns (Crosswind, Summit, Hatchery Site)

In 2025, off-station returns will occur only at Crosswind Lake, with on-station returns occurring at the GHI and GHII facilities. No special management strategy is required because the return locations are above all common property fisheries.

3.6.2 Wild and Hatchery Stock Management

Hatchery and wild stocks are intermingled in all fisheries in the Copper River, as well as at the Miles Lake sonar. Recoveries of otolith-marked fish are presently being used to estimate numbers and timing of the enhanced stock for in-season management in the commercial fishery. Managing for wild stock escapement is the priority in the commercial fishery which could result in excessive escapement of the enhanced stock return to the hatchery and lake stocking sites.

3.7 Commercial Harvests

The commercial harvest occurs at the mouth of the Copper River. The seaward boundary of the Copper River District, as described in 5 AAC 24.301, is a line between coordinates that are approximately three miles due south of Pinnacle Rock and Hook Point. There are 535 commercial drift gillnet permits in Area E. Only driftnets 150 fathoms or less may be fished in the Copper River District. Openings are by EO only.

3.8 Sport Fish Harvest

The current estimated sockeye salmon harvest in the Gulkana River is less than 1,500 fish, with the majority caught prior to arrival of GHI stock. Sport fishermen on the Gulkana River harvest less than five percent of the Gulkana River sockeye salmon escapement. Due to this early season effort, a lesser percentage of these fish would be hatchery-produced. From 1988 through 1990, Paxson Lake, Summit Lake, and Gunn Creek were open to sport fishing of sockeye salmon during times when hatchery returns were available. In 1991, additional area was opened, and Crosswind Lake is already open to sport harvest. In 2000, the West Fork Gulkana sport limit was increased from 3 to 6 salmon after August 1 to target hatchery surplus. However, these management accommodations have failed to attract sport anglers to target these hatchery stocks due to difficult access to the fishing locations and the late timing of the returns.

3.9 Subsistence and Personal Use Harvests

Subsistence: Gear is limited to fish wheels and dip nets (plus rod and reel under federal subsistence regulations) in the Glennallen Subdistrict of the Upper Copper River District and drift gillnets in the Copper River District. Currently, the amount necessary for subsistence (ANS) in the Glennallen Subdistrict is 61,000–82,500 salmon (includes Chinook, coho, and sockeye salmon). Over the last 20 years, actual harvests have ranged from 46,000-109,000 sockeye salmon. In all but 6 years, hatchery contribution to the Glennallen Subdistrict subsistence fisheries has been combined with the Chitina Subdistrict personal use fishery and has ranged from 3–22% since 2008. In 2013, 2014, 2019, 2020, 2021, and 2022 hatchery contribution sampling was done in the Glennallen Subdistrict with hatchery sockeye contributing 14,951 (18%), 15,800 (18%), 2,275 (2%), 4,921 (10%), 4,700 (8%), and 698 (1%) fish respectively, during those years to the subsistence fishery. The subsistence fishery tends to occur concurrently with fish availability throughout the season. Escapement goals at the Miles Lake sonar station include sufficient wild stock sockeye salmon to satisfy this harvest without jeopardizing the spawning escapement.

Personal Use: Gear is limited to dip nets (plus fish wheel and rod and reel under federal subsistence regulations) in the Chitina Subdistrict (below Chitina-McCarthy Bridge). Current allocations allow for the harvest of 100,000 to 150,000 salmon in this subdistrict. Since 2008 harvest in both the Chitina Subdistrict personal use and Glennallen Subdistrict subsistence fisheries has included a combined 4,000–68,000 hatchery produced sockeye salmon. In 2013, 2014, 2019, 2020, 2021, and 2022 hatchery contribution sampling was done separately in both the Chitina and Glennallen subdistricts with hatchery sockeye contributing 27,839 (18%), 28,900 (21%), 8,000 (5%), and 3,600 (4%), 12,100 (8%), and 3,400 (2%) fish, respectively, during those years to the personal use fishery. However, effort in the dipnet fishery is concentrated on the early portion of the run with an average of 17% of all effort concentrated during the weeks hatchery fish are most prevalent in the fishery.

3.10 Avoidance of Nontarget species

Gulkana I: No nontarget species issues.

Gulkana II: No nontarget species issues.

IV. EVALUATION STUDIES

4.1 Otolith Recovery in Returning Adults

The recovery of otolith-marked fish from the 2025 runs of Gulkana Hatchery sockeye salmon will be directed at collecting from the commercial fishery, hatchery harvests, and broodstock. Detailed otolith recovery objectives and timelines are established through a cooperative agreement between PWSAC and ADF&G, annually, and may be published in a department operational plan[1]. Otolith mark data will be used by ADF&G and PWSAC to measure fishery contribution and marine survival of salmon. ADF&G will provide PWSAC with preliminary otolith mark-recovery data from commercial fishery samples by December 1 each year. Similarly, PWSAC will provide ADF&G with independently collected otolith mark-recovery data by April 1 each year. These data are to be the individual specimen otolith-mark results.

4.2 Nursery Lake Monitoring

Out-migrating juvenile sockeye salmon may be sampled and evaluated from Summit and Crosswind lakes daily from approximately May 20 through July 15. The samples will provide information on the quantity and condition of the juvenile sockeye salmon, which helps to indicate the potential for over or under-utilization. Zooplankton will be sampled and evaluated from Summit, Paxson, and Crosswind lakes at approximately three-week intervals from June–September. The samples provide information on quantity of the juvenile sockeye salmon food source, which helps to indicate the potential for over or under-utilization. Raw data from both projects will be provided to ADF&G in a timely manner as specified in sections 5.3 and 5.4 of the Gulkana Hatchery Basic Management Plan (BMP).

4.3 Otolith Marking

PWSAC began otolith marking in 2000. During the spring outmigration period (March–May 2025), 100% of sockeye salmon production will be otolith-marked. All fry will receive the same initial otolith mark by exposing them to 3,000 ppm strontium chloride solution for a 24-hour duration (mark code HS1). 1.0 million fish for a late large program will receive a second mark on their otolith (mark code HS2). Multiple marks to differentiate between nursery lakes may be possible in the future should the otolith-marking system be completely developed. The table below summarizes the 2025 strontium chloride (SrCl) otolith mark assignment by the ADF&G Mark, Tag, and Age Lab (MTAL). Voucher samples are collected and submitted along with data per the ADF&G MTAL sampling protocol. Planned otolith marks may change with confirmation from the North Pacific Anadromous Fish Commission Mark Coordinator for Alaska.

Species	Number of Fry	SrCl Otolith Mark	Intended Release Location
Sockeye Salmon	10,000,000	HS1	Crosswind Lake
Sockeye Salmon	5,000,000	HS1	Paxson Lake
Sockeye Salmon	1,000,000	HS2	Paxson Lake
Sockeye Salmon	6,000,000	HS1	Summit Lake

[1] Link to the latest plan: https://www.adfg.alaska.gov/FedAidPDFs/ROP.CF.2A.2024.04.pdf (accessed May 2, 2025).

V. ATTACHMENTS

VI. APPROVAL

Recommendation for Approval: Gulkana Hatchery Annual Management Plan, 2025

Geoff Clark, PWSAC, General Manager 6/29/2025

Tracy Hansen, Area Management Biologist, Division of Sport Fish 7/1/2025

Jeremy Botz, Area Management Biologist, Division of Commercial Fisheries 7/7/2025

Jeff Estensen, Regional Supervisor, Division of Sport Fish 7/1/2025

Bert Lewis, Regional Supervisor, Division of Commercial Fisheries 5/21/2025

Ethan Ford, Regional Resource Development Biologist, Div. of Commercial Fisheries 5/21/2025

Lorna Wilson, PNP Program Assistant Coordinator, Div. of Commercial Fisheries 7/7/2025

The 2025 Gulkana Hatchery Annual Management Plan is hereby approved:

Jason Dye, Deputy Director, Division of Sport Fish 7/16/2025

Forrest Bowers, Operations Manager, Division of Commercial Fisheries 7/16/2025

Figure 1. Gulkana River Drainage

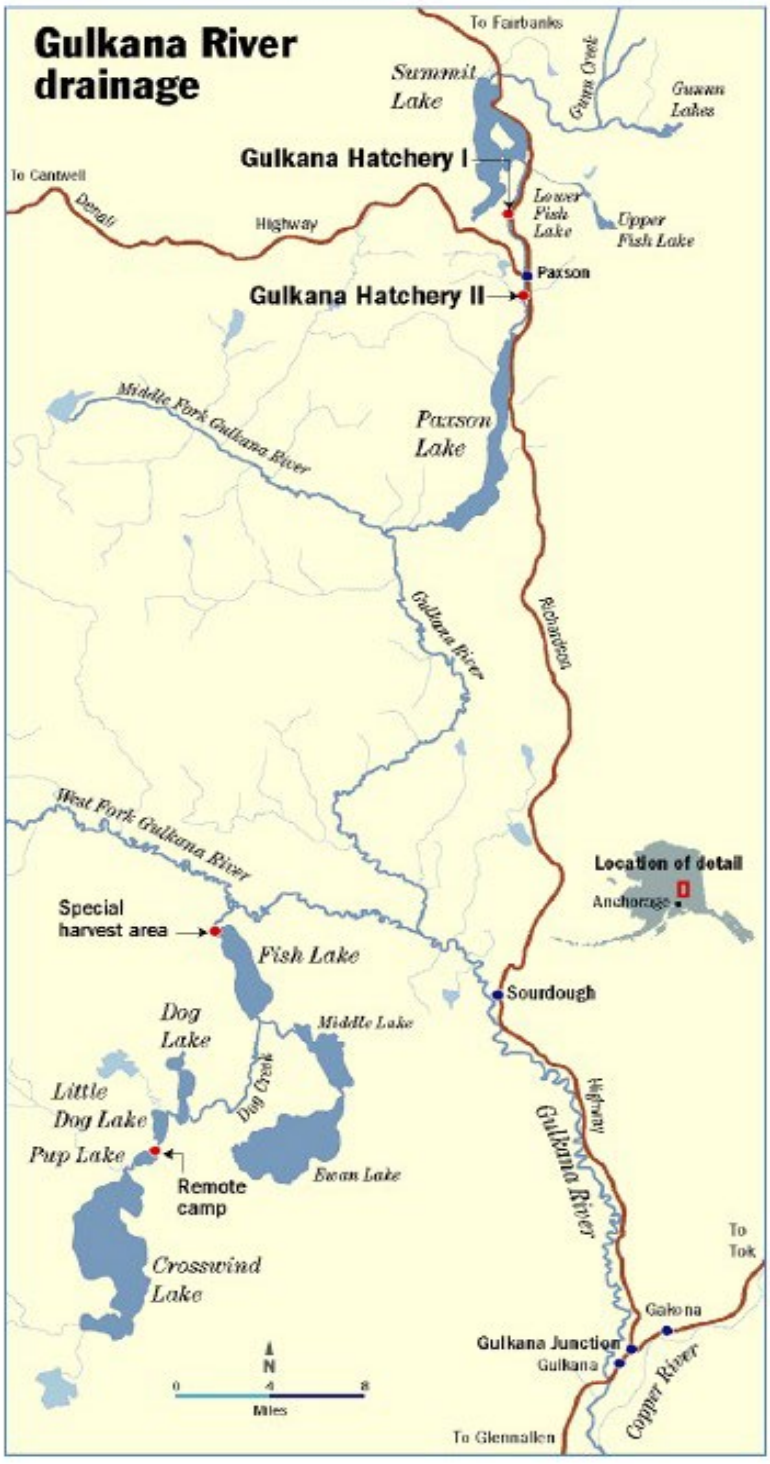

Figure 2. Copper River Commercial Fishery Management Areas

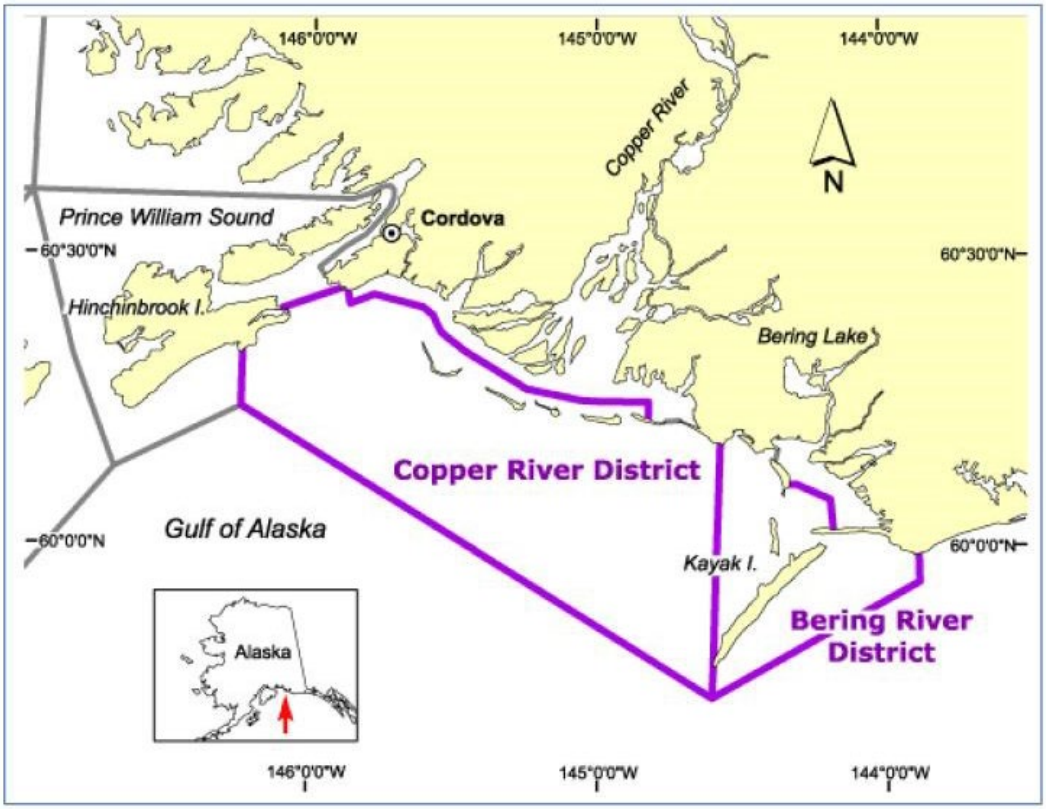

TABLE 1. 2025 PWSAC Hatchery Return Forecast

PRINCE WILLIAM SOUND AQUACULTURE CORPORATION
2025 HATCHERY RETURN FORECAST

SITE/ LOCATION	SPECIES	RUN TIME	ADULT RETURN ESTIMATE LOW	POINT	HIGH	EST. MARINE SURVIVAL
RETURNS TO THE HATCHERIES						
AFK	PINK	JUL 19 - SEP 05	5,700,000	8,400,000	11,100,000	4.92%
	CHUM	JUN 1 - JUL 27	180,000	210,000	240,000	1.13%
CCH	PINK	JUL 23 - SEP 07	8,100,000	10,800,000	13,500,000	6.52%
WNH	PINK	JUL 19 - SEP 05	2,800,000	8,800,000	14,900,000	6.57%
	CHUM	JUN 1 - JUL 27	1,290,000	1,450,000	1,610,000	2.01%
	COHO	AUG 01 - SEP 20	2,000	6,000	11,000	0.76%
MBH	COGHILL SOCKEYE	JUN 15 - AUG 01	700,000	1,000,000	1,360,000	10.43%
GH	CROSSWIND LAKE SOCKEYE		128,000	144,000	161,000	2.44%
	PAXSON LAKE - GI SOCKEYE		46,800	55,400	63,900	1.09%
	PAXSON LAKE - GII SOCKEYE		15,100	17,400	19,600	1.46%
	SUMMIT LAKE SOCKEYE		0	0	0	0.00%

RETURNS TO REMOTE RELEASE LOCATIONS

PORT CHALMERS	CHUM	JUN 1 - JUL 27	680,000	780,000	870,000	1.93%
CORDOVA	COHO	AUG 01 - SEP 20	1,200	1,800	2,500	3.25%
WHITTIER	COHO	AUG 01 - SEP 20	200	800	1,300	0.76%
CHENEGA	COHO	AUG 01 - SEP 20	100	400	700	0.76%
CHENEGA	CHINOOK	MAY 25 - JULY 10	410	530	660	1.42%

TOTAL PWSAC RETURNS

PINK	16,600,000	28,000,000	39,500,000	6.00%
CHUM	2,150,000	2,440,000	2,720,000	1.69%
COHO	3,500	9,000	15,500	0.76%
CHINOOK	410	530	660	1.42%
SOCKEYE -SOUND, MBH	700,000	1,000,000	1,360,000	10.43%
SOCKEYE - GH,COPPER RIVER	189,900	216,800	244,500	1.66%

TABLE 2. 2025 Planned Egg-Takes.

PRINCE WILLIAM SOUND AQUACULTURE CORPORATION

2025 EGG-TAKE GOALS

SPECIES	HATCHERY	ORGINAL DONOR STOCK	EGG-TAKE LOCATION	EGG-TAKE GOAL
CHUM	WALLY NOERENBERG	WELLS RIVER	WNH	153,000,000
SOCKEYE	MAIN BAY	COGHILL LAKE	MBH	12,400,000
	GULKANA I	GULKANA RIVER	GHI	35,000,000
	GULKANA II	GULKANA RIVER	GHII	1,750,000
			TOTAL	49,150,000
PINK	ARMIN F. KOERNIG	LARSEN, EWAN, GALENA	AFK	190,000,000
	CANNERY CREEK	CANNERY CREEK	CCH	187,000,000
	WALLY NOERENBERG	LARSEN, EWAN, GALENA	WNH	148,000,000
			TOTAL	525,000,000
COHO	WALLY NOERENBERG	CORBIN CREEK	WNH	3,750,000
		POWER CREEK/FLEMING SPIT	CDV	250,000
			TOTAL	4,000,000
CHINOOK	WALLY NOERENBERG	WJHSFH	WNH	50,000
			TOTAL PWSAC	731,200,000

TABLE 3. 2025 PWSAC Hatchery Egg-Take Schedules

PRINCE WILLIAM SOUND AQUACULTURE CORPORATION

2025 EGG-TAKE SCHEDULE

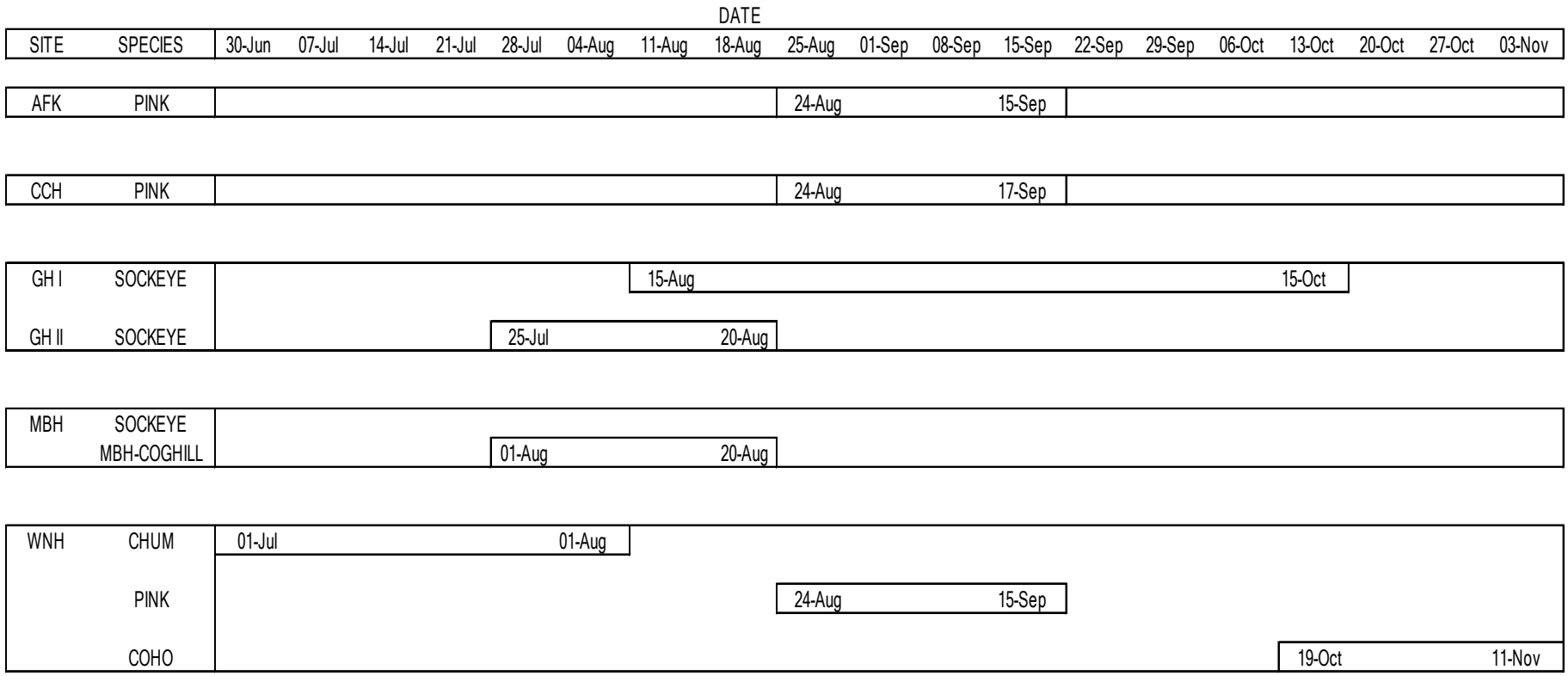

TABLE 4. 2025 PWSAC Estimated Salmon Releases

PRINCE WILLIAM SOUND AQUACULTURE CORPORATION

2025 ANTICIPATED SALMON RELEASES

SPECIES	HATCHERY	ORGINAL DONOR STOCK	BROOD YEAR	RELEASE LOCATION	ESTIMATED FRY/ SMOLT RELEASE
CHUM	WALLY NOERENBERG	WELLS RIVER	2024	WNH	73,400,000
			2024	PORT CHALMERS	40,700,000
			2024	AFK	19,500,000
				TOTAL	133,600,000
SOCKEYE	MAIN BAY	COGHILL LAKE	2023	MBH	7,600,000
	GULKANA I	GULKANA RIVER	2024	PAXSON LAKE	4,700,000
		GULKANA RIVER	2024	SUMMIT LAKE	0
		GULKANA RIVER	2024	CROSSWIND LAKE	8,800,000
	GULKANA II	GULKANA RIVER	2024	PAXSON LAKE	1,300,000
				TOTAL	22,400,000
PINK	ARMIN F. KOERNIG	LARSEN, EWAN, GALENA	2024	AFK	172,400,000
	CANNERY CREEK	CANNERY CREEK	2024	CCH	169,200,000
	WALLY NOERENBERG	LARSEN, EWAN, GALENA	2024	WNH	134,800,000
				TOTAL	476,400,000
COHO	WALLY NOERENBERG	CORBIN CREEK	2023	WNH	2,700,000
		POWER CREEK	2023	CORDOVA	100,000
		CORBIN CREEK	2023	WHITTIER	100,000
		CORBIN CREEK	2023	CHENEGA	50,000
				TOTAL	2,950,000
CHINOOK	WALLY NOERENBERG	SHIP CREEK	2023	CHENEGA	43,500
				GRAND TOTAL	635,393,500

TABLE 5. 2026 PWSAC Estimated Salmon Releases

PRINCE WILLIAM SOUND AQUACULTURE CORPORATION

2026 ANTICIPATED SALMON RELEASES

SPECIES	HATCHERY	ORGINAL DONOR STOCK	BROOD YEAR	RELEASE LOCATION	ESTIMATED FRY/ SMOLT RELEASE
CHUM	WALLY NOERENBERG	WELLS RIVER	2025	WNH	73,200,000
			2025	PORT CHALMERS	40,800,000
			2025	AFK	19,400,000
				TOTAL	133,400,000
SOCKEYE	MAIN BAY	COGHILL LAKE	2024	MBH	11,080,000
	GULKANA I	GULKANA RIVER	2025	PAXSON LAKE	6,000,000
		GULKANA RIVER	2025	SUMMIT LAKE	4,700,000
		GULKANA RIVER	2025	CROSSWIND LAKE	10,000,000
	GULKANA II	GULKANA RIVER	2025	PAXSON LAKE	1,300,000
				TOTAL	33,080,000
PINK	ARMIN F. KOERNIG	LARSEN, EWAN, GALENA	2025	AFK	171,600,000
	CANNERY CREEK	CANNERY CREEK	2025	CCH	168,800,000
	WALLY NOERENBERG	LARSEN, EWAN, GALENA	2025	WNH	133,600,000
				TOTAL	474,000,000
COHO	WALLY NOERENBERG	CORBIN CREEK	2024	WNH	2,500,000
		POWER CREEK	2024	CORDOVA	200,000
		CORBIN CREEK	2024	WHITTIER	100,000
		CORBIN CREEK	2024	CHENEGA	50,000
				TOTAL	2,850,000
CHINOOK	WALLY NOERENBERG	SHIP CREEK	2024	CHENEGA	38,000
				GRAND TOTAL	643,368,000

TABLE 6. Egg-take Data Template for Each Species at Each Hatchery

Table 7.

Egg Take Data for each species at each hatchery

Brood Year	MthDay	Date	Hatchery	Species	Stock	Lot #	Egg Grams	Eggs/gram	Green Eggs	Act Fecundity	Sample Fecundity	Fertility	Good Female	Grn Female	Bad Female	Mort Female	Good Male	Mort Male	Excess Male	% Green	% Bad	aily Female	Daily Males	Daily Total
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