

## 2018 ANNUAL MANAGEMENT PLAN

### CANNERY CREEK HATCHERY

#### Prince William Sound Aquaculture Corporation

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This plan remains in effect until superseded by a new annual management plan (AMP) in the following year. Prince William Sound Aquaculture Corporation (PWSAC) will notify the Alaska Department of Fish and Game (ADF&G) private nonprofit (PNP) hatchery program coordinator in a timely manner of any departure from the AMP. That notification will be in the form of a request to amend the AMP. 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

**Pink Salmon:** The pink salmon egg-take goal is 187 million. Broodstock requirements are 178,500 females and 178,500 males, assuming:

- (a) Average fecundity of 1,450 eggs/female
- (b) 1/1 female to male ratio
- (c) 15% holding mortality
- (d) 15% green/over-mature spawners

#### 1.2 Broodstock

The expected broodstock collection schedule is derived from the historic run curve for Cannery Creek Hatchery (CCH) pink salmon. The run curve is an aggregate of all even years' (2008–2016) SHA hatchery harvests and the Cannery Creek Subdistrict commercial fishery catch data from the ADF&G annual management reports and preliminary inseason estimates. The adult return summary includes the projected total return, hatchery escapement schedule, and fish available for common property fishery harvest (Table 3).

To ensure that run timing is proportionally represented in broodstock, a hatchery escapement schedule that includes the broodstock acquisition schedule will be implemented based on run-timing percentages by date in the AMP tables to establish a hatchery escapement goal by week. These goals will be measured according to the total number of fish estimated in the hatchery SHAs.

If inseason catch data indicate the return is earlier or later than the historic run curve would suggest, PWSAC will consult with the department prior to altering the hatchery escapement schedule, accordingly, to match the actual return.

The hatchery escapement exclusion zone (HEEZ), outlined in section 3.4, protects potential broodstock fish staging directly in front of the hatchery from being harvested in the common property fisheries. These fish include those that will eventually become broodstock along with those needed to ensure a high quality, efficient and successful egg collection process.

Any fish collected beyond those utilized as broodstock will be sold for cost recovery to fund PWSAC’s salmon fisheries enhancement program. Historically, PWSAC has carried forward revenues from the hatchery raceway fish sales and full-utilization programs to the following year as a reduction in the cost-recovery revenue goal calculation. This provides benefits to the commercial common property fisheries (CCPF) with an increased PWSAC salmon harvest and potentially an earlier timed CCPF.

Broodstock fish will be collected by volitional entry through the fishway leading to the brood holding pond and raceways located just above the tidal influence at the hatchery.

1.3 Egg-Take Schedule and Data Reporting

Ultimately, the egg-take schedule depends upon broodstock recruitment and the maturation rate of the broodstock in salt and fresh water. The table below summarizes an anticipated egg-take schedule based on the average historical egg-take percent completion (1996–2016). All data associated with egg-take and broodstock collection will be provided to the department by November 1. 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.

**Anticipated Egg-take Schedule**

<b>Percent Complete</b>	<b>Pink Salmon</b>
25%	September 3
50%	September 7
75%	September 11
100%	September 17

For a complete listing of all PWSAC hatchery egg-take schedules see Table 4. PWSAC’s planned egg takes are shown in Table 2.

1.4 Egg-Take Transport and Carcass Disposal Plans

No eggs will be transported off-station.

PWSAC may sell broodstock carcasses if a market is available. If carcasses are not sold, eggs that are not used for fertilization may be harvested in accord with 5 AAC 93.350(d)(1). The carcass of a salmon from which milt or eggs are extracted for lawful use as broodstock may be disposed of in accordance with Alaska Department of Environmental Conservation requirements. Broodstock carcass disposals and the number of carcasses disposed of from fish used for roe sales will be logged on the carcass disposal form and reported to the Cordova ADF&G staff on a weekly basis.

### 1.5 Incubation Plans

#### **Hatchery Production Summary**

<b>Species</b>	<b>Green Eggs</b>	<b>Eyed Eggs</b>	<b>Fry Released</b>
Pink Salmon	187,000,000	176,700,000	168,800,000

The above table was generated with the following assumptions:

- 1) 94.5% survival from green to eyed stage;
- 2) 96% survival from eyed stage to emergent; and
- 3) 99.5% survival from emergence to release.

All eggs will be incubated at CCH. During the fall incubation period, 100% of pink salmon production will be thermally otolith-marked at the eyed stage.

### 1.6 Rearing and Release Plans

Pink salmon fry will emerge volitionally from incubators, pass via floor troughs through electronic counters, then into a collection box. A fry pump attached to the collection box will pump the fry through a six-inch pipeline to net pens anchored in Unakwik Inlet. The saltwater net pen rearing complex consists of 16 12.2m x 12.2m x 3.0m rearing pens. Maximum loading densities will be 11 kg/m<sup>3</sup>.

Approximately 163 million pink salmon fry will be released in 2018. Based on predicted outmigration curve and zooplankton bloom timing, all pink salmon fry will be reared for an average of 17 days and released in three groups into the zooplankton bloom. PWSAC's anticipated salmon releases are shown in Table 5.

### 1.7 Fry Transport Methods

No CCH pink salmon fry will be transported off-station for release.

### 1.8 Permitted Capacity

CCH was issued PNP Hatchery Permit #26 in 1988 after assuming operations from the State of Alaska. It is permitted to incubate 187 million pink salmon eggs. All permitted releases are from the CCH facility.

#### **Fish Transport Permit Summary**

<b>FTP Number</b>	<b>Expiration Date</b>	<b>Purpose</b>
<b>PINK SALMON</b>		
96A-0040	4/30/26	Allows the egg take, incubation and resultant release of 187 million Cannery Creek stock pink salmon eggs.

## II. DONOR STOCK MANAGEMENT – N/A

## III. HATCHERY RETURN MANAGEMENT

PWSAC operates five facilities: Armin F. Koernig Hatchery (AFK), 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 the 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 2, 2018, the PWSAC BOD approved the annual corporate budget for Fiscal Year 2019 detailing potential sources of revenue and expenditures. The pink and WNH chum salmon cost-recovery revenue goals are \$6,304,696 and \$3,547,905, 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 31% of the total value of the run will be required to meet the revenue goal in the Fiscal Year 2019 financial plan.

**Pink Salmon Returns:** AFK, CCH, and WNH pink salmon runs will be managed collectively through openings and closures of nearby subdistricts or hatchery management areas. Managing the enhanced pink salmon runs in aggregate may result in site-specific common property fishery (CPF) contribution rates being above or below the approximate target of a 80% CPF pink salmon harvest.

**WNH Chum and MBH Sockeye Salmon Runs:** The WNH chum salmon and MBH sockeye salmon returns will be managed collectively through openings and closures of nearby subdistricts or hatchery management areas. The collective management will be managed initially for the WNH chum salmon revenue goal. If inseason, PWSAC determines that the WNH chum salmon corporate escapement may not be met, cost-recovery harvest at MBH may be conducted to achieve the balance of the revenue goal. Managing the returns in aggregate may result in site-specific CPF contribution rates being above or below the approximate targets of 79% and 99% 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.

Reductions of CPF opportunity in hatchery subdistricts may be necessary to ensure corporate 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 Hatchery Fish Migration Routes and Timing

Data indicate that Cannery Creek pink salmon enter Prince William Sound through island passes of southwest PWS and follow a complex path through Knight Island Passage and other sections of the northwestern part of the Sound. Hatchery stocks pass through both purse seine and gillnet fisheries in the Southwestern, Eshamy, Northwestern, Coghill, Northern, and Unakwik districts at about the same time as wild stocks in these districts and should be exploited at approximately the same rate. The Cannery Creek pink salmon run peaks about August 11 (Table 3).

### 3.2 Special Harvest Area

The boundaries of the CCH SHA and terminal harvest area (THA) are illustrated in Figure 1. The SHA is used by the hatchery operator to harvest hatchery fish for cost recovery. The THA is normally closed to commercial and subsistence fishing and provides a buffer between the hatchery SHA and open waters of the Cannery Creek Subdistrict. The THA may be opened for cost recovery by emergency order (EO). After reaching broodstock and sales fish goals, the SHA may be opened to the CPF until the end of the run. All latitude and longitude coordinates are based on the North American Datum of 1983.

Harvest of salmon in the SHA by sport anglers and personal use fishermen is managed by the ADF&G Division of Sport Fish in accordance with regulations as provided in 5 AAC 47 – 5 AAC 75. Emergency orders may be issued to liberalize or restrict sport fisheries based on achievement of broodstock goals.

The SHA consists of waters of Unakwik Inlet in the Northern District north and east of a line from 61°00.97'N lat, 147°32.62'W long, southward to a point on the shore at 60°59.96'N lat, 147°31.48'W long.

The THA consists of water of Unakwik Inlet in the Northern District north and east of a line from 61°00.97'N lat, 147°33.12'W long, southward to a point on the shore at 60°59.79'N lat, 147°32.40'W long, excluding the CCH SHA.

The department is willing to permit cost-recovery operations in waters outside of the SHA/THA boundaries to maintain fish quality. The department views PWSAC achieving its revenue goals in a timely and efficient manner as being beneficial for maintaining fish quality and providing for increased CPF opportunity.

There is concern over the harvest of wild stock salmon outside of the prescribed cost-recovery SHAs and THAs. The following requirements must be adhered to for cost-recovery operations to be conducted outside the SHA/THA:

- PWSAC will agree to pay all costs associated with sampling, otolith preparation, and reading of otoliths from permitted cost-recovery harvest(s).

- PWSAC will notify the department with reasonable time prior to any cost-recovery operation(s) to request an EO permitting the activity and to provide notice for scheduling of sampling personnel.
- All EOs issued permitting cost-recovery operations will be for discrete dates.
- Cost-recovery harvest(s) from these areas will not be mixed with any other harvest at any time until after sampling. No sorting of cost-recovery harvest(s) is permitted until after sampling.
- No further EOs permitting cost-recovery operations outside the SHA will be issued until the previous harvest has been evaluated for wild stock interception.
- The department may discontinue permitted cost-recovery operations outside the SHA at any time.

### 3.3 Hatchery Returns to the Special Harvest Area

**Pink Salmon:** PWSAC’s anticipated 2018 adult return of pink salmon to CCH is 5,500,000 fish, assuming a 3.7% marine survival, using brood year (BY) 2006–14 even-year average, from the BY16 fry release of 149 million (Table 1). Assuming a hatchery broodstock goal of 357,000 fish and approximately 723,000 pink salmon sold for cost recovery, the hatchery harvest will be 20%.

**Pink Salmon Projected Return Summary**

<b>Total Return</b>	<b>Broodstock</b>	<b>Cost Recovery</b>	<b>Hatchery Harvest</b>	<b>CPF Harvest</b>
5,500,000	357,000	723,000	1,080,000	4,420,000
<b>% of Total</b>	<b>7%</b>	<b>13%</b>	<b>20%</b>	<b>80%</b>

### 3.4 Separation of Hatchery Escapement

The hatchery escapement goal of 1,080,000 pink salmon is the midpoint of the special harvest area (SHA) escapement goal range 923,000–1,271,000 to provide for the broodstock and cost-recovery requirements based on these variables; sex ratio of fish available for broodstock, fecundity, holding mortality percentage, immature and over-mature spawner percentage, average fish size, and price per pound.

In 2006, PWSAC designated a HEEZ within the SHA as an alternative to using a barrier net (Figure 2). The HEEZ consists of the waters of the CCH SHA north and east of a line from 61.00.97N lat, 147.32.62W long southward to a point on the shore at 61.00.444N lat, 147.31.497W long.

### 3.5 Special Management Strategies

The CCH is located in Unakwik Inlet in the Northern District. Returning hatchery pink salmon will influence management of traditional fisheries, particularly in the Northern District. Present management strategies for the remaining seine districts are based on escapement observations of

wild stocks of pink and chum salmon throughout the Sound. Poor wild stock escapement will require closures or reduced fishing time in the remaining districts, which in turn, may shift harvest of hatchery returns to the terminal areas of Unakwik Inlet (including the CCH THA and SHA).

Conversely, a strong wild-stock return could result in a heavy interception of the hatchery return in other fishing districts and result in an insufficient return to meet broodstock and cost-recovery goals. Selected closures of the waters of Unakwik Inlet may be necessary to permit sufficient escapement to meet cost-recovery and broodstock needs. The principal tool available to manage the hatchery fishery is EO manipulation.

Fishing in the SHA and THA is expected to be limited to cost-recovery operations from the start of the pink salmon return in the Northern District, and is expected to remain so throughout the completion of the cost-recovery harvest. However, if significant numbers of fish build up in excess of corporate needs, these areas, or portions of them, could be opened to the commercial fleet. If the hatchery return requires additional protection to meet broodstock or cost-recovery goals, the Cannery Creek Subdistrict may be closed. During periods when the Cannery Creek Subdistrict closure is in effect to provide protection to cost-recovery fish, ADF&G may allow the hatchery operator to harvest fish in Unakwik Inlet outside the SHA boundaries (Figure 2) to maintain fish quality. This will occur only if escapement of local wild stocks is adequate. When Unakwik Inlet is open to the CPF, the SHA will not be expanded.

Performance of the hatchery return is evaluated by comparison of daily harvest to the predicted run entry (Table 3). In addition, daily sex ratios in the hatchery harvest predict, by a regression equation, what percentage of the total run has accumulated to date. PWSAC will provide these two types of data from the cost-recovery harvest to ADF&G management staff on a daily basis during the season so the area management biologist can make estimates of the number of salmon left in the fish run. Once egg-take operations commence at the hatchery, progress towards the hatchery's final goal could determine future SHA openings, dependent upon SHA fish abundance estimates. PWSAC will provide daily estimates of fish abundance inside the barrier seine (if applicable), within the HEEZ, and in the SHA outside of the HEEZ, along with egg take progress updates to ADF&G management staff. If corporate escapement problems occur at the hatchery, subdistrict closures will be made based upon the magnitude of the shortfall and the stage of the run.

The effective management of mixed-stock fisheries is difficult. It is the intent of the ADF&G to provide the stated PWSAC corporate escapement goals by species. Achieving the target revenue goal will depend upon the timing and magnitude of the PWSAC salmon returns, average fish size, and price per pound PWSAC receives. It will also depend upon precise inseason assessment of both wild and hatchery run strengths. Depending upon the precision of inseason run assessment, actual percentages of PWSAC total returns, by species, which provide corporate escapement may fall above or below the stated goals. If precise and timely stock identification data are available, ADF&G will use them to manage the fisheries inseason for an allocation of PWSAC-produced pink, chum, and sockeye salmon between the CPF and PWSAC. Pink salmon will be managed for PWSAC corporate escapement after July 20. Sockeye and chum salmon will be managed for PWSAC corporate escapement by stock.

PWSAC will submit written management recommendations to the department with clear justifications as to how the recommendations support achieving cost-recovery and/or broodstock

collection goals. Each recommendation, in the form of a brief email, will include, but not be limited to, current cost-recovery harvest data, HEEZ and outer SHA estimates, actual and anticipated run entry, and actual and anticipated cost-recovery progress. Each recommendation will also include a summary of actual and anticipated hatchery escapement and broodstock collection progress as it relates to the weekly goals established in this AMP. For this reporting hatchery escapement will be defined as fish in the HEEZ and outer SHA; fish in the raceways or brood holding ponds will be defined as broodstock.

To ensure accurate and clear reporting, the AMP Adult Return Summary table for each hatchery and species will be submitted to the department, in association with written management recommendations.

It will be the responsibility of PWSAC staff, with written consent of the PWSAC Executive Committee, to advise ADF&G of any desired inseason adjustments to the preseason corporate escapement goals and/or significant changes to the preseason management strategy. Recognizing the imprecision of preseason forecasts and inseason assessment of wild stock and hatchery contribution estimates, ADF&G will assess PWSAC's requested changes based upon the best available information. If, based on the assessment of ADF&G, the total hatchery return will be less than or greater than the original PWSAC forecasted return, then ADF&G will adjust openings, as necessary, to best provide for wild stock, corporate escapement, and CPF harvests. Total hatchery and wild stock returns will be estimated after a thorough postseason analysis of all available data. Postseason estimates may not coincide with ADF&G's or PWSAC's inseason estimates.

### 3.6 Sport Fish Harvest

Sport fisheries will be managed in accordance with regulations as provided in 5 AAC 47 – 5 AAC 75. Emergency orders may be issued to liberalize or restrict sport fisheries based on achievement of broodstock goals. Due to the remote location of CCH and species involved, no significant sport fishery has developed to date, nor is anticipated.

### 3.7 Subsistence Harvest

The CCH facility is within the Prince William Sound general subsistence area. Alaska residents may harvest fish for subsistence use using the legal gear type for the Northern District.

### 3.8 Avoidance of Nontarget Species

No particular problem is anticipated at CCH. By mid-July, when harvest and brood collection begins, the Cowpen Lake sockeye salmon run is over. The Miners Lake sockeye salmon run is later, but adults do not appear to migrate through the hatchery SHA. There is also no evidence suggesting chum salmon from the Siwash and Jonah systems migrate through the SHA. When surplus hatchery production warrants CPF openings beyond those permitted by wild-stock strength, fishing will be restricted to portions of Unakwik Inlet that will minimize interception of Jonah and Siwash wild-stock pink and chum salmon. Exact areas to be opened will be determined inseason and detailed in EOs.

## IV. EVALUATION STUDIES

### 4.1 Otolith Marking

During the fall incubation period (October–December 2018), 100% of pink salmon production will be marked at the eyed-egg stage. The table below summarizes the 2018 thermal otolith mark assignment by the ADF&G Mark, Tag, and Age Lab (MTAL). Voucher samples are collected and submitted, along with data as per the ADF&G MTAL sampling protocol.

<b>Species</b>	<b>Number of Eyed Eggs</b>	<b>Thermal Otolith Mark</b>	<b>Intended Release Location</b>
Pink Salmon	176,700,000	3,3H	CCH, Unakwik Inlet

### 4.2 Otolith Recovery in Returning Adults and Data Reporting

Recovery of otoliths from returning adult pink salmon will occur this year. Recovery efforts will be directed at the CPF and cost recovery, and will be performed by field personnel at processing locations.

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 preliminary otolith mark–recovery data from fishery samples by December 1 each year, and any additional otolith data from straying studies and other projects by April 1 each year. Similarly, PWSAC will provide ADF&G independently-collected otolith mark recovery data by April 1 each year. These data are to be the individual specimen otolith mark results.

## VI. APPROVAL

### **Recommendation for Approval: Cannery Creek Hatchery Annual Management Plan, 2018**

Approved via email on 4/24/2018

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Casey Campbell, PWSAC, General Manager

Approved via email on 4/30/2018

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Jay Baumer, Area Management Biologist, Division of Sport Fish

Approved via email on 4/24/2018

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Charles Russell, Area Management Biologist, Division of Commercial Fisheries

Approved via email on 4/24/2018

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Tom Vania, Regional Supervisor, Division of Sport Fish

Approved via email on 4/24/2018

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Bert Lewis, Regional Supervisor, Division of Commercial Fisheries

Approved via email on 5/1/2018

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Ethan Ford, Regional Resource Development Biologist,  
Division of Commercial Fisheries

The 2018 Cannery Creek Hatchery Annual Management Plan is hereby recommended for approval by the Prince William Sound Regional Planning Team (RPT):

Approved via email on 5/10/2018

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Thomas Sheridan, Prince William Sound RPT Chair

Approved via email on 5/10/2018

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Lorraine Vercessi, PNP Hatchery Program Coordinator, Div. of Commercial Fisheries

**The 2018 Cannery Creek Hatchery Annual Management Plan is hereby approved:**

Approved via email on 5/17/2018

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Tom Taube, Deputy Director, Division of Sport Fish

Approved via email on 5/16/2018

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Peter Bangs, Assistant Director, Division of Commercial Fisheries

## **V. ATTACHMENTS**

FIGURE 1. CCH Fishery Management Areas

FIGURE 2. CCH Hatchery Escapement Exclusion Zone

TABLE 1. 2018 PWSAC Hatchery Return Forecast

TABLE 2. 2018 Planned Egg Takes

TABLE 3. 2018 CCH Adult Return Summary

TABLE 4. 2018 PWSAC Hatchery Egg Take Schedules

TABLE 5. 2018 PWSAC Estimated Salmon Releases

Figure 1. CCH Fishery Management Areas

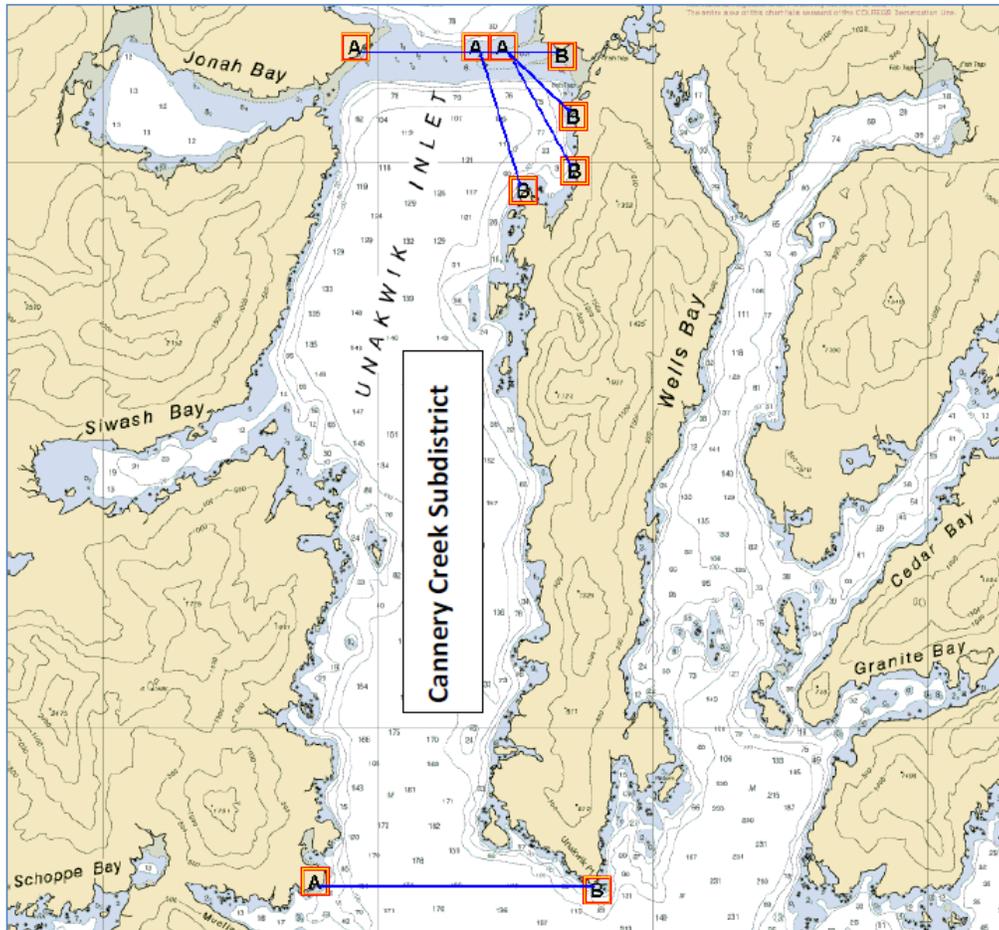


Figure 2. CCH Escapement Exclusion Zone, Special Harvest Area, Terminal Harvest Area

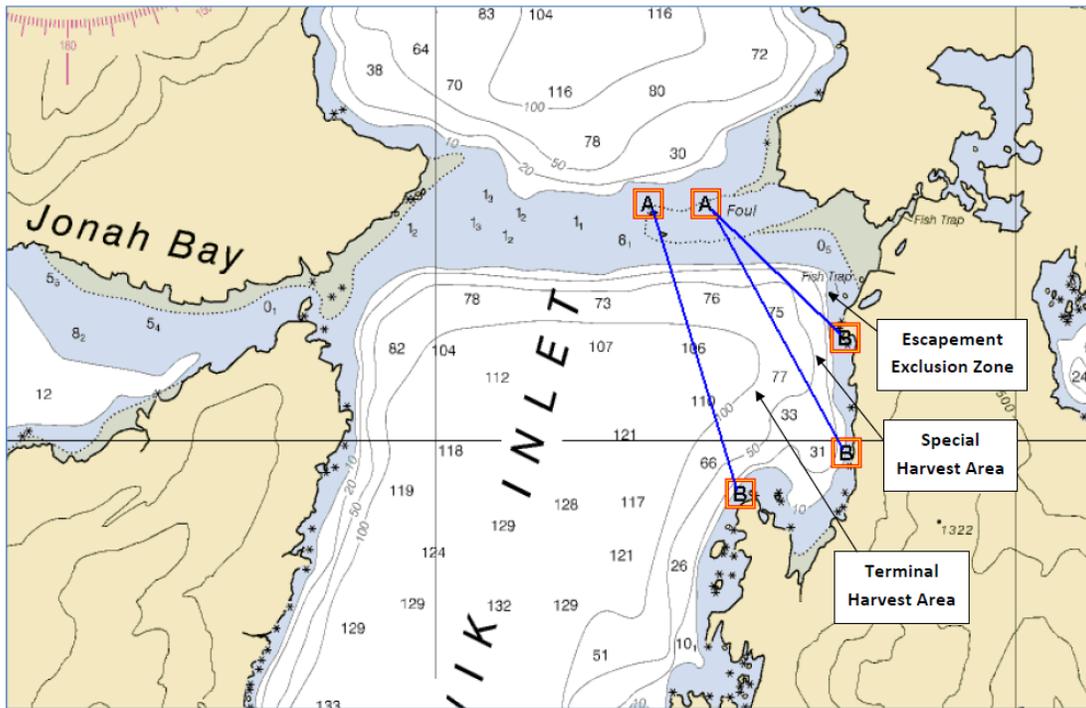


TABLE 1. 2018 PWSAC Hatchery Return Forecast

**Table 1:**  
**PRINCE WILLIAM SOUND AQUACULTURE CORPORATION**  
**2017 HATCHERY RETURN FORECAST**

SITE/ LOCATION	SPECIES	RUN TIME	ADULT RETURN ESTIMATE			EST. MARINE SURVIVAL
			LOW	POINT	HIGH	
MBH	COGHILL SOCKEYE	JUN 15 - AUG 01	687,000	763,000	839,000	7.56%
GH - Fry to Adult Survival						
GH	CROSSWIND LAKE SOCKEYE		43,000	56,000	70,000	0.56%
	PAXSON LAKE - GI SOCKEYE		18,700	24,600	30,500	0.53%
	PAXSON LAKE SOCKEYE		4,200	5,100	5,900	0.38%
	SUMMIT LAKE SOCKEYE		3,600	5,100	6,500	0.09%
<b>RETURNS TO REMOTE RELEASE LOCATIONS</b>						
PORT CHALMERS	CHUM	JUN 1 - JUL 27	110,000	150,000	180,000	0.34%
CORDOVA	COHO	AUG 01 - SEP 20	2,900	5,500	8,300	7.34%
WHITTIER	COHO	AUG 01 - SEP 20	2,900	5,500	8,300	7.34%
CHENEGA	COHO	AUG 01 - SEP 20	1,900	3,700	5,500	7.34%
CHENEGA	CHINOOK	MAY 25 - JULY 10	510	660	820	1.49%
<b>TOTAL PWSAC RETURNS</b>						
	PINK		6,300,000	15,400,000	33,800,000	3.68%
	CHUM		3,180,000	3,720,000	4,240,000	1.95%
	COHO		53,700	101,700	153,100	7.34%
	CHINOOK		510	660	820	0.00%
	MBH - SOCKEYE - PWS		687,000	763,000	839,000	7.56%
	GH - SOCKEYE - COPPER RIVER		69,500	90,800	112,900	0.39%

TABLE 2. 2018 Planned Egg Takes.



**PRINCE WILLIAM SOUND AQUACULTURE CORPORATION**

**2018 EGG-TAKE GOALS**

SPECIES	HATCHERY	ORIGINAL 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	MILE 18, COPPER RIVER	WNH	4,000,000
TOTAL PWSAC			731,150,000	





TABLE 3. 2018 CCH Adult Return Summary.

PROJECTED					ADULT RETURN SUMMARY																	
RETURN:	5,500,000				HATCHERY: CCH																	
BROODSTK:	357,000				SPECIES: PINK																	
FISH SALES:	723,000				YEAR: 2018																	
HAT. TOTAL:	1,080,000																					
CPF TOTAL:	4,420,000																					
% EXPLOIT.:	80.4%	CPF																				
	18.6%	PVSAC																				
Date	RUN-TIMING PERCENTAGES		SHA HATCHERY ESCAPEMENT ESTIMATES				HATCHERY ESCAPEMENT SCHEDULE				C.P.F. HARVEST				TOTAL RETURN							
	Projected % Cum.	Projected % Female	Actual % Cum.	Actual % Female	Fishway Estimate	INSIDE Barrier Seine Estimate	HEEZ Estimate	OUTSIDE HEEZ Estimate	BROODSTOCK		FISH SALES		C.P.F. HARVEST		TOTAL RETURN							
									Proj. Cum.	Proj. Daily	Act. Cum.	Act. Daily	Proj. Cum.	Proj. Daily	Act. Cum.	Act. Daily	Proj. Cum.	Proj. Daily	Act. Cum.	Act. Daily		
7-Jul	0.0%								0	0	0	0	0	0	0	0	0	0	0	0	0	
8-Jul	0.0%								0	0	0	0	0	0	0	0	0	0	0	0	0	
9-Jul	0.0%								0	0	0	0	0	0	0	0	0	0	0	0	0	
10-Jul	0.0%								0	0	0	0	0	0	0	0	0	0	0	0	0	
11-Jul	0.0%								0	0	0	0	0	0	0	0	0	0	0	0	0	
12-Jul	0.0%								0	0	0	0	0	0	0	0	0	0	0	0	0	
13-Jul	0.0%								0	0	0	0	0	0	0	0	0	0	0	0	0	
14-Jul	0.0%								0	0	0	0	0	0	0	0	0	0	0	0	0	
15-Jul	0.0%								0	0	0	0	0	0	0	0	0	0	0	0	0	
16-Jul	0.0%								0	0	0	0	0	0	0	0	0	0	0	0	0	
17-Jul	0.0%								0	0	0	0	0	0	0	0	0	0	0	0	0	
18-Jul	0.0%								0	0	0	0	0	0	0	0	0	0	0	0	0	
19-Jul	0.0%								0	0	0	0	0	0	0	0	0	0	0	0	0	
20-Jul	0.0%								0	0	0	0	0	0	0	0	0	0	0	0	0	
21-Jul	0.0%								0	0	0	0	0	0	0	0	0	0	0	0	0	
22-Jul	0.0%								0	0	0	0	0	0	0	0	0	0	0	0	0	
23-Jul	0.0%								0	0	0	0	0	0	0	0	0	0	0	0	0	
24-Jul	0.0%								0	0	0	0	0	0	0	0	0	0	0	0	0	
25-Jul	0.0%								0	0	0	0	0	0	0	0	0	0	0	0	0	
26-Jul	0.0%								0	0	0	0	0	0	0	0	0	0	0	0	0	
27-Jul	0.1%								422	422	0	0	6,085	6,085	0	0	0	6,507	6,507	0	0	
28-Jul	0.2%								674	251	0	0	3,705	3,620	0	0	0	10,379	3,872	0	0	
29-Jul	0.2%	5.3%							711	37	0	0	10,244	539	0	0	0	10,955	576	0	0	
30-Jul	0.4%	13.4%							1,594	883	0	0	22,368	12,724	0	0	0	24,562	13,607	0	0	
31-Jul	0.7%	17.3%							2,478	883	0	0	35,691	12,724	0	0	0	38,169	13,607	0	0	
1-Aug	2.0%	21.6%							6,373	4,495	0	0	100,447	64,756	0	0	0	107,420	69,251	0	0	
2-Aug	2.8%	21.8%							10,069	3,096	0	0	145,054	44,607	0	0	0	155,123	47,703	0	0	
3-Aug	4.5%	25.7%							16,205	6,136	0	0	233,452	98,398	0	0	0	249,657	94,534	0	0	
4-Aug	6.5%	24.0%							23,061	6,956	0	0	332,219	98,767	0	0	0	355,290	105,623	0	0	
5-Aug	10.1%	23.3%							36,052	12,992	0	0	519,378	187,159	0	0	0	555,431	200,150	0	0	
6-Aug	14.0%	23.6%							50,028	13,975	0	0	720,707	201,329	0	0	0	770,735	215,305	0	0	
7-Aug	17.7%	26.3%							63,273	13,246	0	0	911,524	190,817	0	0	0	974,798	204,062	0	0	
8-Aug	21.1%	27.4%							75,353	12,079	0	0	911,524	0	0	174,019	174,019	1,160,896	186,098	0	0	
9-Aug	26.7%	30.7%							95,304	19,951	0	0	911,524	0	0	461,443	287,424	1,468,272	307,376	0	0	
10-Aug	29.6%	35.1%							105,836	10,531	0	0	911,524	0	0	613,161	151,718	1,630,521	162,250	0	0	
11-Aug	35.7%	35.1%							127,604	21,763	0	0	911,524	0	0	926,762	313,601	1,965,891	335,370	0	0	
12-Aug	41.1%	40.4%							146,898	19,293	0	0	911,524	0	0	1,204,562	277,800	2,282,974	297,063	0	0	
13-Aug	44.7%	43.9%							159,730	12,942	0	0	911,524	0	0	1,389,568	195,006	2,460,522	197,848	0	0	
14-Aug	49.9%	45.4%							178,065	18,335	0	0	911,524	0	0	1,653,711	264,143	2,743,301	282,479	0	0	
15-Aug	53.1%	48.6%							189,599	11,534	0	0	911,524	0	0	1,819,877	166,165	2,921,001	177,700	0	0	
16-Aug	56.4%	46.9%							201,479	11,880	0	0	911,524	0	0	1,991,015	171,138	3,104,018	183,018	0	0	
17-Aug	61.8%	47.3%							219,884	18,405	0	0	911,524	0	0	2,256,166	265,151	3,387,575	283,556	0	0	
18-Aug	66.3%	50.2%							236,577	16,693	0	0	911,524	0	0	2,496,642	240,476	3,644,743	257,168	0	0	
19-Aug	71.1%	53.4%							253,794	17,217	0	0	911,524	0	0	2,744,674	248,032	3,909,993	265,249	0	0	
20-Aug	75.1%	54.9%							268,203	14,409	0	0	911,524	0	0	2,952,257	207,593	4,131,985	221,993	0	0	
21-Aug	80.3%	54.7%							286,940	16,637	0	0	911,524	0	0	3,220,738	268,461	4,419,103	287,118	0	0	
22-Aug	83.6%	52.5%							298,537	11,697	0	0	911,524	0	0	3,389,251	168,513	4,599,313	180,210	0	0	
23-Aug	86.5%								308,737	10,200	0	0	911,524	0	0	3,536,197	146,945	4,756,458	157,145	0	0	
24-Aug	89.8%								320,727	11,989	0	0	911,524	0	0	3,708,917	172,720	4,941,168	184,709	0	0	
25-Aug	91.1%								325,201	4,474	0	0	911,524	0	0	3,773,371	64,455	5,010,096	68,929	0	0	
26-Aug	91.8%								327,644	2,443	0	0	911,524	0	0	3,808,565	35,194	5,047,733	37,636	0	0	
27-Aug	93.6%								334,112	6,468	0	0	911,524	0	0	3,901,750	93,186	5,147,387	99,654	0	0	
28-Aug	94.2%								336,291	2,179	0	0	911,524	0	0	3,933,139	31,389	5,180,995	33,968	0	0	
29-Aug	94.5%								337,313	1,022	0	0	911,524	0	0	3,947,961	14,721	5,196,698	15,743	0	0	
30-Aug	95.0%								339,193	1,980	0	0	911,524	0	0	3,947,961	27,090	5,225,669	28,970	0	0	
31-Aug	96.4%								344,319	5,126	0	0	911,524	0	0	4,048,793	73,942	5,304,636	78,968	0	0	
1-Sep	96.8%								345,442	1,123	0	0	911,524	0	0	4,064,970	16,177	5,321,937	17,300	0	0	
2-Sep	97.4%								347,855	2,410	0	0	911,524	0	0	4,099,734	34,764	5,359,113	37,177	0	0	
3-Sep	97.5%								348,166	311	0	0	911,524	0	0	4,104,213	4,479	5,363,903	4,790	0	0	
4-Sep	98.2%								350,651	2,485	0	0	911,524	0	0	4,140,017	35,804	5,402,193	38,289	0	0	
5-Sep	98.5%								351,787	1,135	0	0	911,524	0	0	4,156,372	16,395	5,419,683	17,490	0	0	
6-Sep	98.9%								352,989	1,202	0	0	911,524	0	0	4,173,686	17,314	5,438,199	18,516	0	0	
7-Sep	99.0%								353,231	343	0	0	911,524	0	0	4,179,621	4,935	5,443,477	5,278	0	0	
8-Sep	99.2%								354,180	949	0	0	911,524	0	0	4,190,848	12,227	5,456,552	13,075	0	0	
9-Sep	99.3%								354,438	258	0	0	911,524	0	0	4,194,571	3,723	5,460,533	3,981	0	0	
10-Sep	100.0%								357,000	2,562	0	0	911,524	0	0	4,231,476	36,905	5,500,000	39,467	0	0	
11-Sep	100.0%								357,000	0	0	0	911,524	0	0	4,231,477	0	5,500,000	0	0	0	0



TABLE 4. 2018 PWSAC Hatchery Egg Take Schedules

TABLE 4

PRINCE WILLIAM SOUND AQUACULTURE CORPORATION

2017 EGG-TAKE SCHEDULE

SITE	SPECIES	DATE																		
		30-Jun	07-Jul	14-Jul	21-Jul	28-Jul	04-Aug	11-Aug	18-Aug	25-Aug	01-Sep	08-Sep	15-Sep	22-Sep	29-Sep	06-Oct	13-Oct	20-Oct	27-Oct	03-Nov
AFK	PINK									24-Aug			15-Sep							
CCH	PINK									24-Aug			17-Sep							
GH I	SOCKEYE								15-Aug										15-Oct	
GH II	SOCKEYE					25-Jul				10-Aug										
MBH	SOCKEYE MBH-COGHILL						01-Aug			20-Aug										
WNH	CHUM	01-Jul						01-Aug												
	PINK										24-Aug		15-Sep							
	COHO																	19-Oct		11-Nov



TABLE 5. 2018 PWSAC Estimated Salmon Releases

Table 5.

PRINCE WILLIAM SOUND AQUACULTURE CORPORATION

2018 ANTICIPATED SALMON RELEASES

SPECIES	HATCHERY	ORIGINAL DONOR STOCK	BROOD YEAR	RELEASE LOCATION	ESTIMATED FRY/SMOLT RELEASE
CHUM	WALLY NOERENBERG	WELLS RIVER	2017	WNH	73,000,000
			2017	PORT CHALMERS	40,400,000
			2017	AFK	19,000,000
			TOTAL		132,400,000
SOCKEYE	MAIN BAY	COGHILL LAKE	2016	MBH	10,000,000
	GULKANA I	GULKANA RIVER	2016	PAXSON LAKE	2,970,000
		GULKANA RIVER	2016	SUMMIT LAKE	0
		GULKANA RIVER	2016	CROSSWIND LAKE	10,000,000
	GULKANA II	GULKANA RIVER	2016	PAXSON LAKE	1,310,000
TOTAL		24,280,000			
PINK	ARMIN F. KOERNIG	LARSEN, EWAN, GALENA	2017	AFK	173,800,000
	CANNERY CREEK	CANNERY CREEK	2017	CCH	163,000,000
	WALLY NOERENBERG	LARSEN, EWAN, GALENA	2017	WNH	134,000,000
	TOTAL		470,800,000		
COHO	WALLY NOERENBERG	CORBIN CREEK	2016	WNH	2,630,000
		CORBIN CREEK	2016	CORDOVA	0
		CORBIN CREEK	2016	WHITTIER	100,000
		CORBIN CREEK	2016	CHENEGA	50,000
		TOTAL		2,780,000	
CHINOOK	WALLY NOERENBERG	SHIP CREEK	2016	CHENEGA	49,000
GRAND TOTAL		630,309,000			