

2021 ANNUAL MANAGEMENT PLAN

MAIN BAY HATCHERY

Prince William Sound Aquaculture Corporation

This Annual Management Plan (AMP) plan is prepared to fulfill the requirements of 5 AAC 40.840. This plan must organize and guide the hatchery's operations, for each calendar year, regarding production goals, broodstock development, and harvest management of hatchery returns. Egg take through release details are included in planning for succeeding calendar years. Inseason 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. Broodstock requirements are approximately 5,360 females and 3,580 males, for a total of 8,940 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

*ADF&G Sockeye Salmon Culture Protocol require culling of broodstock with any sign of external scarring to reduce risk of infectious hematopoietic necrosis virus (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, 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.

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 1998–2017. 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

Percent Complete	Sockeye Salmon
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. If an additional broodstock carcass disposal log is required by ADF&G, all disposals will be logged on the carcass disposal form and reported to the department within 30 days after egg take and disposal are completed.

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

Species	Green Eggs	Eyed Eggs	Fry/Smolt Released
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 2021. 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 nonvolitionally from incubators into a 2.6 m³ 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 m³ freshwater raceways. Maximum freshwater densities for sockeye salmon fry in the start tanks and raceways are 55 kg/m³ and 70 kg/m³, 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 60% of the brood year 2019 (BY19) 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, 12.2m x 12.2m x 6.1m rearing pens. The maximum density will be 14 kg/m³. 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 2021 estimated releases.

MBH/Coghill stock: Approximately 10.8 million BY19 fry are currently being reared in 10 raceways. Approximately 60% of these fry will be transferred to six saltwater net pens in February and will be released in May 2021 at a target size of 12 grams. The remaining 40% will be split evenly into eight raceways in March and will be released directly into saltwater in May 2021 at a target size of 10 grams.

MBH/Coghill stock: Approximately 11.6 million BY20 fry will begin feeding in the start tanks in February 2021. At a target size of 0.4 grams, they will be transferred to 10 raceways mid-June and remain there until the spring of 2022.

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

FTP Number	Expiration Date	Purpose
SOCKEYE SALMON		
96A-0042	4/30/26	Allows egg take, incubation, rearing, and resultant release of 12.4 million Coghill stock sockeye salmon eggs 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 10, 2021, the PWSAC BOD approved the annual corporate budget for Fiscal Year 2021 detailing potential sources of revenue and expenditures. The pink salmon cost-recovery revenue goal is \$9,409,435. The WNH chum and MBH sockeye salmon cost-recovery will utilize and aggregate management strategy with a revenue goal of \$6,539,387. 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 38 of the total value of the run will be required to meet the revenue goal that in the Fiscal Year 2022 financial plan.

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 an 74% 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 53% and 47% 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 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

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 2. 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. 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 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 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 2021 adult run of MBH/Coghill stock to MBH is 1,076,000 fish, assuming a 10.09% marine survival (Table 1). Assuming a broodstock goal of 8,940 and approximately 559,441 sold for cost recovery, the hatchery harvest will be approximately 53 of the return.

Sockeye Salmon Projected Run Summary

Total Run	Broodstock	Cost Recovery	Hatchery Harvest	CPF Harvest
1,076,000	8,940	559,441	568,381	507,619
% of Total	1%	52%	53%	47%

Sockeye Salmon Projected Run, Age-Composition Summary

BY	Fry Released	Anticipated Marine Survival	Anticipated Total BY Return	Return Age	2019 Projected Run	% of Total
2016	10,240,000	9.83%	1,006,903	Age-5	367,000	34%
2017	10,894,000	10.49%	1,142,626	Age-4	709,000	66%
				Total	1,076,000	100%

Historical average return age composition: 37% age-5 and 63% 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 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 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 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 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 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, 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 corporate 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 corporate 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 47–5 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. Injured fish resulting from attempted snagging must be culled from broodstock to comply with ADF&G Sockeye Salmon Culture Protocol. In an effort to protect MBH broodstock and the integrity of the barrier net, the Alaska Board of Fisheries designated that in Main Bay, sport fishing from a vessel that is within 60 feet of the hatchery barrier net or from a vessel that is anywhere inside the barrier net is prohibited (5 AAC 55.023(10)).

3.7 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.

3.8 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 2021), 100% of sockeye salmon production will be marked at the eyed-egg stage. The table below summarizes the 2021 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.

Species	Number of Eyed Eggs	Thermal Otolith Mark	Intended Release Location
Sockeye Salmon	2,380,000	2,2H3	MBH, Main Bay
Sockeye Salmon	2,380,000	2,2H2,2	MBH, Main Bay

Sockeye Salmon	2,380,000	2,2H5	MBH, Main Bay
Sockeye Salmon	2,380,000	2,2H3,3	MBH, Main Bay
Sockeye Salmon	2,380,000	2,2H	MBH, Main Bay

4.2 Otolith Recovery in Returning Adults

Recovery of otoliths from returning adult sockeye 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 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. 2021 PWSAC Hatchery Return Forecast Summary

TABLE 2. 2021 Planned Egg Takes

TABLE 3. 2021 MBH/Coghill Stock Adult Return Summary

TABLE 4. 2021 PWSAC Egg Take Schedules

TABLE 5. 2021 PWSAC Estimated Salmon Releases

TABLE 6. 2022 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, 2021

Geoff Clark, PWSAC, General Manager 4/23/2021

Jay Baumer, Area Management Biologist, Division of Sport Fish 5/10/2021

Jeremy Botz, Area Management Biologist, Division of Commercial Fisheries 5/19/2021

Tom Vania, Regional Supervisor, Division of Sport Fish 5/19/2021

Bert Lewis, Regional Supervisor, Division of Commercial Fisheries 4/26/2021

Ethan Ford, Regional Resource Development Biologist, Div. of Commercial Fisheries 5/19/2021

Lorraine Vercessi, PNP Hatchery Program Coordinator, Div. of Commercial Fisheries 5/19/2021

The 2021 Main Bay Hatchery Annual Management Plan is hereby approved:

Tom Taube, Deputy Director, Division of Sport Fish 5/27/2021

Peter Bangs, Assistant Director, Division of Commercial Fisheries 6/2/2021

Figure 1. Main Bay Hatchery fishery management areas.

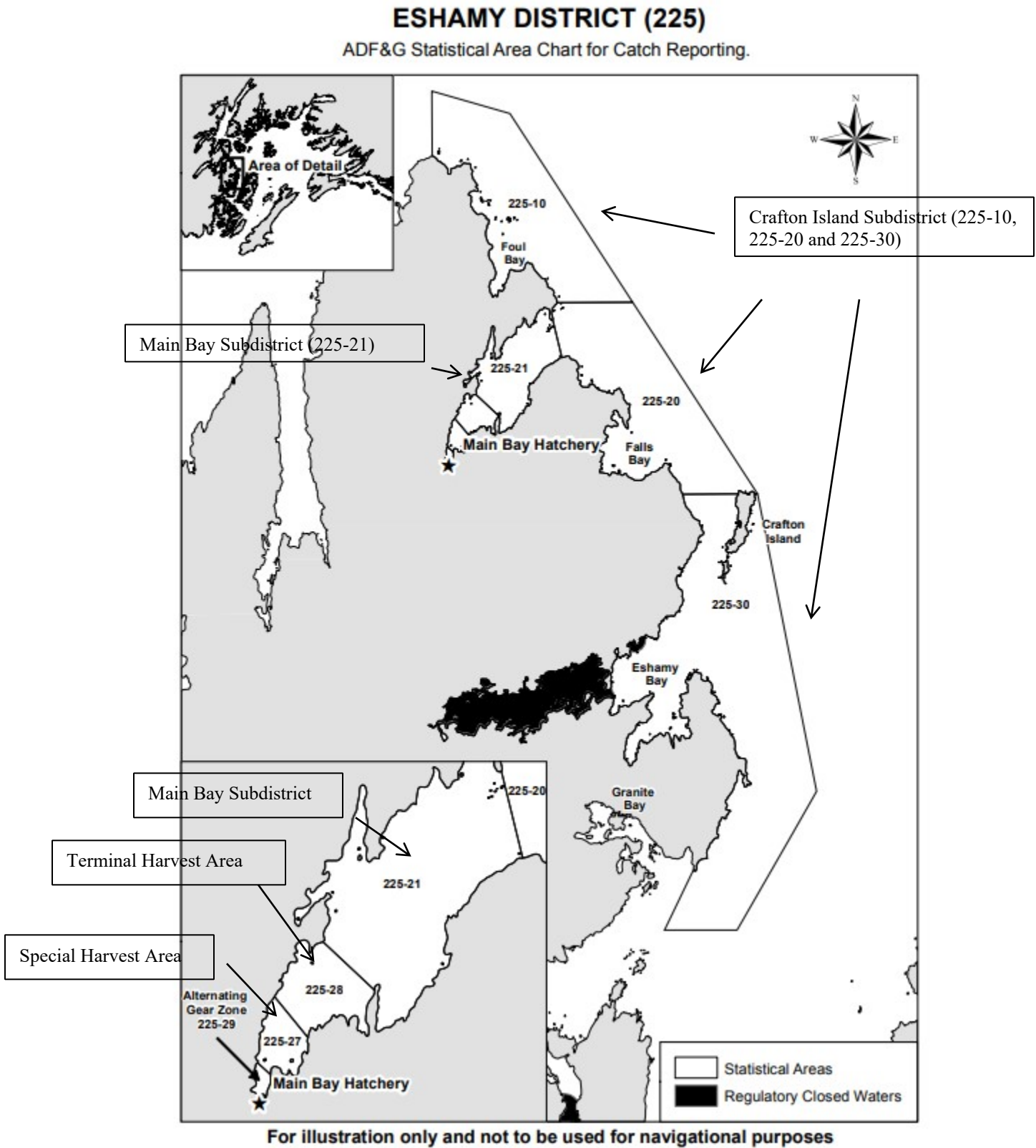


TABLE 1. 2021 PWSAC Hatchery Return Forecast Summary
PRINCE WILLIAM SOUND AQUACULTURE CORPORATION
2021 HATCHERY RETURN FORECAST

SITE/ LOCATION	SPECIES	RUN TIME	ADULT RETURN ESTIMATE			EST. MARINE SURVIVAL
			LOW	POINT	HIGH	

RETURNS TO THE HATCHERIES

AFK	PINK	JUL 19 - SEP 05	2,500,000	5,000,000	7,500,000	4.03%
	CHUM	JUN 1 - JUL 27	100,000	150,000	200,000	0.69%

CCH	PINK	JUL 23 - SEP 07	4,000,000	6,000,000	8,100,000	5.84%

WNH	PINK	JUL 19 - SEP 05	3,200,000	6,600,000	11,800,000	5.01%
	CHUM	JUN 1 - JUL 27	1,500,000	1,680,000	1,870,000	2.30%
	COHO	AUG 01 - SEP 20	55,000	89,000	155,000	5.00%

MBH	COGHILL SOCKEYE	JUN 15 - AUG 01	941,000	1,076,000	1,211,000	10.09%

GH - Fry to Adult
Survival

GH	CROSSWIND LAKE SOCKEYE	35,000	39,000	43,000	0.44%
	PAXSON LAKE - GI SOCKEYE	19,900	23,300	26,600	0.50%
	PAXSON LAKE - GII SOCKEYE	4,400	5,000	5,600	0.37%
	SUMMIT LAKE SOCKEYE	0	0	0	0.00%

RETURNS TO REMOTE RELEASE LOCATIONS

PORT CHALMERS	CHUM	JUN 1 - JUL 27	260,000	320,000	370,000	0.86%
CORDOVA	COHO	AUG 01 - SEP 20	3,100	5,000	8,700	5.00%
WHITTIER	COHO	AUG 01 - SEP 20	3,100	5,000	8,700	5.00%
CHENEGA	COHO	AUG 01 - SEP 20	1,500	2,500	4,300	5.00%
CHENEGA	CHINOOK	MAY 25 - JULY 10	550	710	870	1.49%

TOTAL PWSAC RETURNS

	PINK	9,700,000	17,600,000	27,400,000	4.96%
	CHUM	1,860,000	2,150,000	2,440,000	1.28%
	COHO	62,700	101,500	176,700	5.00%
	CHINOOK	550	710	870	1.49%
	SOCKEYE -SOUND, MBH	941,000	1,076,000	1,211,000	10.09%
	SOCKEYE - GH,COPPER RIVER	59,300	67,300	75,200	0.33%

TABLE 2. 2021 Planned Egg Takes

PRINCE WILLIAM SOUND AQUACULTURE CORPORATION

2021 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
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
COHO	WALLY NOERENBERG	Corbin Creek	WNH	4,000,000
CHINOOK	WALLY NOERENBERG	WJHSFH	WNH	50,000
			TOTAL PWSAC	731,200,000

TABLE 3. 2021 MBH/Coghill Stock Adult Return Summary.

PROJECT D										ADULT RETURN SUMMARY														
RETURN:	1,076,000									HATCHER Y:	MBH / Coghill Stock													
BROODST K:	8,940									SPECIES:	Sockeye													
FISH SALES:	559,441									YEAR:	2021													
HAT. TOTAL:	568,381																							
CPF TOTAL:	507,619																							
% EXPLOIT.:	47.2%	CPF																						
	52.8%	PWSAC																						
RUN-TIMING PERCENTAGES				SHA HATCHERY ESCAPEMENT ESTIMATES				HATCHERY ESCAPEMENT SCHEDULE																
Date	Projected % Cum.	Projecte d % Female	Actual % Cum.	Actual % Female	Fishwa y 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	Proj. Cum.	Proj. Daily	Act. Cum.	Act. Daily
5-Jun	0.0%								2	2	0		150	150	0		136	136	0		288	288	0	0
6-Jun	0.1%								5	2	0		299	150	0		272	136	0		576	288	0	0
7-Jun	0.2%								15	11	0		965	665	0		875	604	0		1,855	1,279	0	0
8-Jun	0.3%								31	15	0		1,919	954	0		1,741	866	0		3,690	1,835	0	0
9-Jun	0.5%								46	15	0		2,872	954	0		2,606	866	0		5,525	1,835	0	0
10-Jun	0.8%								71	25	0		4,433	1,560	0		4,022	1,416	0		8,526	3,001	0	0
11-Jun	1.3%								114	43	0		7,103	2,670	0		6,445	2,423	0		13,661	5,135	0	0
12-Jun	1.7%								156	43	0		9,773	2,670	0		8,867	2,423	0		18,796	5,135	0	0
13-Jun	2.2%								200	44	0		12,515	2,742	0		11,355	2,488	0		24,070	5,274	0	0
14-Jun	2.8%								255	55	0		15,927	3,412	0		14,452	3,096	0		30,633	6,563	0	0
15-Jun	3.9%								346	91	0		21,626	5,699	0		19,623	5,171	0		41,594	10,962	0	0
16-Jun	4.9%								436	90	0		27,253	5,627	0		24,728	5,106	0		52,417	10,822	0	0
17-Jun	6.3%								560	125	0		35,065	7,813	0		31,817	7,089	0		67,443	15,026	0	0
18-Jun	8.1%								723	163	0		45,260	10,194	0		41,067	9,250	0		87,051	19,607	0	0
19-Jun	9.9%								882	159	0		55,179	9,919	0		50,068	9,000	0		106,128	19,078	0	0
20-Jun	11.8%								1,056	174	0		66,054	10,875	0		59,935	9,868	0		127,044	20,916	0	0
21-Jun	13.1%								1,168	112	0		73,076	7,022	0		66,307	6,372	0		140,551	13,506	0	0
22-Jun	15.4%								1,376	208	0		86,120	13,044	0		78,143	11,836	0		165,639	25,089	0	0
23-Jun	17.6%								1,569	193	0		98,209	12,089	0		89,112	10,969	0		188,890	23,250	0	0
24-Jun	20.5%								1,831	262	0		114,606	16,397	0		103,990	14,878	0		220,428	31,538	0	0

25-Jun	25.0%									2,231	400	0		139,615	25,009	0		126,683	22,693	0		268,529	48,102	0	0
26-Jun	29.0%									2,592	361	0		162,199	22,583	0		147,174	20,491	0		311,965	43,436	0	0
27-Jun	33.6%									3,006	414	0		188,117	25,918	0		170,691	23,517	0		361,814	49,849	0	0
28-Jun	35.7%									3,191	185	0		199,710	11,593	0		181,210	10,519	0		384,111	22,298	0	0
29-Jun	40.1%									3,581	390	0		224,111	24,401	0		203,351	22,141	0		431,043	46,931	0	0
30-Jun	41.5%									3,713	132	0		232,369	8,259	0		210,845	7,494	0		446,927	15,885	0	0
1-Jul	44.7%									3,996	282	0		250,039	17,670	0		226,877	16,033	0		480,912	33,985	0	0
2-Jul	49.9%									4,461	465	0		279,153	29,114	0		253,294	26,417	0		536,908	55,996	0	0
3-Jul	52.3%									4,673	212	0		292,438	13,285	0		265,349	12,055	0		562,460	25,552	0	0
4-Jul	56.3%									5,029	356	0		314,705	22,267	0		285,553	20,204	0		605,287	42,827	0	0
5-Jul	59.4%									5,311	282	0		332,351	17,646	0		301,565	16,012	0		639,227	33,940	0	0
6-Jul	64.1%									5,726	415	0		358,332	25,981	0		325,139	23,574	0		689,197	49,970	0	0
7-Jul	65.5%									5,853	127	0		366,267	7,935	0		332,339	7,200	0		704,459	15,262	0	0
8-Jul	68.7%									6,139	286	0		384,174	17,907	0		348,587	16,248	0		738,900	34,441	0	0
9-Jul	72.3%									6,464	324	0		404,471	20,298	0		367,004	18,417	0		777,939	39,039	0	0
10-Jul	73.2%									6,540	77	0		409,266	4,795	0		371,355	4,350	0		787,161	9,222	0	0
11-Jul	76.0%									6,791	251	0		424,953	15,687	0		385,589	14,234	0		817,332	30,171	0	0
12-Jul	78.7%									7,035	245	0		440,260	15,307	0		399,478	13,889	0		846,773	29,441	0	0
13-Jul	82.0%									7,335	299	0		458,995	18,735	0		416,477	17,000	0		882,807	36,034	0	0
14-Jul	83.4%									7,454	119	0		466,457	7,462	0		423,248	6,771	0		897,160	14,352	0	0
15-Jul	86.7%									7,751	297	0		485,030	18,573	0		440,101	16,852	0		932,881	35,722	0	0
16-Jul	89.5%									8,002	251	0		500,727	15,698	0		454,344	14,243	0		963,073	30,192	0	0
17-Jul	90.1%									8,052	50	0		503,867	3,140	0		457,193	2,849	0		969,112	6,039	0	0
18-Jul	91.7%									8,201	149	0		513,166	9,298	0		465,630	8,437	0		986,996	17,884	0	0
19-Jul	93.4%									8,348	148	0		522,416	9,250	0		474,024	8,393	0		1,004,788	17,791	0	0
20-Jul	95.0%									8,495	146	0		531,571	9,155	0		482,331	8,307	0		1,022,397	17,609	0	0
21-Jul	95.6%									8,543	48	0		534,568	2,997	0		485,050	2,719	0		1,028,161	5,764	0	0
22-Jul	96.7%									8,643	101	0		540,884	6,315	0		490,781	5,730	0		1,040,308	12,147	0	0
23-Jul	97.6%									8,723	80	0		545,886	5,002	0		495,320	4,539	0		1,049,929	9,621	0	0
24-Jul	97.7%									8,731	8	0		546,367	481	0		495,756	437	0		1,050,855	926	0	0
25-Jul	98.0%									8,760	29	0		548,196	1,829	0		497,416	1,660	0		1,054,373	3,518	0	0
26-Jul	98.3%									8,790	29	0		550,025	1,829	0		499,076	1,660	0		1,057,891	3,518	0	0
27-Jul	98.8%									8,831	42	0		552,624	2,598	0		501,433	2,358	0		1,062,888	4,997	0	0
28-Jul	98.9%									8,843	12	0		553,393	769	0		502,131	698	0		1,064,367	1,479	0	0
29-Jul	99.2%									8,867	24	0		554,903	1,510	0		503,501	1,370	0		1,067,272	2,905	0	0
30-Jul	99.5%									8,897	30	0		556,779	1,876	0		505,203	1,702	0		1,070,879	3,607	0	0
31-Jul	99.6%									8,903	6	0		557,144	365	0		505,535	332	0		1,071,582	703	0	0
1-Aug	99.7%									8,914	11	0		557,843	699	0		506,169	634	0		1,072,926	1,344	0	0

2-Aug	99.8%							8,926	11	0		558,542	699	0		506,803	634	0		1,074,271	1,344	0	0
3-Aug	99.8%							8,926	0	0		558,542	0	0		506,803	0	0		1,074,271	0	0	0
4-Aug	99.8%							8,926	0	0		558,542	0	0		506,803	0	0		1,074,271	0	0	0
5-Aug	99.9%							8,933	7	0		558,992	449	0		507,211	408	0		1,075,135	865	0	0
6-Aug	100.0%							8,940	7	0		559,441	449	0		507,619	408	0		1,076,000	865	0	0
7-Aug	100.0%							8,940	0	0		559,441	0	0		507,619	0	0		1,076,000	0	0	0

TABLE 4. 2021 PWSAC Hatchery Egg Take Schedules

PRINCE WILLIAM SOUND AQUACULTURE CORPORATION

2021 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 GH II	SOCKEYE									15-Aug									15-Oct		
	SOCKEYE							25-Jul		10-Aug											
MBH	SOCKEYE									01-Aug											
	MBH-COGHILL									20-Aug											
WNH	CHUM	01-Jul						01-Aug													
	PINK																				
	COHO									24-Aug			15-Sep								
																		19-Oct		11-Nov	

PRINCE WILLIAM SOUND AQUACULTURE CORPORATION

2021 ANTICIPATED SALMON RELEASES

SPECIES	HATCHERY	ORIGINAL DONOR STOCK	BROOD YEAR	RELEASE LOCATION	ESTIMATED FRY/ SMOLT RELEASE
CHUM	WALLY NOERENBERG	WELLS RIVER	2020	WNH	78,072,000
			2020	PORT CHALMERS	41,150,000
			2020	AFK	19,200,000
			TOTAL		138,422,000
SOCKEYE	MAIN BAY	COGHILL LAKE	2019	MBH	10,850,000
			GULKANA I	GULKANA RIVER	2020
	GULKANA RIVER	2020		SUMMIT LAKE	0
	GULKANA RIVER	2020		CROSSWIND LAKE	5,807,100
	GULKANA II	GULKANA RIVER	2020	PAXSON LAKE	1,262,420
TOTAL		22,657,100			
PINK	ARMIN F. KOERNIG	LARSEN, EWAN, GALENA	2020	AFK	131,539,000
	CANNERY CREEK	CANNERY CREEK	2020	CCH	117,709,000
	WALLY NOERENBERG	LARSEN, EWAN, GALENA	2020	WNH	88,343,000
TOTAL		337,591,000			
COHO	WALLY NOERENBERG	CORBIN CREEK	2019	WNH	3,208,000
		MILE 18	2019	CORDOVA	0
		CORBIN CREEK	2019	WHITTIER	100,000
		CORBIN CREEK	2019	CHENEGA	50,000
TOTAL		3,358,000			
CHINOOK	WALLY NOERENBERG	NINILCHIK	2019	CHENEGA	48,000
GRAND TOTAL		502,076,100			

TABLE 6. 2022 PWSAC Estimated Salmon Releases

PRINCE WILLIAM SOUND AQUACULTURE CORPORATION

2022 ANTICIPATED SALMON RELEASES

SPECIES	HATCHERY	ORIGINAL DONOR STOCK	BROOD YEAR	RELEASE LOCATION	ESTIMATED FRY/ SMOLT RELEASE
CHUM	WALLY NOERENBERG	WELLS RIVER	2021	WNH	73,200,000
			2021	PORT CHALMERS	40,800,000
			2021	AFK	19,100,000
SOCKEYE	MAIN BAY	COGHILL LAKE	2020	MBH	11,080,000
	GULKANA I	GULKANA RIVER	2021	PAXSON LAKE	6,000,000
			2021	SUMMIT LAKE	4,700,000
			2021	CROSSWIND LAKE	10,000,000
	GULKANA II	GULKANA RIVER	2021	PAXSON LAKE	1,300,000
			TOTAL	33,080,000	
PINK	ARMIN F. KOERNIG	LARSEN, EWAN, GALENA	2021	AFK	171,600,000
	CANNERY CREEK	CANNERY CREEK	2021	CCH	168,800,000
WALLY NOERENBERG	LARSEN, EWAN, GALENA	2021	WNH	133,600,000	
			TOTAL	474,000,000	
COHO	WALLY NOERENBERG	CORBIN CREEK	2020	WNH	3,000,000
		MILE 18	2020	CORDOVA	100,000
		MILE 18	2020	WHITTIER	100,000
		MILE 18	2020	CHENEGA	50,000
					TOTAL
CHINOOK	WALLY NOERENBERG	NINILCHIK	2020	CHENEGA	45,900
				GRAND TOTAL	643,745,900

TABLE 7. Egg Take Data Template For Each Species at Each Hatchery

Egg Take Data for each species at each hatchery																									
Brood Year	MthDay	Date	Hatchery	Species	Stock	Lot #	Egg Grams	Eggs/gram	Green Eggs	Act Fecundity	Sample Fecundity	Fertility	Good Female	Grn Female	Bad Female	Mort Female	Good Male	Mort Male	Excess Male	% Green	% Bad	Daily 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

