

# 2025 ANNUAL MANAGEMENT PLAN

## MAIN BAY HATCHERY

### Prince William Sound Aquaculture Corporation

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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

**Main Bay Hatchery/Coghill stock sockeye salmon:** The egg-take goal is 12.4 million green eggs. Anticipated broodstock requirements to achieve the egg-take goal are approximately 7,200 females and 4,800 males, for a total of 12,000 fish, assuming:

- (a) Average fecundity of 3,200 eggs/female
- (b) 3:2 female to male ratio
- (c) 15% holding mortality and culling of injured adults\*
- (d) 15% green/over-mature spawners
- (e) 17% loss to infectious hematopoietic necrosis virus (IHNV) vaccine injection and predation

\*ADF&G Sockeye Salmon Culture Protocol requires culling of broodstock with any sign of external scarring to reduce risk of IHNV transmission.

### 1.2 Broodstock

PWSAC intends to adhere to the broodstock acquisition schedule for Main Bay Hatchery (MBH) sockeye salmon stocks. The brood collection window for the MBH/Coghill stock is June 15 through July 20 and is based on the approximate run timing of the donor stock. 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 the 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. At hatcheries with barrier nets, such as MBH, these goals will be measured according to the number of fish estimated upstream of the barrier net. At hatcheries without barrier nets, the goal will be measured as an estimate of the fish in front of the hatchery. It is recognized and accepted that barrier nets are semi-permeable to fish and the number there is an estimate.

If in-season catch data indicate the return is earlier or later than the historic run curve would suggest, then PWSAC may alter the hatchery escapement schedule according to a mutually agreed upon amendment to match the actual return.

Broodstock fish will be collected by volitional entry through the fishway leading to the brood holding pond. Injured fish must be culled from broodstock to comply with ADF&G Sockeye Salmon Culture Protocol.

### 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 1998–2024. 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 overripe females from the broodstock and associated cost recovery.

**Anticipated Egg-take Schedule based on egg takes of previous 5 years**

| <b>Percent Complete</b> | <b>Sockeye Salmon</b> |
|-------------------------|-----------------------|
| 25%                     | August 5              |
| 50%                     | August 10             |
| 75%                     | August 15             |
| 100%                    | August 20             |

A complete listing of all PWSAC hatchery egg-take schedules is shown in Table 4. PWSAC egg-take goals are shown in Table 2.

### 1.4 Egg-take Transport and Broodstock Carcass Disposal Plans

No eggs will be transported off-station.

During egg-take PWSAC may sell broodstock carcasses and inviable eggs if a market is available. 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 (DEC) requirements. If carcasses are not sold, inviable eggs and carcasses will be disposed of in accordance with Alaska DEC requirements.

## 1.5 Incubation Plans

The incubation layout at MBH consists of 35 "Kitoi" incubators. All incubators are horizontally and vertically isolated to reduce the risk of production loss due to IHN virus.

**Hatchery Production Summary**

| <b>Species</b> | <b>Green Eggs</b> | <b>Eyed Eggs</b> | <b>Fry/Smolt Released</b> |
|----------------|-------------------|------------------|---------------------------|
| Sockeye Salmon | 12,400,000        | 11,900,000       | 11,080,000                |

The above table was generated with the following assumptions:

- 1) 96% survival from green to eyed stage
- 2) 99% survival from eyed stage to emergent fry
- 3) 95% survival from emergent fry to fed fry
- 4) 99% survival from fed fry to smolt release

All eggs will be incubated at MBH during 2025. During the fall incubation period, 100% of sockeye salmon production will be thermally otolith-marked at the eyed stage.

## 1.6 Rearing and Release Plans

Isolation will be maintained during rearing in fresh water. Sockeye salmon fry will emerge non-volitionally from incubators into a 2.6 m<sup>3</sup> start tank, remaining isolated from the others during initial start-up rearing. After they have reached a size of approximately 0.4 grams/fish, fingerlings from three start tanks are combined in 84 m<sup>3</sup> freshwater raceways. Maximum freshwater densities for sockeye salmon fry in the start tanks and raceways are 55 kg/m<sup>3</sup> and 70 kg/m<sup>3</sup>, respectively.

Size at release seems to be positively correlated with marine survival. Since saltwater temperatures are warmer than fresh water, and more rearing space is available, smolt can be reared to a significantly greater size by utilizing saltwater pens for eight weeks or longer. Approximately 70% of the brood year 2023 (BY23) smolt will be reared for 12 weeks in saltwater net pens.

The smolt are transferred through a six-inch pipeline to net pens anchored in Main Bay. The saltwater net pen rearing complex consists of six, 12.2 m x 12.2 m x 6.1 m rearing pens. The maximum density will be 14 kg/m<sup>3</sup>. The saltwater rearing complex is located away from any hatchery effluent waters to reduce the risk of IHNV transmission. See Table 5 for PWSAC's 2025 estimated releases.

**MBH/Coghill stock:** Approximately 6.8 million BY23 fry are currently being reared in 7 raceways. 100% of these fry will be transferred to seven saltwater net pens in March and will be released in May 2025 at a target size of 12 grams.

**MBH/Coghill stock:** Approximately 11.7 million BY24 fry will begin feeding in the start tanks in February 2025. At a target size of 0.4 grams, they will be transferred to 10 raceways mid-June and remain there until the spring of 2026.

## 1.7 Fry Transport Methods

MBH will collect 12.4 million MBH/Coghill stock sockeye salmon eggs annually to ensure that 11.08 million fry are produced for 10 raceway rearing units. The production of extra fish is necessary to mitigate production loss in the event that emergent fry are lost due to disease (IHNV or *Pseudomonas* sp.). The potential production range of these extra fry is 0 to 1.2 million, dependent upon the intensity of the disease epizootic.

## 1.8 Permitted Capacity

Main Bay Hatchery was issued PNP Hatchery Permit #31 in 2001. It is currently permitted to incubate 12.4 million sockeye salmon eggs.

### **Fish Transport Permit Summary**

| <b>FTP Number</b>     | <b>Expiration Date</b> | <b>Purpose</b>                                                                                         |
|-----------------------|------------------------|--------------------------------------------------------------------------------------------------------|
| <b>SOCKEYE SALMON</b> |                        |                                                                                                        |
| 96A-0042              | 4/30/26                | Allows 12.4 million egg take, incubation, rearing, and release of Coghill stock sockeye salmon at MBH. |

## **II. DONOR STOCK MANAGEMENT – N/A**

## **III. HATCHERY RETURN MANAGEMENT**

PWSAC operates five facilities: Armin F. Koernig Hatchery (AFK), Cannery Creek Hatchery (CCH), Gulkana Hatchery (GH), MBH, and Wally Noerenberg Hatchery (WNH). The corporation generates revenues for annual operations from a 2% salmon 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 that in the Fiscal Year 2026 financial plan.

Hatchery escapement means all fish that escape the common property fishery and includes 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 hatchery subdistricts. 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 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 nearby subdistricts or hatchery management areas. The collective management will occur concurrently for the WNH chum and MBH sockeye salmon revenue goal. Managing runs 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 Hatchery Fish Migration Routes and Timing

The MBH/Coghill stock sockeye salmon are present in Area E fisheries from mid-June to late July. Data from the coded-wire-tag program and otolith mark-recovery sampling indicate that sockeye salmon returning to MBH are caught in the Copper River, Eastern, Northern, Southwestern, and Coghill districts. Sockeye salmon returning to MBH are assumed to enter Prince William Sound through the Southwestern District and Montague Strait. A portion of the run may also enter through Hinchinbrook Entrance. Sockeye salmon will traverse the Crafton Island Subdistrict (Figure 1) and home towards Main Bay from both northerly and southerly directions. Identification of migration routes of returning Main Bay sockeye salmon will improve as data is recovered from future returns.

### 3.2 Special Harvest Area

The MBH Special Harvest Area (SHA) is located within the Main Bay Subdistrict. The boundaries of the SHA are illustrated in Figure 1. The SHA encompasses the alternating gear zone (AGZ) and approximately half of the existing terminal harvest area (THA) of the Main Bay Subdistrict (5 AAC 24.367). The SHA is used by the hatchery operator to harvest broodstock and fish for cost recovery (AS 16.10.455(g)(2)). The THA is normally closed to commercial and subsistence

fishing and provides a buffer between the hatchery SHA and open waters of the Main Bay Subdistrict.

Harvest of salmon in the SHA by sport anglers is managed by the ADF&G Division of Sport Fish in accordance with regulations as provided in 5 AAC 55– and 5 AAC 75. Emergency orders may be issued to liberalize or restrict sport fisheries based on achievement of broodstock goals.

The SHA is defined as the waters of Main Bay west of a line from 60°31.61'N lat, 148°05.02'W long to 60°31.85'N lat, 148°05.42'W long. The AGZ is defined as the waters of Main Bay south of a line from 60°31.43'N lat, 148°05.67'W long to 60°31.36'N lat, 148°05.52'W long. The THA is defined as the waters of Main Bay west of a line from 60°32.26'N lat, 148°04.85'W long to 60°31.88'N lat., 148°04.03'W long. All latitude and longitude coordinates are based on the North American Datum of 1983.

### 3.3 Hatchery Returns

#### 3.3.1 On-Station Returns

**MBH/Coghill stock sockeye salmon:** The anticipated 2025 adult run of MBH/Coghill stock to MBH is 1,000,000 fish, assuming a 10.43% marine survival (Table 1). Assuming a broodstock goal of 12,000 and approximately 263,158 sold for cost recovery, the hatchery escapement will be approximately 27% of the return.

**Sockeye Salmon Projected Run Summary**

| <b>Total Run</b>  | <b>Hatchery Escapement</b> |             |              | <b>CPF Harvest<sup>1</sup></b> |
|-------------------|----------------------------|-------------|--------------|--------------------------------|
|                   | <b>Broodstock</b>          | <b>Cost</b> | <b>Total</b> |                                |
| 1,000,000         | 12,000                     | 263,158     | 275,158      | 727,902                        |
| <b>% of Total</b> | <b>1%</b>                  | <b>26%</b>  | <b>27%</b>   | <b>73%</b>                     |

<sup>1</sup>Terminal and non-terminal.

**Sockeye Salmon Projected Run, Age-Composition Summary**

| <b>BY</b> | <b>Fry Released</b> | <b>Anticipated Marine Survival</b> | <b>Anticipated Total BY Return</b> | <b>Return Age</b> | <b>2025 Projected Run</b> | <b>% of Total</b> |
|-----------|---------------------|------------------------------------|------------------------------------|-------------------|---------------------------|-------------------|
| 2020      | 10,301,034          | 22.01%                             | 2,267,146                          | Age-5             | 512,000                   | 49%               |
| 2021      | 9,549,706           | 7.14%                              | 681,579                            | Age-4             | 521,000                   | 51%               |
|           |                     |                                    |                                    | <b>Total</b>      | <b>1,033,000</b>          | <b>100%</b>       |

Historical average return age composition: 34%% age-5 and 66% age-4.

### 3.4 Separation of Hatchery Escapement

Fish available for brood are kept separate from sales fish by means of a barrier net located in the SHA near MBH. Fish available for brood pass volitionally behind the barrier net to mature. The AGZ is closed to the commercial CPF by regulation to protect the barrier net (5 ACC 24.367(c)(5)).

### 3.5 Special Management Strategies

Effective management of mixed-stock fisheries is difficult. It is the intent of ADF&G to provide the stated PWSAC hatchery 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 in-season assessment of both wild and hatchery run strengths. Depending upon the precision of in-season run assessment, actual percentages of PWSAC total returns, by species, which are provided for hatchery 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 fisheries in-season for an allocation of PWSAC-produced pink, chum, and sockeye salmon between the CPF and PWSAC. Pink salmon will be managed for PWSAC hatchery escapement after July 20. Sockeye and chum salmon will be managed for PWSAC hatchery 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, THA and 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 SHA both upstream and downstream of the barrier net, as appropriate. 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 from the AMP for each hatchery and species will be submitted to the department when requested, as well as 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 in-season adjustments to the preseason hatchery escapement goals and/or significant changes to the preseason management strategy. Recognizing the imprecision of assessing wild and hatchery contribution estimates in-season in the absence of a stock identification program, ADF&G will assess PWSAC requests based upon the best available information. If, based on the assessment of ADF&G, the total hatchery return is less than or greater than the original PWSAC forecasted return, then ADF&G will adjust openings, as necessary, to best provide for wild-stock and hatchery escapement needs. 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 in-season estimates.

During periods when the Main Bay Subdistrict closure is in effect, ADF&G may allow the hatchery operator to harvest fish in Main Bay outside the SHA boundaries (Figure 1) to maintain fish quality. When the Main Bay Subdistrict is open to the CPF the SHA will not be expanded.

**MBH/Coghill stock:** Beginning in early June, the Eshamy District will be managed for returning MBH/Coghill stock sockeye salmon. The return of MBH/Coghill stock sockeye salmon will likely be available for common property harvesting during scheduled openings from early June through July 20. Fishing periods in the Main Bay Subdistrict will be based solely upon returns to MBH. It is the department's intent to open all gillnet districts concurrently, where possible, to more evenly distribute gillnet effort. When the Eshamy District is open to the CPF, both the Main Bay and Crafton Island subdistricts will open when possible. The department recognizes that the interception rate of Coghill Lake-bound sockeye salmon is higher in the Coghill District than in the Eshamy District, but that the management of the two districts is linked. Fishing time in the two districts will be balanced to allow adequate Coghill Lake sockeye salmon escapement.

### 3.6 Sport Fish Harvest

Sport fisheries will be managed in accordance with regulations as provided in 5 AAC 55 and 5 AAC 75. Emergency orders may be issued to liberalize or restrict sport fisheries based on achievement of broodstock goals. A sport fishery targets sockeye salmon returning to Main Bay. Conflicts between user groups have occurred during broodstock collection and cost-recovery operations, and sport tackle and boats/motors has impacted the barrier net. In an effort to further protect MBH broodstock and the integrity of the barrier net, the Alaska Board of Fisheries designated that in Main Bay, sport fishing is prohibited within 200 feet of the Main Bay Hatchery barrier seine and shoreward to the head of the bay, except when the barrier seine is not present, sportfishing is allowed to within 300 ft of the fish ladder (5 AAC 55.023(10); effective 2025).

### 3.7 Personal Use Harvest

There is no personal use fishery that can target MBH sockeye salmon in the Eshamy District.

### 3.8 Subsistence Harvest

The MBH 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 Eshamy District.

### 3.9 Avoidance of Nontarget Species

Numerical abundance of stocks of fish other than MBH stocks of salmon are insignificant in the Main Bay Subdistrict and SHA. No particular problems are expected to occur.

## **IV. EVALUATION STUDIES**

### 4.1 Otolith Marking

PWSAC established a thermal-marking system at MBH in 1999. During the fall incubation period (October–December 2025), 100% of sockeye salmon production will be marked at the eyed-egg stage. The table below summarizes the 2025 thermal 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.

| <b>Species</b> | <b>Number of Eyed Eggs</b> | <b>Thermal Otolith Mark</b> | <b>Intended Release Location</b> |
|----------------|----------------------------|-----------------------------|----------------------------------|
| Sockeye Salmon | 2,380,000                  | 3H3                         | MBH, Main Bay                    |
| Sockeye Salmon | 2,380,000                  | 3H2,2                       | MBH, Main Bay                    |
| Sockeye Salmon | 2,380,000                  | 3H5                         | MBH, Main Bay                    |
| Sockeye Salmon | 2,380,000                  | 3H3,3                       | MBH, Main Bay                    |
| Sockeye Salmon | 2,380,000                  | 3H                          | MBH, Main Bay                    |

#### 4.2 Otolith Recovery in Returning Adults

Returning adult sockeye salmon will be sampled for otolith mark recoveries. 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 the 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 the independently-collected otolith mark-recovery data by April 1 each year. These data are to be the individual specimen otolith mark results.

## **V. ATTACHMENTS**

FIGURE 1. Main Bay Hatchery Fishery Management Areas

TABLE 1. 2025 PWSAC Hatchery Return Forecast Summary

TABLE 2. 2025 Planned Egg Takes

TABLE 3. 2025 MBH/Coghill Stock Adult Return Summary

TABLE 4. 2025 PWSAC Egg-Take Schedules

TABLE 5. 2025 PWSAC Estimated Salmon Releases

TABLE 6. 2026 PWSAC Estimated Salmon Releases

TABLE 7. Egg-take Data Template for Each Species at Each Hatchery

## **VI. APPROVAL**

### **Recommendation for Approval: Main Bay Hatchery Annual Management Plan, 2025**

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

Brittany Blain-Roth, Area Management Biologist, Division of Sport Fish 7/2/2025

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

Jason Dye, Acting 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 2024 Main Bay 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. Main Bay Hatchery fishery management areas.

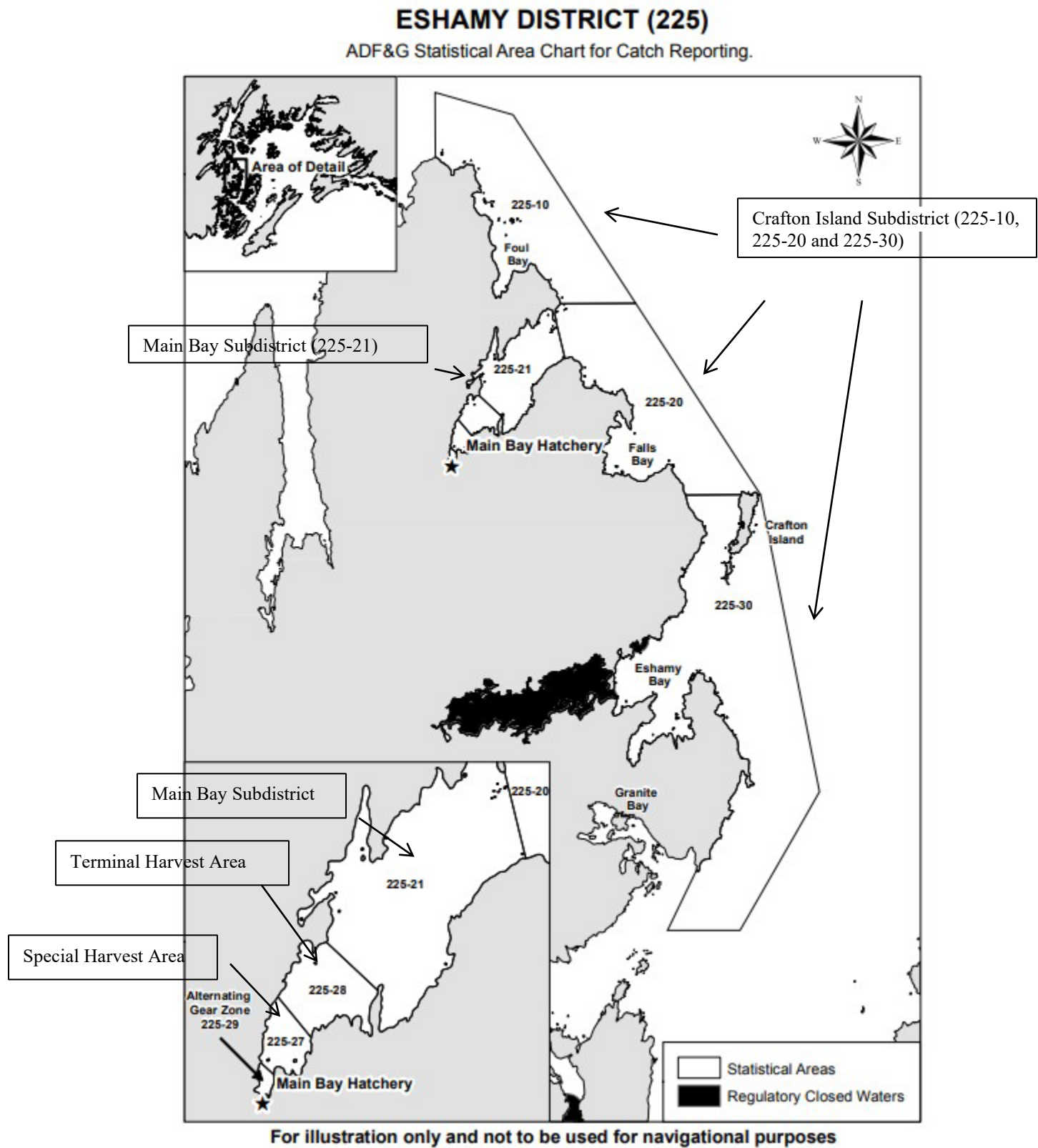


TABLE 1. 2025 PWSAC Hatchery Return Forecast Summary

**PRINCE WILLIAM SOUND AQUACULTURE CORPORATION**  
**2025 HATCHERY RETURN FORECAST**

| SITE/<br>LOCATION | SPECIES | RUN<br>TIME | ADULT RETURN ESTIMATE |       |      | EST. MARINE<br>SURVIVAL |
|-------------------|---------|-------------|-----------------------|-------|------|-------------------------|
|                   |         |             | LOW                   | POINT | HIGH |                         |

**RETURNS TO THE HATCHERIES**

|     |      |                    |           |           |            |       |
|-----|------|--------------------|-----------|-----------|------------|-------|
| AFK | PINK | JUL 19 -<br>SEP 05 | 5,700,000 | 8,400,000 | 11,100,000 | 4.92% |
|     |      |                    |           |           |            |       |
|     | CHUM | JUN 1 -<br>JUL 27  | 180,000   | 210,000   | 240,000    | 1.13% |
|     |      |                    |           |           |            |       |

|     |      |                    |           |            |            |       |
|-----|------|--------------------|-----------|------------|------------|-------|
| CCH | PINK | JUL 23 -<br>SEP 07 | 8,100,000 | 10,800,000 | 13,500,000 | 6.52% |
|     |      |                    |           |            |            |       |

|     |      |                    |           |           |            |       |
|-----|------|--------------------|-----------|-----------|------------|-------|
| WNH | PINK | JUL 19 -<br>SEP 05 | 2,800,000 | 8,800,000 | 14,900,000 | 6.57% |
|     |      |                    |           |           |            |       |
|     | CHUM | JUN 1 -<br>JUL 27  | 1,290,000 | 1,450,000 | 1,610,000  | 2.01% |
|     |      |                    |           |           |            |       |
|     | COHO | AUG 01 -<br>SEP 20 | 2,000     | 6,000     | 11,000     | 0.76% |
|     |      |                    |           |           |            |       |

|     |                    |                    |         |           |           |        |
|-----|--------------------|--------------------|---------|-----------|-----------|--------|
| MBH | COGHILL<br>SOCKEYE | JUN 15 -<br>AUG 01 | 700,000 | 1,000,000 | 1,360,000 | 10.43% |
|     |                    |                    |         |           |           |        |

|    |                              |  |         |         |         |       |
|----|------------------------------|--|---------|---------|---------|-------|
| GH | CROSSWIND LAKE<br>SOCKEYE    |  | 128,000 | 144,000 | 161,000 | 2.44% |
|    |                              |  |         |         |         |       |
|    | PAXSON LAKE - GI<br>SOCKEYE  |  | 46,800  | 55,400  | 63,900  | 1.09% |
|    |                              |  |         |         |         |       |
|    | PAXSON LAKE - GII<br>SOCKEYE |  | 15,100  | 17,400  | 19,600  | 1.46% |
|    |                              |  |         |         |         |       |
|    | SUMMIT LAKE<br>SOCKEYE       |  | 0       | 0       | 0       | 0.00% |
|    |                              |  |         |         |         |       |

**RETURNS TO REMOTE RELEASE LOCATIONS**

|               |      |                   |         |         |         |       |
|---------------|------|-------------------|---------|---------|---------|-------|
| PORT CHALMERS | CHUM | JUN 1 -<br>JUL 27 | 680,000 | 780,000 | 870,000 | 1.93% |
|               |      |                   |         |         |         |       |

|         |      |                    |       |       |       |       |
|---------|------|--------------------|-------|-------|-------|-------|
| CORDOVA | COHO | AUG 01 -<br>SEP 20 | 1,200 | 1,800 | 2,500 | 3.25% |
|         |      |                    |       |       |       |       |

|          |      |                    |     |     |       |       |
|----------|------|--------------------|-----|-----|-------|-------|
| WHITTIER | COHO | AUG 01 -<br>SEP 20 | 200 | 800 | 1,300 | 0.76% |
|          |      |                    |     |     |       |       |

|         |      |                    |     |     |     |       |
|---------|------|--------------------|-----|-----|-----|-------|
| CHENEGA | COHO | AUG 01 -<br>SEP 20 | 100 | 400 | 700 | 0.76% |
|         |      |                    |     |     |     |       |

|         |         |                     |     |     |     |       |
|---------|---------|---------------------|-----|-----|-----|-------|
| CHENEGA | CHINOOK | MAY 25 -<br>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         | ORIGINAL DONOR STOCK     | EGG-TAKE<br>LOCATION | EGG-TAKE<br>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 MBH/Coghill Stock Adult Return Summary.

[illegible]

TABLE 4. 2025 PWSAC Hatchery Egg-Take Schedules

PRINCE WILLIAM SOUND AQUACULTURE CORPORATION

2025 EGG-TAKE SCHEDULE

|       |                        | DATE   |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
|-------|------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| SITE  | SPECIES                | 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<br>MBH-COGHILL |        |        |        |        |        | 01-Aug |        | 20-Aug |        |        |        |        |        |        |        |        |        |        |        |
| WNH   | CHUM                   | 01-Jul |        |        |        |        | 01-Aug |        |        |        |        |        |        |        |        |        |        |        |        |        |
|       | PINK                   |        |        |        |        |        |        |        |        | 24-Aug |        |        | 15-Sep |        |        |        |        |        |        |        |
|       | COHO                   |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        | 19-Oct |        | 11-Nov |        |



TABLE 5. 2025 PWSAC Estimated Salmon Releases

## PRINCE WILLIAM SOUND AQUACULTURE CORPORATION

## 2025 ANTICIPATED SALMON RELEASES

| SPECIES | HATCHERY         | ORIGINAL 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 6. 2026 PWSAC Estimated Salmon Releases

**PRINCE WILLIAM SOUND AQUACULTURE CORPORATION****2026 ANTICIPATED SALMON RELEASES**

| SPECIES | HATCHERY         | ORIGINAL DONOR STOCK | BROOD YEAR | RELEASE LOCATION | ESTIMATED FRY/<br>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 7. Egg-Take Data Template for Each Species at Each Hatchery

| Table 7.                                        |     |     |      |          |         |       |       |           |           |            |               |                  |           |             |           |            |             |           |           |             |         |         |             |             |             |
|-------------------------------------------------|-----|-----|------|----------|---------|-------|-------|-----------|-----------|------------|---------------|------------------|-----------|-------------|-----------|------------|-------------|-----------|-----------|-------------|---------|---------|-------------|-------------|-------------|
| Egg Take Data for each species at each hatchery |     |     |      |          |         |       |       |           |           |            |               |                  |           |             |           |            |             |           |           |             |         |         |             |             |             |
|                                                 |     |     |      |          |         |       |       |           |           |            |               |                  |           |             |           |            |             |           |           |             |         |         |             |             |             |
| Brood Year                                      | Mth | Day | Date | Hatchery | Species | Stock | Lot # | Egg Grams | Eggs/gram | Green Eggs | Act Fecundity | Sample Fecundity | Fertility | Good Female | Gm Female | Bad Female | Mort Female | Good Male | Mort Male | Excess Male | % Green | % Bad   | aily Female | Daily Males | Daily Total |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          | #DIV/0!       |                  |           |             |           |            |             |           |           |             |         | #DIV/0! | #DIV/0!     | 0           | 0           |
|                                                 |     |     |      |          |         |       |       |           |           | 0          |               |                  |           |             |           |            |             |           |           |             |         |         |             |             |             |